Gujarat State Board Examination Reform

Project C, Part A

A comparative study of school leaving formats and question types in other countries and as well as exams of other boards in India with those in Gujarat
This report would not have been possible without the help of a large number of people.

We would like to express our gratitude to one and all, who have helped to successfully execute this study.

We would like to express our deep gratitude to the team from Gujarat Secondary and Higher Secondary Education Board and Michael and Susan Dell Foundation, for their support and guidance in the project.

Last, but not the least, we would like to acknowledge all the researchers and education boards across the world whom we have studied and referred to in our endeavour to bring about a comparative study of school leaving exams and quality of questions in different examination boards.

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Educational Initiatives
TEAM

Educational Initiatives

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1. MAIN FINDINGS

1. With respect to school leaving examinations (or ‘Board’ Exams as we call them here) countries differ in many ways from each other. These differences are in terms of their purpose, the stage at which they are conducted, the structure of the examinations, the choice of subjects available to students, the number of attempts students get to improve their score, etc. For example:

- The assessments at the end of secondary level may be either for the sole purpose of certification (as in Singapore, UK and US) or it could serve the dual purpose of certification and as a criteria which determines post secondary placements, that is, admission to a college/tertiary education (as in Finland, Russia and Brazil). In countries where the score/grade in the secondary assessments is not the major criteria for determining college admissions, students are expected to take university admission exams (like the SAT and ACT in US, GAO KAO in China, CSAT in South Korea and NUCEE in Japan).

2. But arguably more important than the structural differences between the different Boards is the nature of the questions in the examination papers themselves. Boards like Gujarat and even the CBSE can, we feel, improve a lot simply by systematically attempting to improve the quality of their test papers. This would move the system and schools gradually towards a greater focus on understanding, rather than rote memorisation.

We found that progressive countries and examination boards are making a specific effort to devise papers that require understanding and critical thinking and application in real life contexts. This was sorely missing in the Indian board papers and even more so in the Gujarat Board papers. Findings 6 – 13 discuss them in greater detail.

- We attempted to rank the papers from 2 Indian boards - Gujarat, Central Board of Secondary Education (CBSE) and 3 international boards – International Baccalaureate (IB), Hong Kong and Finland. The ranking was based on the parameters similar to those used in the position paper by National Curricular Focus (NCF) group on examination reforms. An overall rating suggests that quality of question papers vary greatly among the different boards. The board papers of Hong Kong and Finland were found to be excellent in Mathematics, Science and Social Science. Hong Kong and IB diploma papers were also found to be excellent in English while comparatively Finland’s English paper was very good. IB’s Mathematics paper was very good, while its Science paper was good. Based on a comparison done on the same scale for the same parameters, Gujarat board papers quality can be described as very low for all the four subjects while CBSE papers were marginally better than Gujarat board in Mathematics and English.

- Though we do not claim that we were able to follow an objective process, it does appear very roughly that the quality of questions in different boards under different attributes and scale, relate to their country’s respective performance in a benchmarking test like PISA. Hong Kong and Finland, often the top performers seems to have better quality questions, whereas CBSE and Gujarat board questions, in our opinion are ranked lower.

3. Many countries, especially the progressive ones, are in the process of reforming or restructuring their school leaving examinations, like here in Gujarat. For example:

- Hong Kong is readying itself for major reforms to its education system. From 2012 onwards, instead of the current system of exit exams at end of grade 9 and grade 12, students will take the ‘Hong Kong Diploma of Secondary Examinations’ (HKDSE) only at the end of their Senior Secondary school (grade 12). The exam at the end of grade 9 will be scrapped. Education officials from the University Grants Commission (UGC), which is overseeing the reform process, are encouraging institutions to engage in an entire rethink of the way students learn. Central to the reform is a move away from intense subject specialization to a more rounded general education curriculum with an increase in the study of the liberal arts, languages, ethics and
philosophy. The curriculum changes are also designed to incorporate teaching of the so-called ‘soft skills,’ such as communication and teamwork skills. There will also be an emphasis on boosting overseas experiences for students, including volunteering in developing countries.

**4. Many of the dimensions on which reforms are happening internationally are relevant for Gujarat and India also.** It is advisable for Gujarat to constantly stay abreast with the changes being experimented with and made by progressive countries. Some of these changes are:

- Examinees in Alberta, Canada are permitted to use computers in diploma examinations for subjects like English Language and Social Sciences. Finnish Matriculation Exams will be computer based from 2015. Another aspect is to enable students to be specific and precise in the extent of their responses by allowing them to write their answers on the test paper. Hong Kong and IB boards follow this practice..

- Secondary assessments are conducted externally (exit examinations), internally (school based examinations or credit system) or a combination of both (some percentage of the assessments are internally assessed). Matriculation examination in Finland, ENEM in Brazil, and USE in Russia are conducted externally. China has a credit based system whereas South Korea has a school based assessment. In countries like Hong Kong, New Zealand etc., secondary assessments are a combination of external and internal assessments.

**5. The more progressive countries are moving towards giving students greater choice – be it in terms of number of subjects, levels, or even attempts allowed at the exams:**

- Secondary School examinations in different countries often provide a large range of subjects for students to choose from. These are often grouped into core subjects which are compulsory and another set of subjects which are electives. For example, in Hong Kong, the subjects offered are divided into three categories, A, B and C. Category A includes 24 new senior secondary subjects (4 core subjects such as Chinese, English, Maths and Liberal Studies and 20 elective subjects like Physics, History, Music, Visual Arts, etc.). Category B includes applied learning subjects such as (Creative studies, Media and Communication, Business, Management and Law, Services, Applied Sciences, Engineering and Production). Category C includes other language subjects (French, German, Hindi, etc.)

- Many examination boards offer the same subject at different levels of depth/difficulty and accordingly designs the tests for the same. For example, IB students who wish to develop a deeper understanding of the subject matter and pursue the subject as a career choice take a Higher level paper, whereas the other students are provided a Standard level paper, which assesses the students’ basic understanding of the subject. Similarly, Finland offers advanced courses in certain subjects.

- Different examination boards offer students flexible choices in the same subject. In Alberta, Canada, students can choose a ‘Pure Science Subject’ or a ‘Combined Science subject’. Similarly
in Hong Kong, Science students can choose Integrated Science or Combined Science or Individual Science subjects such as Physics, Chemistry and Biology.

- In China and Finland, students can improve their scores (for subjects in which they have already obtained minimum acceptable scores) by appearing for the exams in a second attempt. The best attempt is then counted towards total marks. In New Zealand a student can reappear for an unsuccessful internally assessed standard within the same academic year.

6. A large number of questions in the Gujarat Board are procedural or recall-based questions. Some are ambiguous or can have multiple answers. Even the ones which are error-free merely check recall of facts, definitions or procedures.

On an average about 60% of questions in each subject are procedural or recall based. The CBSE paper is better (but only by a little bit) - many other Indian state boards are much worse (as has been commented upon in the NCERT's 2005 Focus Paper on Examination Reforms).

Another important concern is that some of these recall-based questions are also repeated from previous years’ Board Exam papers. In English for example, the question type of requiring blanks in a letter to be filled is repeated across years. These encourage tuitions and coaching classes. On the other hand, these problems were not observed in the Exam papers of other countries or Boards.

Examples of these types of questions are shared below – questions are from recent the Gujarat Board papers except where mentioned. Questions having different types of problems are categorised separately:

A. Non-essential / irrelevant information
   - Approximately how many stars are there in the universe? (Science 2008) (1 mark)
   - Who initiated the use of mercury as a medicine? (Social Science 2008) (1 mark)

B. Transient information
   - The initial income of uptoRs. _______ is tax free for female taxpayers. (Maths 2009)(1 mark)
   - What position does India hold in the film making in the world? (Social Science 2008) (1 mark)

C. Information not widely accepted but possibly mentioned in the textbook.
   - Write the names of six types of Glasses and give their uses. (Science 2008) (3 marks)
   - Who was called Modern Messiah? (056) (Comments: This is not from the Gujarat papers but from the Tamil Nadu Board paper and quoted in the NCERT Focus Paper. The Focus Paper comments: “this term is probably used by textbook writer to describe Karl Marx - though it could have more appropriately been Gandhi and has no wide currency outside the textbook.”)

D. Facts which can easily be got from a reference hence may not be necessary for a student to remember of be asked in an exam.
   - Write the complete name of ATP. (Science 2008) (1 mark)
   - What is the diameter of a Chromatid? (Science 2008) (1 mark) (Question asked in multiple-choice format)

E. Ambiguous questions
   - What is the living example of the fact that India is a land of peace and tolerance? (Social Science 2008) (1 mark)
   - State the formulae for the value of discriminant D. (Maths 2007) (2 marks)

F. Straight recall (often starts with: ‘Write a short note on..’)
   - Write a short note on the planet Mars. (Science 2007-) (2 marks)
   - Write a note on Gujarati prose and poetry. (Social Science 2008) (2 marks)

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King John ruled over England seven hundred years ago. The Abbot of Canterbury was one of the priests in his kingdom. King John was displeases with him because people said that he was richer than the King. So the King summoned him to his court.

Questions:
3. Was the King happy with the Abbot? Why? 1
4. Who ruled over England? When? 1
G. Procedural / Mechanical
- Explain the formation of charcoal (coke) from wood with the help of a diagram (Science 2008) (5 marks)
- Write the formula for calculating the volume of a cone. (Maths 2008) (1 mark)

H. Same or similar questions repeated across years
- Explain the applications of the development of nanotechnology. (Year 2007) (2 marks)
- How can future challenges be faced using nanotechnology? (Year 2008) (2 marks)
- Find the frequency of following set of values (2007, 2008, 2009) (2 marks / 4 marks)

<table>
<thead>
<tr>
<th>Class</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>20</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

(The same question was repeated across these years with a different set of values)

It is important to understand that questions based on recall are not bad and should not be altogether done away with. Some boards, notably the IB, have some questions like these, shown below - however, the concepts tested are relevant and percentage of such questions low. (Hong Kong and Finland had a few direct recall questions like these.)

- State the nature of Tycho Brahe’s observations that enabled Kepler to formulate the laws of planetary motion. (IB High Level Physics 2006) (1 mark)
- Define the terms mass defect and nuclear binding energy. (IB High Level Physics 2008) (2 marks)
- Consider triangle ABC with ∠ BAC=37.8, AB=8.75 and BC = 6. Find AC. (IB High Level Maths 2008) (7 marks)

7. Most of the other Boards had a large number of questions that tested higher order skills. In language, for example, questions required students to express themselves by writing proposals or essays or sought critical analysis of a piece. In Maths and Science, questions required critical thinking often integrating learnings from different competencies or topic areas, interpreting visual data information, etc. In the Social Sciences, students were expected to provide interpretations of news items, cartoons, etc. and defend their analysis of the same.

Some samples are provided here:

<table>
<thead>
<tr>
<th>Hong Kong (English)</th>
<th>Task 10 (19 marks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write a proposal for the new reality show. Refer to the information on pages 12, 14, 16 and 17 of your Data file.</td>
<td></td>
</tr>
</tbody>
</table>

**Cableline TV Programme Proposal Form**

Proposed name: ................................................
Description: ................................................
Comments: Based on some indicative information provided, this question requires students to use their imagination to come up with a Proposal for a Reality Show! Such an exercise not only tests students ability to express themselves and make a case, it chooses a real life context that students would find relevant and exciting!

<table>
<thead>
<tr>
<th>Hong Kong (Integrated Science)</th>
<th>The diagram below shows a 100 m sprinter in a crouch start position with front and rear feet resting on the starting blocks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make TWO suggestions to the sprinter which can help improve his performance.</td>
<td></td>
</tr>
</tbody>
</table>
### Finland

**Maths**

In a computer game, the player progresses to the top level of the adjacent diagram and the score is marked on the chart. In each intersection he chooses randomly one of the options and has a level playing field and progresses to the next level up.

- a) Find the probability that a player reaches the highest score for the 40?
- b) Determine the expected number of points

Comments: Both the examples above require students interpret information presented visually, integrate it with appropriate Maths or Science knowledge, model a solution and then present it!

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### 8. Good quality questions based on Real Life Applications were found in most of the other Boards. Such questions serve 2 purposes – they force students to link theoretical knowledge with some real use of that knowledge – and in that way make it more interesting. Secondly, they test if students are merely recalling information or are able to connect what is learnt in class with real life. Both these are very important characteristics good questions should have. Some samples are shown below:

<table>
<thead>
<tr>
<th>Board</th>
<th>Question</th>
</tr>
</thead>
</table>
| IB²  | A city is concerned about pollution, and decides to look at the number of people using taxis. At the end of the year 2000, there were 280 taxis in the city. After \( n \) years the number of taxis, \( T \), in the city is given by \( T = 280 \times 1.12^n \)
  (i) Find the number of taxis in the city at the end of 2005.
  (ii) Find the year in which the number of taxis is double the number of taxis there were at the end of 2000. [6 marks] |
| Hong Kong | A simplified map of Country C is shown below. The river provides the major source of fresh water to this country.

The Water Authority of the country noticed that the quality of fresh water supplied to City A and City B had worsened.

Which city would have high levels of cadmium and zinc, and which city would have a high level of the bacteria, E. coli, in the fresh water supplied to them? Explain your answer in each case. |
| Finland | Review the following investment targets, in terms of the strengths and weaknesses of the Finnish retail investor:
  a) the Finnish forest industry company shares
  b) the term deposit bank
  c) interest in a mutual fund that invests in bonds in European Union Member states |
| IB²  | The shape of cold-blooded creatures such as snakes tends to be cylindrical rather than spherical. Explain why the cylindrical shape enables the snake to raise its internal body temperature more rapidly in sunlight than if it were spherical. Comment: This is both an interesting and very challenging question that requires concepts of biology and Maths to be integrated and reasoned |

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¹ The papers from Finland were in the Finnish Language and have been translated using Google Translate which was extremely effective but not perfect! Readers may please note this caveat.

² All the IB question examples are from the Diploma paper (corresponding to the class 12 level) as the IB does not have an exam at the class 10 level. The examples are still relevant for the question types they represent.
9. It is important for question papers to have a balance of questions that are easy, of medium difficulty and challenging. One of the concerns with Indian Board papers (including Gujarat) is that the questions have few questions that really challenge bright students. However, the questions papers from the leading countries and Boards had some questions to challenge even the good students, as shown here:

<table>
<thead>
<tr>
<th>Country</th>
<th>Topic</th>
<th>Question</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>(Maths)</td>
<td>In a football league, each team gains 3 points for a win, 1 point for a draw and 0 point for a loss. The champion of the league plays 36 games and gains a total of 84 points. Given that the champion does not lose any games, find the number of games that the champion wins.</td>
<td>In some ways, this is not a very challenging question. However, it requires a student to correctly model the real-life information into 2 equations. (Solving those equations subsequently is quite easy).</td>
</tr>
<tr>
<td>Finland</td>
<td>(Biology)</td>
<td>Disease is caused by a recessive, sex-linked DNA Sequence. What is the probability of disease is inherited in children in the following cases? Please explain your answer.</td>
<td>Again this question requires students to properly understand the principles of genetics and apply it to a realistically presented and challenging problem.</td>
</tr>
<tr>
<td>Finland</td>
<td>(Maths)</td>
<td>If the letter P denotes the intersection of the medians AD and BE of the triangle ABC a) If F is the focal point of the segment AP and G the centre of the segment of BP, as show that the line segment FG has length half the length of the line segment AB. (2 pts) b) Prove that the quadrilateral is a parallelogram FGDE. (2 pts) c) Show that the length of the segment DP is one third the length of AD. (2 pts) d) Prove using the information given in the preceding paragraphs: midspan of a triangle intersects each other at the same point, which divides each median in such a way, that the side of the page the length is one third of the entire length of the median. (3 pts)</td>
<td>The interesting aspect of this question is that while some of the earlier parts are relatively easy, the questions progress in order of increasing difficulty.</td>
</tr>
</tbody>
</table>

10. It is common for the Indian Boards to set questions on grammar in the English paper. But we found that the other Boards, notably the ones we rated highly, did not even have a Grammar section. However the in-depth and high quality writing tasks set ensured that students posses a thorough knowledge of grammatical rules which were thus tested in an application-oriented way:

<table>
<thead>
<tr>
<th>Country</th>
<th>Topic</th>
<th>Question</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>(English)</td>
<td>You have received a letter from your brother Andy who is studying in America, telling you that he has taken up motorbike racing as a hobby. Write a reply to him, explaining why you are worried about his new hobby. Try to persuade him to take up a different sport and give reasons for your recommendation.</td>
<td></td>
</tr>
<tr>
<td>IB</td>
<td>(English Paper 2 Higher Level)</td>
<td>“Why won’t writers allow children simply to be children?” Discuss the presentation and significance of children, or the state of childhood, in at least two works you have studied in the light of this complaint.</td>
<td></td>
</tr>
</tbody>
</table>
Comment: One part of the IB English paper consists only of about 5 essays the student has to write! This is testimony to the fact that it is possible to test students’ ability to write correctly and well without explicit grammar questions; and also to the fact that need for objectivity in correction does not mean that essay-type or long answer questions do not have a place in the paper.

11. The attitude of Indian boards towards multiple choice questions (MCQs) has often swung between extremes. One view is that such questions are ineffective as they encourage guessing, while the opposite view is that they are objective to correct, can be scored quickly and can cover the entire range of the curriculum. As many examples from the good Boards testify, none of these aspects is completely true.

Firstly, it is possible to set MCQs that test higher order skills, however, designing such questions and effective wrong options (distracters) is a skill in itself. Secondly, there are cases where the student’s ability to express herself in an essay form is also critical, so such questions are needed along with multiple choice questions – the coexistence of high quality MCQs and long answer questions was seen in many of the good Board papers, as sampled below:

<table>
<thead>
<tr>
<th>IB (Science)</th>
<th>What is the correct name of this compound?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH&lt;sub&gt;3&lt;/sub&gt;</td>
<td>CH&lt;sub&gt;3&lt;/sub&gt;–CH–CH&lt;sub&gt;2&lt;/sub&gt;–CH&lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
<tr>
<td>CH&lt;sub&gt;3&lt;/sub&gt;</td>
<td></td>
</tr>
<tr>
<td>A. 1,3-dimethylbutane</td>
<td>B. 2,4-dimethylbutane</td>
</tr>
<tr>
<td>C. 2-methylbutane</td>
<td>D. 2-methylpentane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hong Kong (Science)</th>
<th>In the regulation of body temperature, the skin plays the role of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) a receptor</td>
</tr>
<tr>
<td></td>
<td>(2) an effector</td>
</tr>
<tr>
<td></td>
<td>(3) a coordinating centre.</td>
</tr>
</tbody>
</table>

Which of the following combinations is correct?
A. (1) and (2) only
B. (1) and (3) only
C. (2) and (3) only
D. (1), (2) and (3)

<table>
<thead>
<tr>
<th>Hong Kong (Science)</th>
<th>For question 7, candidates are required to present their answers in essay form. 6 marks will be allotted to science knowledge, and 2 marks to logical presentation and clarity of expression.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. With reference to the nature of ultraviolet radiation, discuss the health hazards associated with over exposure to the radiation and how its applications have improved our living.</td>
<td></td>
</tr>
</tbody>
</table>

Comment: This example illustrates how the instructions explicitly mention that 6 marks will be allotted to the Science content and 2 to the logical presentation and clarity of expression – emphasizing the importance of these skills across subjects. Such questions as well as MCQ-type questions have a place in a good question paper.

12. We found that many of the Board papers made a very obvious effort to make the questions interesting – they used cartoons, illustrations and situations students would find interesting to achieve this. We felt the Indian boards, including Gujarat could learn from these examples:
What is the cartoonist’s view of the USSR’s policy towards the West in 1962? Explain your answer with reference to Source G.

Present four legitimate reasons why the operation described is not possible in the prevailing physical conditions in space.

13. Many questions we found in the good papers combined many of the good features discussed above – they were interesting, related to real-life situations, required an integration concepts to be answered correctly and – ironically – taught the student something. For lack of a better term, we label these simply as ‘innovative’ questions and present them too as something our Boards could make a part of their papers:

In many occupations, the proportions of men and women have levelled off in recent decades, but in some areas, gender gaps are still large. Below is a list which shows the proportion of women among new students in 2007 in some areas of study at vocational education institutions (excluding colleges).

What factors given in the list appear to show the apparent gender differences? Why are these differences considered to be problematic, and how to compensate for the differences?

- Beauty care - 98%
- Cleaning Services - 95%
- Health and Social Services - 91%
- Teaching, Educational - 86%
- Automotive and transport engineering - 14%
- Machinery, metal and energy technology - 12%
- In power and automation technology - 6%
- Fisheries - 8%
- Forestry - 5%

Source: Six, jacket-Sihvonen&Koramo, Education and Gender Equality (2009)

It was a hot summer afternoon. The temperature was 35°C and the relative humidity was 75%. Peter just finished all his lessons. He passed by the basketball court and could not resist playing a game with his schoolmates before going home, though the hot sun was shining on them. He finished the game at around 5.00 pm. Sweating heavily, he made his 10 minute-walk back home. When he arrived home, he put two cans of soft drinks into the -
Peter, turned on his bedroom air conditioner and headed for a cold shower. After the shower, he finished a whole can of the chilled soft drink and rested in the air conditioned room.

a. Identify TWO measures that Peter employed to cool his body down. In each case, briefly explain whether the measure is effective.

b. Peter’s mother returned home and found her son unwell. Peter told her that he might have got heatstroke when playing basketball under the hot sun. Explain whether Peter’s statement is correct or not.
2. INTRODUCTION

2.1 Background

The Government of Gujarat has initiated a series of steps to improve the level of learning in its schools across the state and wishes to take these efforts forward, so as to achieve visible and measurable positive changes. The aim is to ensure that Gujarat is among the top three states of the country in terms of student learning outcomes over the next 5 years. With this objective, a number of projects focusing exclusively on improving the quality of education and/or building the capacity of teachers and educational personnel have been conceptualized.

In the project on 'Research and action plan to transform the pattern of Board Exam questions' (Project C,Sr.1,GSHSEB/TOR/2010/REP/2) Government of Gujarat has partnered with Michael and Susan Dell Foundation and Educational Initiatives. Educational Initiatives has been entrusted with the responsibility to carry out the research and implement the project.

2.2 Research and Action Plan to Transform the Pattern of Board Exam Questions

The Board Exam represents the goal post for students (and also for parents and the school system). The teaching methods in schools and coaching classes are geared towards achieving success in the Board Exams. It is being recognized across the country that school-leaving exams need to become much less rote-based, without sacrificing their rigor or quality.

The National Curriculum Framework 2005 and the Report of the Committee on Exam Reform, Gujarat, have emphasized the need to move away from rote-based to understanding-based questions. Doing so would require changes in the pattern and types of questions asked in the Board Exam. That is the focus of the current project.

Under this project, Educational Initiatives is required to come up with a research-based conversion of the class-10 Board Exam paper into one that has an appropriate mix of questions to test knowledge, understanding, application and higher-order thinking skills. And, since the intended change involves several stakeholders, a concrete action plan to achieve the change over 5 years would also need to be prepared and presented to all concerned.

The Project thus consists of two parts:

- Recommending an alternative Board Exam pattern that is based on the same curriculum, but purports to test/ understanding and higher-order thinking skills, not just recall.
- Coming up with a concrete action plan that will address capacity building issues as well as the concerns of the various stakeholders (parents, teachers, schools, etc.) to facilitate the transition.

Educational Initiatives has been mandated to perform the above-mentioned tasks and come up with recommendations in the light of findings extracted from the above study.

2.3 Deliverables of the Research Project

Consequent on the mandate, cited above, Educational Initiatives was required to submit five major deliverables in a stage-wise manner as listed in the following table:
### Table 2.1 – Deliverables of Project C

<table>
<thead>
<tr>
<th></th>
<th>Deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A comparative study of school leaving exams formats and question types in other countries.</td>
</tr>
<tr>
<td>2</td>
<td>A 5-year transition plan (from an administrative and advocacy point of view) to significantly change exam format to shift to a learning-with-understanding regime</td>
</tr>
<tr>
<td>3</td>
<td>Changes in teacher training formats to focus more on teaching for understanding.</td>
</tr>
<tr>
<td>4</td>
<td>A detailed plan for a workshop to train paper-setters, correctors to set and correct questions to focus on understanding.</td>
</tr>
<tr>
<td>5</td>
<td>A sample of questions topic-wise that tests understanding.</td>
</tr>
</tbody>
</table>

In the present document we present ‘A comparative study of school leaving exams formats and question types in other countries as well as exams of other boards in India (including the CBSE and ) with those in Gujarat’, which is one of the deliverables in the project.
3. COMPARATIVE STUDY OF SCHOOL LEAVING EXAMS

Research and action plan to transform the pattern of Board's Exam Questions, proposes to bring about a qualitative change in the board examinations at secondary level by proposing assessments which check ‘learning with understanding’.

In order to build a comprehensive advocacy for the proposed reform it is important to understand how different countries assess their students at secondary level.

3.1 Criteria for Choosing the Countries/Boards of Study

The countries which we have studied were chosen through a scrutiny of economic and performance indicators. Two indicators which were deemed appropriate to select the countries for study are i. Gross domestic product (GDP) derived from purchasing power parity (PPP) and ii. Overall ranks of the participant countries in Programme of International Student Achievement (PISA) test in 2009 and 2009+ cycles.

PPP takes into account the relative cost of living and the inflation rates of the countries, rather than using just exchange rates which may distort the real differences in income therefore using a PPP basis for GDP is arguably useful when comparing generalized differences in living standards on the whole between nations. Living standards are often closely related to educational attainment.

PISA is an international student achievement test which assesses the students on acquisition of literacy, measures “real-life” skills pertaining to reading, mathematics and science, as well as cross-disciplinary competencies (OECD 2003b). More than 70 countries participated in PISA 2009 round of study.

The overall performance of some of the countries chosen for the study in PISA test and their corresponding GDP is tabulated below:

<table>
<thead>
<tr>
<th>Country/Territory</th>
<th>PISA 2009 Rank</th>
<th>GDP(PPP) International Dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai</td>
<td>1</td>
<td>11,134</td>
</tr>
<tr>
<td>South Korea</td>
<td>2</td>
<td>31,753</td>
</tr>
<tr>
<td>Finland</td>
<td>3</td>
<td>36,723</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>4</td>
<td>49,342</td>
</tr>
<tr>
<td>Singapore</td>
<td>5</td>
<td>59,936</td>
</tr>
<tr>
<td>Canada</td>
<td>6</td>
<td>40,457</td>
</tr>
<tr>
<td>New Zealand</td>
<td>7</td>
<td>27,966</td>
</tr>
<tr>
<td>US</td>
<td>17</td>
<td>48,147</td>
</tr>
<tr>
<td>UK</td>
<td>23</td>
<td>35,974</td>
</tr>
<tr>
<td>Russia</td>
<td>44</td>
<td>16,687</td>
</tr>
<tr>
<td>Brazil</td>
<td>54</td>
<td>11,845</td>
</tr>
<tr>
<td>Indonesia</td>
<td>58</td>
<td>4,668</td>
</tr>
<tr>
<td>India (HP and TN)</td>
<td>73</td>
<td>3,703</td>
</tr>
<tr>
<td></td>
<td></td>
<td>World Avg. $10,700.</td>
</tr>
</tbody>
</table>

The table shows a fair degree of correlation between the rank achieved in PISA and the GDP of nations. An overview of educational performance of different countries reveals that Finland, Singapore, Canada and New Zealand are often the top performers in International achievement tests.
US and UK are often the average performers; Brazil and Indonesia have comparable socio-economic indicators as India. Similarly Russia, China (Shanghai and Hong Kong) are regionally often compared with India. It is to be noted that results from neither Shanghai nor Hong Kong reflect China’s overall performance in PISA.

It may be noted only two states of India (Himachal & Tamil Nadu) participated in the PISA 2009 plus tests. The performance reported is the average performance of these two states.

3.2 Research Methodology

A comparative analysis of school leaving exams requires an understanding of the secondary education systems and the assessments linked to the secondary schooling systems, therefore the preliminary step of this research was to explore secondary education systems and assessment practices of different countries.

Not all examinations at the secondary level are equally critical. School leaving exam at secondary level is often the most critical of assessments. As a next step of the research we compared and contrasted the school leaving exams of the mentioned countries on various parameters. This comparison allowed us to understand the key structural differences between the secondary school assessments. Moreover it would also enable all stakeholders to understand the key differentiators between different systems.

The third step was to identify key shortcomings of the secondary examinations conducted by Gujarat Secondary Examinations. The primary focus of this step was to explore the ‘quality of the assessments’. Position paper of National Focus Group on Examination Reforms (Sec 2.3, NCERT, 2006) deliberates upon the lacunae in ‘quality of assessments’ at secondary level. The different quality parameters we explored were ‘number of recall based questions’, ‘number of procedural questions’, ‘difficulty level of the questions’, objectives of specific questions. The quality of written examinations was brought about by a thorough analysis of question papers using these parameters. The analysis of questions helped us to understand different types of questions and their proportion and weightage in the question papers. Apart from written exams, the quality of other modes of assessments was also studied by understanding the assessment rubric, and evaluating the relevance, ingenuity and contextuality. This analysis of the different modes of assessing gives us broad parameters on which the questions are framed and the kind of learning which is being assessed.

In the fourth step we have explored the differences in the ‘quality of assessments’ employed in different countries.

To summarize, comparative analysis of school leaving examinations consists of following broad steps:

4. Bringing out the ‘Quality of Assessments’ in Four Different Secondary Examinations.
4. SECONDARY EDUCATION SYSTEMS AND ASSESSMENT PRACTICES

In the present section we will briefly discuss the secondary school education systems of a few chosen countries. We shall also deliberate on the increasing criticality of high school assessments across different countries in the world.

4.1 Secondary Education Systems of Selected Countries

4.1.1 Finland

Finnish students start their secondary education (grade 10) at the age of 15 or 16. They can choose either an academic track (lukio) or a vocational track (ammattikoulu), both of which usually take three to four years to complete.

Admissions to academic upper schools are based on Grade Point Average (GPA) and, in some cases, academic tests and interviews, whereas admissions to vocational schools are provided to all those who apply. The system is not rigid, however, and vocational school graduates may formally qualify for polytechnic or, in rare cases, university education; and academic secondary school graduates may also enrol into vocational education programs.

Students under the academic track focus on preparation for university studies and post-graduate professional degrees in fields such as law, medicine, science, education, and the humanities. Under the vocational track, students undergo occupational training to develop vocational competence and/or prepare for a polytechnic institute.

Upon graduation, vocational school graduates receive a vocational school certificate. Academic upper secondary school graduates receive secondary school certification and also undergo a nationally graded matriculation examination. Polytechnic institutes require vocational school certification for admission, whereas the matriculation examination is more important in university admissions. However, some tertiary education programmes have their own admission examinations, and many use a mixture of both.

4.1.2 South Korea

In South Korea, Upper Secondary Education (Kodung-Hakkyo) covers the final years of secondary education and lasts 3 years (grades 10-12). The programme is intended for pupils aged 15-18. There are various types of high schools: 1. General high schools; 2. Vocational high schools; 3. Science high schools and 4. Special high schools (foreign language schools and art high schools)

For admissions to a high school, pupils must pass an entrance examination. Admission policy is very competitive. Admissions to a vocational high school may be granted by means of an entrance examination and/or the pupil’s list of marks from middle school. Students for vocational high schools may indicate their preferred school, whereas children who wish to attend a general high school are assigned a school in their area.

Students are assessed through school based examinations, and passing these examinations entitles the students for award of ‘high school certificate’. Different types of schools award certificates with different names, but they are essentially a ‘graduation certificate’.

However the most critical examination for South Korean Students is higher education entrance examination, known as the College Scholastic Aptitude Test (CSAT) (DaehakSuhakNeunglukSiheom). Performance in CSAT is an important criterion for admissions to Higher Education besides other parameters like prep courses availed, portfolios, extra-curricular activities, and letters of recommendation.
4.1.3 Japan

In Japan the three upper grades of secondary education (grades 10, 11, 12) are generally regarded as the most strenuous school period (age category 15 to 18) and are provided by high schools (kotogakko). Admission to high schools is through high school entrance exams. Private and Public Schools decide the content of their respective entrance exams. The higher the score in the entrance exam, the better the chance of being admitted to a good upper secondary school, and subsequently being admitted to a good university.

In order to complete the upper grades of secondary education, a student must obtain at least 74 credits, after which he or she will receive the Certificate of Graduation.

Students with a High School Certificate of Graduation seeking to study at a national university must take two entrance examinations, of which one is national (the National Centre for University Entrance Examinations, NUCEE) while the other is administered by the tertiary institution itself.

4.1.4 New Zealand

In New Zealand Secondary School starts at grade 9 (age 13) and ends at grade 13 (age 17). Senior Secondary consists of years 11, 12 and 13.

At senior secondary level, students are expected to achieve two types of standards: Unit standards (competency based) and Achievement standards (curriculum based). These standards are achieved through internal and external assessments. The standards are of three different levels (1 to 3). When a student achieves a standard, he or she gains a number of credits. In order to pass New Zealand's National Certificates of Educational Achievement (NCEA), students need to achieve the following credits.

<table>
<thead>
<tr>
<th>NCEA level</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>80 credits are required.</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>60 credits at level 2 or above, Up to 20 credits from any level to make 80 credits.</td>
</tr>
<tr>
<td><strong>Level 3</strong></td>
<td>60 credits at level 3, + 20 credits from level 2 or level 3</td>
</tr>
</tbody>
</table>

4.1.5 Shanghai (China)

Admission to senior secondary schools is through an entrance examination after 9 years of schooling at age of 14-15. Based on the results of these examinations students can choose between the 3-year senior middle school (gaozhong) or a 3 or 4-year vocational programme (zhongzhuan) at a vocational senior middle school (zhongdengzhuanxuexiao).

In order to receive senior middle school (secondary) graduation certificate students must accumulate a total of 144 credits (116 from compulsory subjects and 28 from electives) in three years of their senior secondary education (grades 10, 11, 12). These credits are to be obtained from 8 areas of study: Language and culture, mathematics, humanities and society, science and technology, arts and physical education and health and a mix of practical activities. Out of 144 credits, 116 must be from compulsory subjects and 28 from electives. Students need to get these credits through exams conducted biannually. Students can improve their scores by retaking the tests.

However the most critical examinations for the senior school students is the university entrance examinations ‘Gao Kao’. This examination is a prerequisite for entrance into almost all higher education institutions at the undergraduate level.
4.1.6 Canada

In Canada, secondary schooling is different in each province. Additionally, the grade structure may vary within a province and even within a school division. Education is compulsory up to the age of 16 in every province, except for Ontario and New Brunswick, where it is up to the age of 18. Students may continue to attend high school until the age of 19 to 21 (the cut-off age for high school varies across provinces). Those who are 19 and over may attend adult school. Also, if students are expelled or suspended for over 2 months or so, they could attend night school at the high school.

There is no formal national school leaving exam; some provinces have graduation diploma exam at 16 yrs (grade 12). Since 2007, a national assessment, Pan-Canadian Assessment (PCAP) has been introduced, which is a survey carried out on a sample of students. PCAP assess the performance of 13-year-old students in three core subjects - Reading, Mathematics and Science.

4.1.7 Hong Kong

Secondary Education in Hong Kong consists of six years of schooling, of which the first three years are junior secondary and the last three are senior secondary.

Hong Kong is readying itself for major reforms in its education system that will see secondary school students graduating a year earlier than before and universities offering four-year undergraduate degrees in lieu of the British-modeled three-year degrees. Under the new system first 6 years of education will be primary, next 6 years will be secondary, leading to another 4 years of university exams.

From 2012 onwards, students will take the ‘Hong Kong Diploma of Secondary Examinations’ (HKDSE) at the end of their Senior Secondary school in grade 12. The exam at the end of grade 9 will be scrapped.

Education officials from the University Grants Commission (UGC), which is overseeing the reform process, are encouraging institutions to engage in an entire rethink of the way students learn. Central to the reform is a move away from intense subject specialization to a more rounded general education curriculum with an increase in the study of the liberal arts, languages, ethics and philosophy. The curriculum changes are also designed to incorporate teaching of the so-called ‘soft skills,’ such as communication and teamwork skills. There will also be an emphasis on boosting overseas experiences for students, including volunteering in developing countries. The new secondary curriculum builds the foundation for the new general education approach to university studies, with a de-emphasis on examinations and a greater focus on creative and artistic subjects, debate and critical thinking.

The HKDSE certificate is a prerequisite for tertiary education. Students applying to tertiary institutions will also be required to prepare a Student Learning Profile, which outlines what the student has participated in and achieved in terms of whole-person development during his or her secondary years, including other learning experiences which are part of the new secondary curriculum. The profile is designed to include awards and achievements gained outside school, other learning experiences, in addition to traditional academic performance records. The emphasis is on encouraging whole-person development as a means unto itself, and also as a reference in university admissions.

4.1.8 Singapore

In order to take admissions to secondary schools, primary school students need to take Primary School Leaving Examinations (PSLE) at the end of grade six. The results of these examinations enable administrators to place students in different secondary education tracks or streams: ‘Special’, ‘Express’, ‘Normal (Academic)’, or ‘Normal (Technical)’.

‘Special’ and ‘Express’ are four-year courses leading up to the Singapore-Cambridge GCE ‘O’ Level examination. The difference between the two courses is that in the ‘Special’ stream, students take ‘Higher Mother Tongue’ (available for Chinese, Malay and Tamil only) instead of ‘Mother Tongue’. Normal Mother Tongue students have to go through one more year of study in their Mother Tongue.
after their 'O' Level to take the 'AS' Level Mother Tongue Examinations and fulfill the MOE’s requirement.

Figure 4.1 - Flexibility between Courses

Students in the Normal course follow either the Normal (Academic) [N(A)] or Normal (Technical) [N(T)] curriculum. In Normal (Technical), students take subjects of a more technical nature, such as Design and Technology, while in Normal (Academic) students are prepared to take the O-level exam and normally take subjects such as Principles of Accounting.

The Normal Course is a 4-year programme leading to the GCE ‘N’ Level examination. A 5th year leading to the GCE ‘O’ Level examination is available to N(A) students who perform well in their GCE ‘N’ Levels. Students can move from one course to another based on their performance and assessment by their Principal and teachers.

For subjects examined in English, foreign languages and Non-Tamil Indian Languages, the examining authority is the University of Cambridge Local Examinations Syndicate. For subjects such as mother tongue languages, most commonly Chinese, the examining authority is the Ministry of Education, Singapore.

Students move on to ‘A’ level study after completing GCE ‘O’.
In most countries, secondary education is ‘guarded’ by examinations at both entry and exit of the schooling system. A National Examination that defines the characteristics and features of the secondary education system across the world is generally the exit examination. Although these exit examinations are often named differently in different parts of the world (e.g. High School Diploma exam, High School Graduation exam, Matriculation exam, Board exam, National Certification exam, etc), they are all, essentially, ‘school leaving exams’.

In the past few decades, significant changes have taken place not only in the secondary education systems but also in the ways in which children are being assessed and certified (World Bank, 2009).

The major factors that account for the changed perception about secondary schooling examinations are:

- **Achievement of Universal Primary Schooling:** As more and more countries achieve universal primary schooling, demand for higher education is increasingly being felt. Countries are also recognising that secondary schooling is an important gateway, which not only decides the extent of education but also the direction of educational attainment.

- **Increasing Percentage of Young Population:** Developing countries have the largest-ever cohort of young people (the under-15 population in India is as high as 36%). This is clearly going to make a difference for the future of many countries. The way to turn what many perceive as a global risk into a global opportunity is to build and harness the values, attitudes, and skills of the young people through quality secondary education, whereby the youth will become active and productive citizens of their respective countries.

- **Need of Competent Work Force:** Developing economies increasingly need a more sophisticated labor force that is equipped with competencies, knowledge, and workplace skills, which cannot be developed in primary schools alone or in low-quality secondary school programs. The need of quality secondary education has, therefore, become all the more critical.

Provision of secondary education of good quality is being seen as a crucial tool for generating the opportunities and benefits of social and economic development. The quality of secondary education is often reflected through the performance of students in secondary school examinations. Education researchers have often explored the influence of these examinations on student achievement.

In order to build a comparative profile of the quality of educational assessments, we reviewed the national examinations of several countries across the world.

An overview of these examinations reveals that most of the National examinations are based on national curricula and content standards. The weights and consequences of the exams vary tremendously from country to country, as does the use of exams at various levels of education. While a comparative analysis of structures of these exams is presented in the next section, a snapshot of secondary education assessment systems is presented below:

From the below snapshot provided in Box 4.1, the following points are evident that:

---

3 Eminent scholars in field of comparative education
5 John Bhisop, University of Pennsylvania, 1998
1. In countries across socio-economic and educational performance spectrum, secondary assessments are important milestone of educational attainment.

2. The requirement of ‘entrance examinations’ for admissions to high schools in many of the countries.

3. Assessments at the end of the secondary education vary in form and structure.

4. These assessments may be a single exit examination, a credit based system or a scholastic aptitude test.

5. Purpose of these assessments often may be dual i.e. certification and post-secondary placement.

**Box 4.1 Snapshot of Secondary Education Assessment**

- In Singapore students have a range of secondary and senior secondary examinations. These examinations include GCE ‘O’ Level, GCE ‘N’ level, GCE ‘N(T)’ Level at secondary level and GCE ‘A’ level examinations at senior secondary level.

- Finland has a very high stakes ‘matriculation’ examination at end of senior secondary level i.e. grade 12.

- New Zealand has a series of ‘standards based examination’ at grades 11, 12 and 13. Some of these standards are externally assessed while others are internally assessed. Students need to complete these examinations in a period of three years.

- Hong Kong, an independent administrative region of China, has a high stake secondary examination, termed as Hong Kong Diploma of Secondary Education at end of grade 12 (6+6).

- Shanghai, like most other administrative regions of China has a ‘credit based examination’, wherein students are required to achieve certain number of credits over the last 3 secondary school years in 12 years of schooling, grade 10,11 and 12.

- In Brazil, Russia and Indonesia ‘unified examinations’ at the end of 12 years of schooling, double as ‘graduating exams’ and ‘exams used as selection criteria’ for universities.

- In South Korea the ‘certifications’ are through school based examinations in grades 12.

- In Japan and Korea, secondary school students take nationally administered examinations at the end of grades 12, that determine their post-secondary placement. Top scoring students attend the most prestigious public universities.

- In France, the baccalaureate examinations are given to students at end of grade 12 in academic secondary schools (the lycée) as exit examinations and also to determine university placement.

- In Germany, a distinction is made between academic and vocational secondary school, and passing the Abitur (exit examination) allows students to continue on to university-level coursework.

In the next section we shall compare and contrast, the key features of some the assessments at the end of the secondary school.
5. ASSESSMENTS AT THE END OF SECONDARY SCHOOL

5.1 Brief Overview of High School Assessments in Various Countries

1. Hong Kong Diploma Secondary Examinations (HKDSE) is a high stakes examination offered to senior secondary students in Hong Kong. HKDSE is conducted by Hong Kong Educational Assessment Authority (HKEAA). In HKDSE exams, students are assessed on four compulsory subjects and two to three elective subjects. The electives are to be chosen from three different categories of subjects. Compulsory subjects include Chinese Language, English Language, Liberal studies and Mathematics. All answers are to be written in space provided in the question paper. One fifth weightage of these examinations is covered through internal assessments. These assessments are done by schools and include Independent enquiry study in Science lab skills, liberal studies, etc. Statistical moderation of scores obtained through School based assessments (SBA) ensures that local bias is minimized. HKDSE is an annual test.

2. In Alberta, a province of Canada, High school diploma exam is conducted by the education department at 10th and 12th class. There are five subjects in the external assessments. This include Applied Math, Pure Science or Common Science, Social Science, First and Second Language. Each subject has more than one paper. Time allowed for each paper is 2.5 hours. Students can take 30 additional minutes if they require so. Fifty percent of the assessments are internal. These assessments include Projects, Portfolios, Oral Presentations, and Exhibitions. High School diploma exams are annual exams. School teachers score the open ended components of the external examinations.

3. In South Korea ‘certification’ is through school based examinations. The exams cover different subject groups like Humanities and Social Science, Science and Technology, Arts and Physical Education, Foreign Language, General Studies etc. Each of these subjects groups include - Basic Common Subjects (56 units of study), Optional activities (12 units), and Extracurricular activities (4 units of study). To graduate, students must complete at least 216 units of study, including classroom instruction and optional and extracurricular activities. Regular examinations are administered twice per school term (mid-term and final) or four times per year for each subject. Other examinations may be conducted for some subjects as decided by the school principal. Two other national assessments for secondary students in South Korea are - a. Annual national diagnostic assessments, for math and first language in grades six, nine and ten to ensure understanding of overall achievement levels of the students. B. CSAT for entrance to tertiary academic institutions.

4. New Zealand has unique standard based assessments. Two types of Standards are - a. Unit standards which are competency based and b. Achievement standards which are curriculum based. Majority of standards are externally assessed while some of the assessments are done internally. Some of the internally assessed standards include ‘Giving a Speech’, ‘Carrying out a Research project’ and ‘Presenting a Performance’. New Zealand Qualifications Authority and the respective Schools are jointly responsible for conducting these assessments. Standards at different levels 1-2-3 (corresponding to grades 11, 12, 13) carry certain number of credits. External assessments are at the end of the year, while internal assessments are throughout the year. If the students do not clear the internal assessment, he/she gets an additional opportunity to clear them the same year. Students unsuccessful in external assessments can take the assessment again only in the next year. Russia’s Federal testing centre conducts Unified State Examinations (EGE) for the students at the end of grade 11. It is the exam that every student must pass after graduation from school to enter a university or a professional college. Since 2009, EGE is the only form of graduation examinations in schools and the main form of preliminary entrance examinations in Russia.

6 Russian Acronym for Unified State Examinations
universities. A student can pass EGE in Russian language, mathematics, foreign languages (English, German, French, and Spanish), physics, chemistry, biology, geography, literature, history, basics of social sciences and computing science. EGE in Russian language and mathematics are obligatory; that means that every student needs to get the necessary results in these subjects to enter any Russian university. EGE consists of three parts (except the ones in mathematics and literature): A, B and C. The A part contains tasks in which student must choose an answer from four variants. The mathematical and literary tests no longer contain the A part. The B part contains tasks in which student must answer briefly with several words, letters or numbers. The C part contains one or several tasks in which student must use his creativity to complete them. For example, he can be given a hard mathematical exercise to solve, a composition to write or a question to answer argumentatively. Unlike the two previous parts, which are checked by a computer, the C part is checked by the experts of the regional examination committee.

5. ENEM or High School National Exam is a non-mandatory Brazilian national exam, which evaluates high school education in Brazil. The test is utilized as a standard university entrance qualification test. ENEM is the most important exam of its kind in Brazil, with more than 4,5 million test takers in 1698 different cities. The exam is composed of 180 multiple-choice questions, equally divided into four areas of knowledge: languages, codes and its technologies (plus a written essay); human sciences and its technologies; natural sciences and its technologies and mathematics and its technologies. Due to the size of the test, it is applied in two consecutive days, one lasting 290 minutes, and the other lasting 330.

6. Chinese students need to acquire a total of 144 credits, in three years of their senior secondary education (10-11-12). These credits are to be obtained from 8 areas of study: Language and culture, mathematics, humanities and society, science and technology, arts and physical education and health and a mix of practical activities. Out of 144 credits, 116 must be from compulsory subjects and 28 from electives. Students need to get these credits through exams conducted biannually. Students can improve their scores by retaking the tests.

7. National Education Standards Agency in Indonesia conducts National Final Examination (UN) at 9th and 12th grades, annually. In these tests Indonesian language, English, Mathematics are compulsory. Social sciences are also offered. It is up to the schools and provinces to decide whether or not they require students to take final tests on other subjects. All questions are of objective types. Minimum threshold to pass is predetermined by the Ministry of Education. It has steadily increased, from 3.02 in 2003 to 5.50 in 2010, out of a total score 10.

5.2 Key Parameters to Study the Structure of the Secondary Assessments

Assessments at the end of secondary schooling systems vary in different ways. We have made a basic comparison of different examinations on the basis of following parameters:

<table>
<thead>
<tr>
<th>Name of the Assessment/ Examination</th>
<th>1. Purpose of the Assessment</th>
<th>Certification, Post Secondary/Placement or Both?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. External Assessment</td>
<td>Nature of Assessment</td>
<td>Whether the assessments are uniform or have regional variance?</td>
</tr>
<tr>
<td>Class level</td>
<td>Is the assessment at secondary and senior secondary level?</td>
<td></td>
</tr>
<tr>
<td>Test Conducting authority</td>
<td>Is the test conducted by education boards/department?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is the assessing agency different?</td>
<td></td>
</tr>
<tr>
<td>3. Internal Assessment</td>
<td>Internal assessments (Yes/No)</td>
<td>Is the internal assessment a component of the final assessment scores?</td>
</tr>
<tr>
<td></td>
<td>Internal assessment (%)</td>
<td>What is the weightage of these assessments?</td>
</tr>
<tr>
<td></td>
<td>Kind of Internal assessment</td>
<td>What is assessed in the internal assessment?</td>
</tr>
</tbody>
</table>
4. Subjects

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the subjects offered?</td>
<td></td>
</tr>
<tr>
<td>Does the examination offer different difficulty level papers?</td>
<td></td>
</tr>
<tr>
<td>Does a subject have more than one paper?</td>
<td></td>
</tr>
<tr>
<td>How many subjects are offered? What are those subjects?</td>
<td></td>
</tr>
<tr>
<td>What is the internal Choice of subjects?</td>
<td></td>
</tr>
</tbody>
</table>

5. Duration of Test

<table>
<thead>
<tr>
<th>Subject dependent (Yes/No)</th>
<th>Is the time duration for answering different subjects different?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. time duration</td>
<td>What is the average time duration per subject?</td>
</tr>
</tbody>
</table>

6. Frequency

<table>
<thead>
<tr>
<th>Annual / Biannual/ Others</th>
<th>When are these assessments conducted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retaking test</td>
<td>Can students improve his/her score if they so desire?</td>
</tr>
<tr>
<td></td>
<td>What are the options for an unsuccessful candidate?</td>
</tr>
</tbody>
</table>

7. Special Feature

| Is there any special feature which needs to be highlighted about these assessments? |

These parameters are discussed in detail below:

1. **Purpose of the Assessment:** The assessments at the end of secondary level may be either for obtaining a secondary school certificate, determining criteria for post secondary placements, i.e. admissions to a college or both. In countries like Singapore, UK, US and to some extent in India these examinations serve the sole purpose of getting certified as 'high school graduate' whereas in countries like Finland, Russia, Brazil etc. high school exit examinations serve dual purpose of certification and admission to universities. In a few countries, students have to sit for other critical 'university entrance exams'. South Korean and Chinese students sit for such high stakes test.

2. **External or Internal:** An overview of the secondary assessments reveal that the some of the assessments may be external while some may be fully or partially internal/school based.). Singapore 'O' level exams, Finland’s ‘matriculation’ exam and present Gujarat boards secondary examinations are all external exams. On the other hand examinations South Korea and China exams are either school based or assessed internally with broad guidelines from the board. A third group of examinations is one which gives different weightage to internal component. For example, Hong Kong Diploma of secondary examinations (HKDSE) gives 15-20% weightage to internal assessment. Similarly Anglo Indian board ICSE and International Baccalaureate (IB) board’s diploma programmes have an averageof 20% to 30% internal assessment component.

Another important aspect is the grade level at which these assessments are conducted. Finland has matriculation exam at Grade 12 level, whereas Singapore has board examinations both at grade 10 and 12. In Russia students are assessed through Unified Examinations at grade 11 level. In New Zealand students are continuously assessed through three years in grade 11, 12 and 13.

It has been often debated into education administration circles whether the education body responsible for curriculum and making of question papers should be also assessing the students. An independent agency will probably be more objective and fair, perhaps the assessment data would be better analysed and researched upon. Both Hong Kong and Singapore have independent assessment agencies.

3. **Subjects offered:** Many of the countries researched offer a variety of subjects to the students to choose from. Often the choice is between higher and lower difficulty paper (e.g. Finland) or a higher and standard level paper (e.g. IB diploma board). Some of the boards have core subjects which are compulsory for all students. In HKDSE exam students need to opt for four compulsory subjects: Chinese Language paper, Mathematics, English (foreign language) and Liberal studies. Some of the boards allow students to opt for different combination of same subjects. For example in Alberta, Canada, High School Examinations students can either opt for 'Pure Science' papers or 'Combined Science' papers. Number of subjects offered in some of these examinations are more than thirty.
(discounting the number of subjects for language studies), a fact which reflects the ample opportunities students get through these examination boards to excel in their chosen field of interest.

4. **Duration of the assessment**: One of the pertinent questions regarding examinations is the duration of examinations for different subjects. It can be argued that on the same difficulty scale subjects like languages or social sciences, where students need to spend a lot of time on creative writing should require a different duration of time to answer than when compared to subjects like mathematics, which are more process oriented. HKDSE allows students a time of 1 hour 30 minutes for answering English Language Paper 1 and a time of 2 hours 30 minutes for answering Chemistry Paper One. Gujarat board does not make such a differentiation between different subjects.

5. **Frequency**: Not all the assessments are annual. Finnish matriculation boards’ exam is biannual. In China students can appear for the examinations twice a year and throughout a period of three years of secondary education. Many examinations boards allow students to ‘improve’ their scores, in such cases the ‘best score’ is reported as students’ achievement in that subject.

Another critical feature related to frequency is the flexibility which each board allows unsuccessful students to obtain a passing grade. In New Zealand Students can retake test for internally assessed standards twice in the same year. Finnish students need to clear the core subjects in three consecutive attempts. Such students may also change the ‘difficulty’ level of the papers in second attempt.

6. **Special Feature**: Some of the examinations are characterised by special features which deserve a mention in any comparative study. Some of these features are: Indonesia’s national final examinations (UN) minimum threshold to pass is predetermined by Ministry of Education. It has steadily increased, from 3.02 in 2003 to 5.50 in 2010, from a total score 10. Alberta’s School teachers score the open-ended components of the external examination

The structural differences between the different examination boards are presented in Table 5.3.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Hong Kong</th>
<th>Canada</th>
<th>Finland</th>
<th>South Korea</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 External Assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of Assessment</td>
<td>Uniform</td>
<td>Provincial</td>
<td>Uniform</td>
<td>Local</td>
<td>Uniform</td>
</tr>
<tr>
<td>Name of Exam.</td>
<td>Diploma secondary Exam</td>
<td>High School Diploma Exam</td>
<td>Matriculation Exam</td>
<td>Not applicable</td>
<td>NCEA</td>
</tr>
<tr>
<td>Class level</td>
<td>12th</td>
<td>10th and 12th</td>
<td>12th</td>
<td>10th and 12th</td>
<td>11th, 12th and 13th</td>
</tr>
<tr>
<td>High Stake (Yes/No)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Test Conducting authority</td>
<td>HKEAA</td>
<td>Education department</td>
<td>Matriculation board</td>
<td>Respective Schools</td>
<td>NZQA</td>
</tr>
<tr>
<td><strong>2 Internal assessment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal assessments (Yes/No)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Internal assessment (%)</td>
<td>15-20%</td>
<td>50%</td>
<td>Not Applicable</td>
<td>100%</td>
<td>Yearly Revision</td>
</tr>
<tr>
<td>Kind of Internal assessment</td>
<td>Independent enquiry study in Science Lab Skills, Liberal Studies, etc</td>
<td>Projects, Portfolios, Oral Presentations and Exhibitions</td>
<td>Not Applicable</td>
<td>Speeches, Research projects and Performances</td>
<td></td>
</tr>
</tbody>
</table>
### 3 Subjects

| Students have to choose | 4 compulsory subjects: Chinese, English, Mathematics and Liberal Studies. | Subjects are offered 5 subjects: Applied Math, Pure Science or Common Science, Social Science, First Language and Second Language. | The examination consists of at least four tests; one of them, the test in the candidate’s mother tongue, is compulsory for all candidates. The candidate then chooses three other compulsory tests from among the following four tests: the test in the second national language, a foreign language test, the mathematics test, and one test in the general studies battery of tests (sciences and humanities). The candidate may additionally include one or more optional tests as part of his or her examination. | Different Subject Groups offered: Humanities and Social Science, Science and Technology, Arts and Physical Education, Foreign Language, General studies etc. | Each subject is broken down into a set of standards. These standards carry different credit points. |

**Which Subjects are assessed?**

- Students have to choose 4 compulsory subjects: Chinese, English, Mathematics and Liberal Studies.
- Different subjects are categorised under three groups: A includes the four compulsory and 20 other subjects (Electives), B includes Applied learning subjects whereas, C includes Other Language Subjects.

**Duration of Test**

<table>
<thead>
<tr>
<th>Subject dependent (Yes/No)</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
<th>Not Applicable</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. time duration</td>
<td>1 to 3 hours</td>
<td>2.5 hours per paper +30 min.</td>
<td>6 - hours per subjects</td>
<td>Not Applicable</td>
<td>Varies with different standard</td>
</tr>
</tbody>
</table>

**5 Frequency**

| Annual / Biannual / Others | Annual Test | Annual test | Biannual - candidates must complete the exam in 3 consecutive exam period | Regular examinations are administered twice per school term (mid-term and final) or four times per year for each subject. Other examinations may be conducted for some subjects as decided by the school principal | External standards are assessed at the end of the year and internal standards are assessed throughout the year (for a particular level) |
Retaking test

Next academic year

Next academic year

Test scores can be improved. Unsuccessful candidates need to clear the compulsory subjects in 3 consecutive attempts.

Depends on schools

One additional opportunity per year to clear internally assessed standards. Unsuccessful externally assessed need to clear the next year.

6 Special Feature

Answer has to be written in space provided in the question paper

School Teachers score the open-ended components of the external examination.

The first language and general knowledge papers are only one level.

Annual national diagnostic assessments, for maths and first language in grades six, nine and ten ensure understanding of overall achievement levels of the students.

A number of standards are assessed externally; These standards are either assessed by external exams or the submission of portfolios.

---

Table 5.3 Structure of Different Examination Board

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Russia</th>
<th>Brazil</th>
<th>Shanghai-China</th>
<th>Indonesia</th>
<th>Gujarat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 External Assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of Assessment</td>
<td>Uniform</td>
<td>Uniform</td>
<td>Uniform</td>
<td>Uniform</td>
<td>Uniform</td>
</tr>
<tr>
<td>Name of Exam</td>
<td>Unified State Examination</td>
<td>High School National Exam (ENEM)</td>
<td>Credit Based System</td>
<td>National Final Examination (UN)</td>
<td>Board Exam</td>
</tr>
<tr>
<td>Class level</td>
<td>11th</td>
<td>10th - 11th - 12th</td>
<td>9th and 12th</td>
<td>10th and 12th</td>
<td></td>
</tr>
<tr>
<td>High Stake (Yes/No)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Test Conducting authority</td>
<td>The Federal Testing Centre</td>
<td>Education Ministry</td>
<td>Education Ministry</td>
<td>National Education Standards Agency</td>
<td>GSHSEB</td>
</tr>
<tr>
<td>2 Internal assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal assessments (Yes/No)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes (as proposed for 2012-13)</td>
</tr>
<tr>
<td>Internal assessment (%)</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>Students need to acquire requisite 144 credits.</td>
<td>Not Applicable</td>
<td>30%</td>
</tr>
<tr>
<td>Kind of Internal assessment</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### 3 Subjects

#### Which Subjects are assessed?
Students can choose the subjects in which they want to be tested (Science, Math, History, Russian, etc.) but they must pass exams in at least five subjects, including two compulsory exams in Maths and Russian.

Natural Sciences, Human Sciences, Languages and Codes, Text writing.

Subjects are divided into 8 areas of study: Language and culture, mathematics, humanities and society, science and technology, arts and physical education and health, and a mix of practical activities.

Indonesian language, English, mathematics are compulsory. Social sciences are also offered. It is up to the schools and provinces to decide whether or not they require students to take final tests on other subjects.

5 core subjects are offered. First and second language, science and technology, social science, mathematics.

### 4 Duration of Test

<table>
<thead>
<tr>
<th>Subject dependent (Yes/No)</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. time duration</td>
<td>3-4 hours per subject</td>
<td>Test is applied in two consecutive days, one lasting 290 minutes (Natural and Human sciences), and the other lasting 330 (Other subject groups)</td>
<td>Not available</td>
<td>Varies year to year. All Questions are Objective types</td>
<td>Total answering time 3.hrs 15 minutes. Part A (of each subject has to be answered in 75 minutes) Time allowed for change to Part B and filing the OMR</td>
</tr>
</tbody>
</table>

### 5 Frequency

<table>
<thead>
<tr>
<th>Annual / Biannual / Others</th>
<th>Annual</th>
<th>Annual</th>
<th>Biannual</th>
<th>Annual</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retaking test</td>
<td>Next academic year</td>
<td>Next academic year</td>
<td>Scores Can be improved by retaking the tests in any subject.</td>
<td>Next academic year</td>
<td>Next academic year</td>
</tr>
</tbody>
</table>

### 6 Special Feature

| USE is the only form of graduation examinations in schools and the main form of preliminary examinations in universities | The grades obtained in the test is used by students for university admission and for obtaining graduation certification | University Entrance examination - Gao Kao is the most important high stakes tests in China | Minimum threshold to pass is predetermined by Ministry of Education. It has steadily increased, from 3.02 in 2003 to 5.50 in 2010, from a total score 10. | Gujarat Board is undergoing a series of interesting revamps since last 2-3 years |

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**Page 29**
5.3 Case Study - Finnish Matriculation Exam

Finland has often been sighted as a classic case of educational transformation. It has consistently ranked at the top of international educational achievement tests. The most critical assessments at the end of high school often determine the direction and quality of educational endeavours. Therefore we decided to study ‘Finnish Matriculation’ exam as a special case and study it in more detail. It may be noted that this is the only high stake examinations the Finnish students have to undertake in their schooling career. First we will discuss the key features of Finnish Matriculation exam and then we will present a qualitative analysis of questions asked in this exam.

5.3.1 Key Features of Finnish Matriculation Exam

- **Purpose of the test:** The purpose of the examination is to discover whether pupils have assimilated the knowledge and skills required by the curriculum for the upper secondary school and whether they have reached an adequate level of maturity in line with that school’s goals. Passing the Matriculation Examination entitles the candidate to continue his or her studies at university.

- **Test conducting authority:** The Matriculation Examination Board is responsible for administering the examination, its arrangements and execution. The Board issues guidelines on the contents, the arrangements and scoring of the tests. The Ministry of Education nominates the chair of the Board and its members (about forty in numbers) at the suggestion of universities, institutions of higher learning and the National Board of Education. The members represent the various subjects covered by the Matriculation Examination. About 330 associate members assist the members in the work of preparing and assessing the tests. The technical arrangement of the tests is taken care of by the Board’s secretariat, which has twenty-two civil service employees. The examination is arranged in upper secondary schools.

- **Frequency and re-checking the test:** The Matriculation Examination is held biannually, in spring and in autumn, in all Finnish upper secondary schools, at the same time. A candidate must complete the examination in not more than three consecutive examination periods. The examination can also be completed in one examination period.

A candidate who has passed a test may retake it once. There is no time limit for retaking a test that has been passed. If a candidate retakes a test before a Matriculation Examination Certificate is awarded, the better grade achieved on that test will be entered on the certificate.

A candidate who has failed a compulsory test may retake the test twice during the three examination periods immediately following the examination period in which the test was failed. A candidate retaking a failed compulsory test can change the level of the test, but not until it has been confirmed that one test based on the advanced course is included in the examination, for example if a student is not able to clear a higher difficulty paper in Math, he or she can change to lower difficulty in the next attempt, however at least one of the subjects must in the pass list of subjects must be of advanced course i.e., higher difficulty. If the examination is not passed within the prescribed time limit, the examination must be retaken in its entirety. A failed optional test may be retaken twice without a time limit.

A person who has passed the Matriculation Examination can supplement it by sitting for tests that he or she has previously not taken. He or she can also supplement the examination by taking a test at a different level in a subject already passed. Supplementing the examination is possible only after the examination has been passed.

- **Structure of the test:** The different subjects of the matriculation examination are
  - Finnish or Swedish as a first language
  - Finnish or Swedish as a second language
- Finnish or Swedish as a foreign language (for foreign students)
- Any number of foreign languages *
- Reaali (General Studies)
- Mathematics

*Currently available are English, French, German, Latin, Russian, Spanish, Portuguese, Italian, Northern Same and Inari Same.

Exams are divided into two levels of difficulty. A low level exam requires basic knowledge. A high level exam is for a language that has been studied for nearly ten years. The first language and general knowledge exams are only on one level. Finnish as a second language is available in three levels of high, medium and low. Latin is available in high and low levels. The rest of the foreign languages are available only as a low level exam. Math is available in advanced and basic course.

- **Choice of subjects:** The examination consists of at least four tests; one of them, the test in the candidate’s mother tongue, is compulsory for all candidates. The candidate then chooses three other compulsory tests from among the following four tests: the test in the second national language, a foreign language test, the mathematics test, and one test in the general studies battery of tests (sciences and humanities). The candidate may additionally include one or more optional tests as part of his or her examination. The headmaster of the upper secondary school will check to see whether the candidate fulfills the requirements laid down concerning participation in the examination and in the tests that are part of it.

There is no rule to declare one’s choice of the subject in advance, save for the denominational choice, which must be made before taking the exam. The denominational choice is entirely independent of students’ actual beliefs. A student can take, for example, the Lutheran questions even if he or she is not a member of the Finnish Lutheran Church.

It is common for many students to take some basic courses in subjects like chemistry instead of psychology or history. The educationists cite two reasons for this student tendency: limited time and difference in effort required to answer. Since spring 2006, a student is only allowed to answer the questions of two subjects per examination time (i.e. autumn or spring). The exams are arranged on two separate days. On the same day a student can only take one of the subjects available on that day. Physics, History, Psychology, Philosophy, and Biology are available on the first day. The subjects on the second day are Political Science (now separate from History), Health Studies (a new subject), the three denominational subjects, mainly the religion study subjects, Chemistry, and Geography. Therefore, one cannot, for example, take both Chemistry and Geography in the exam, but can take Chemistry and Physics. To take both Chemistry and Geography the student will have to take the General Studies exam on two separate examination times, i.e., one in Spring and the other in Autumn. All of these new specific exams will have six to eight questions each and each separate exam is graded like the original General Studies.

**Duration of the test:** The exams begin at 9:00 in the morning; one must be present about 20 minutes before that. The time allotted for a single exam is six hours. In that time, students are bound to get a bit restless. Students are allowed to bring their own food, but all wrappers are forbidden and text on cans must be covered with duct tape. Candy bars must be unwrapped before entering the hall. A good way to transport goods is a clear, completely transparent plastic box and bottle. Anything at all that could hide a note is not allowed. Even fruit must be peeled beforehand. The audio parts of language exams only take a couple of hours, so no lunch is allowed there. The students are usually split to two parts since the special studio class used to take the exam isn’t large enough to accommodate all of them. While the one half does the exam, the other half must remain in “quarantine”, isolated in a classroom for the duration of the exam. No one can be actually forced to change their clothes, but it’s highly recommended to wear clothing that is as quiet and as comfortable as possible. Accessories like hanging chains are often confiscated since they can be noisy. Clothing with a lot of text, especially in a foreign language, is forbidden. No cell
phones are allowed inside the hall or the studio. If students are found with one they are immediately disqualified. Students can’t bring their own handkerchiefs either; there will be checked ones in the hall. Only one student at a time is allowed to go to the toilet and one of the monitors must follow the student, but not inside the toilet of course.

- **Seating Arrangement:** The place is the same for everyone in the same school taking the same exam -- a large locale, usually the gym hall. To make the environment as equal and quiet as possible, there is an intricate protocol to doing things to prevent cheating and extraneous distraction. The places the students will sit in are drawn at random before the exam.

- **Use of Calculators and Formula books:** Calculators are allowed, but they must be inspected by the teachers the day before, and high-end calculators like the TI-92 are not allowed: the TI-85 and 86 are often favorites. In math and the general studies exam, students are allowed to use the “table book”, a book published by the Finnish association of science teachers, which contains all the important formulae for math, chemistry and physics. These books too must be inspected beforehand.

- **Invigilators:** Monitors are teachers of the same school the students are in. In case a student taking the exam is a close relative of a teacher, that teacher cannot monitor the exam. This rule can make for tricky schedules when a single class can have several sons and daughters of teachers in a small town.

- **Type of Questions**
  - **Finnish or Swedish as a first language**
    - The first language exam tests analytical and creative writing skills. The exam is taken in two parts on separate days, separated by about a week. On the first day, a composition must be written based on a list of topics and materials supplied by the Board. Since Spring 2007, the exams are being conducted differently. On the first day, a batch of source material is provided and five different assignments must be completed based on the materials. These assignments measure the ability to think critically and to analyze texts. The response to each assignment is to be about one to two pages long. On the second day, a composition must be written under a simple headline chosen from a selection. The recommended length for the text is from four to eight pages.

    - This exam is often controversial, as the scores can be very subjective. It is not uncommon for a preliminary L grade (highest)given by the local teacher, to become an E/(lower) when the Board actually grades it, but bounce back to L, after a regarding request. Aspiring examinees are always hoping for the sensor, as they are called, grading their paper to be in a particularly good mood..

  - **Second language and foreign languages**

    - Foreign language tests have two parts: text and audio. The former contains a reading comprehension exercise and an exercise in writing, with a grammatical exercise, often in a multiple choice format. The writing exercise is usually on bland topics and the presentation must be grammatically correct with rich vocabulary. The audio part is a *listening comprehension* exercise. Questions are usually multiple choice or required a written response. These questions often include strange logical tricks and bizarre reasoning to make guessing and more difficult, to grasp.

  - **Mathematics**

    - From a number of given assignments (usually 15), no more than 10 must be completed. Six points are given to every correctly completed assignment, so the maximum score is 60. High
math is mostly the calculus, low math is more basic stuff like simple probabilities and is quadratic and cubic equations.

- Math tests aren’t multiple choice ones, so there can be arguments over the form of the art, i.e. how the thought process from question to answer is formulated and put down on paper. Just an answer will be worth 0 points.

- **General Studies**

  - Called Reaali in Finnish (from the Latin realis, "relevant facts"), the General Studies exam lets the student choose a subject in which he or she wants to take the test. The following subjects are available to choose from:

    **Box 5.3 – Choice of Subjects in Reaali**

    1. Either Lutheran Religion, or Eastern Orthodox Religion, or Ethics (secular choice)
    2. Psychology, Philosophy
    3. Physics, Chemistry, Biology
    4. History, Economics and Civic studies (all share the category), Geography

- **Marking Scheme:** The regular questions carry 6 points each; The student must answer eight of them for a maximum total of 48 points. Most subjects have 9 to 15 regular questions per exam, although biology, chemistry and geography have only 7. There are also "joker questions", one for each subject (two for history etc.) which requires in-depth knowledge of several subjects. Joker questions are graded on a scale of 1 to 9 points, meaning the maximum possible score from the General Studies exam is actually 56.

- **The Matriculation Examination Certificate:** A candidate receives a matriculation examination certificate following the examination period when all the compulsory tests have been passed. The Matriculation Examination Certificate shows the compulsory and the optional tests passed, along with their levels and grades. The grades and corresponding points are as follows:

  **Table 5.3 – Matriculation Examination Grade and Points**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>laudatur (Honours) – lauded</td>
<td>L</td>
</tr>
<tr>
<td>eximia cum laude approbatur – accepted with excellent praise</td>
<td>E</td>
</tr>
<tr>
<td>magna cum laude approbatur – accepted with much praise</td>
<td>M</td>
</tr>
<tr>
<td>cum laude approbatur – accepted with praise</td>
<td>C</td>
</tr>
<tr>
<td>Lubenterapprobatur – gladly accepted</td>
<td>B</td>
</tr>
<tr>
<td>approbatur (Basic Level) – accepted</td>
<td>A*</td>
</tr>
<tr>
<td>improbatur (Fail) – rejected</td>
<td>I</td>
</tr>
</tbody>
</table>

  *In general, at least an A-grade is required to pass a test.

- **Box 5.3 Psychometric Properties of Finnish Matriculation Exam**

  Unlike other board exams, Finnish board papers are designed such that student population at all different ability levels from A to E are covered. Following figure depict the relative shares of grades that can be achieved in every exam:

  **Figure 5.3 – Relative Shares of Grade**

  ![Relative Shares of Grade](image)

  The distribution follows a normal distribution curve similar to any high quality psychometric assessment. The relative shares of grades differ somewhat in various tests and in various examination periods. If a person who has successfully passed the Matriculation Examination retakes a test that he or she has already passed in an examination, or supplements his or her examination, he or she will receive a separate certificate for this.
5.3.2 Qualitative Analysis of Finish Matriculation Examination

The broad structure of Finnish Matriculation Examination has already been described in the previous section. In the present section we present a qualitative analysis of Finnish matriculation board question papers. We collected question papers administered in the Year 2011. These question papers are from the following subjects: Mathematics (Advanced Course), Physics, Biology, History, Civic Experience, and English.

Two prominent features common to all these subjects are:

1. **Limited number of questions:** A question paper contains a total of 13-15 questions and students need to answer only 10 questions.

2. **Incentives for Higher Order Questions:** With an exception of one or two questions each of the 15 questions carries a maximum score of 6. Some questions (2 to 3) are exceptional questions which have a maximum score of 9. These questions are marked in the paper by an asterisk (*). These questions are generally higher order thinking questions.

The question papers obtained from Finland were in Finnish and were translated to English using Google translator. Therefore these translations may not be exact to the degree of 100% accuracy and language. However they provide a glimpse into the essence of the questions for a meaningful analysis.

5.3.2.1 Mathematics

1. Question papers contain a rich variety of different difficulty questions including ‘substitute in the formulae’ questions, simple procedural questions, application based questions and higher difficulty questions.

<table>
<thead>
<tr>
<th>Substitute in the formulae question</th>
</tr>
</thead>
<tbody>
<tr>
<td>The length of the hypotenuse of the right triangle is 5 and the second leg length is 2. Calculate the second leg length</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Simple procedural question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculate the intersection points of line y = 2x and the circle $x^2 + y^2 = 1$.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Application based question</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Poiseuillenlaw (Jean-Louis Marie Poiseuille, 1797-1869), states that flow rate of water flowing in tube is directly proportional to the fourth power of the diameter of the tube, while the other variables relating to the situation remains unchanged. What percentage of the diameter has to be increased if the flow rate is to be doubled?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Higher difficulty question</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a computer game, the player progresses to the top level of the adjacent diagram and the score is marked on the chart. In each intersection he chooses - one of the options randomly and has a level playing field and progresses to the next level up.</td>
</tr>
<tr>
<td>c) Find the probability that a player reaches the highest score for the 40?</td>
</tr>
<tr>
<td>d) Determine the expected number of points</td>
</tr>
</tbody>
</table>

![Diagram of a computer game level progression]
2. Questions are appropriately placed, and the sub questions are in a logical flow to each other.

   a) Show that the function \( f(x) = x^2 - 2x \) has inverse function for \( x \geq 1 \)
   b) Find the inverse of \( f^{-1}(x) \) expression.
   c) Plot the function \( f(x) \) and its inverse \( f^{-1}(x) \) graphs of the same coordinate system.

3. In few of the questions, the sub questions are such placed that students need to exhibit their thorough understanding of the subject matter. Overall these questions allow the student to present their understanding on the given topic in a holistic way.

   If the letter denotes the intersection of the medians \( AD \) and \( BE \) of the triangle \( ABC \)

   a) If \( F \) is the focal point of the segment \( AP \) and \( G \) the centre of the segment of \( BP \), as show that the line segment \( FG \) has length half the length of the line segment \( AB \). (2 pts)
   b) Prove that the quadrilateral is a parallelogram \( FGDE \). (2 pts)
   c) Show that the length of the segment \( DP \) is one third the length of \( AD \). (2 pts)
   d) Prove using the information given in the preceding paragraphs: midspan of a triangle intersects each other at the same point, which divides each median in such a way, that the side of the page the length is one third of the entire length of the median. (3 pts)

5.3.2.2 Physics

1. Some of the questions allow for a logical presentation of known scientific principles. For example in the following questions, understanding of concepts of buoyancy, flotation etc. is being checked in a simple yet interesting manner.

   Calvin and Hobbes comic adventures in space.

   Present the four legitimate reasons why the operation described is not possible in the prevailing physical conditions in space

2. Very often the questions in Physics are expected to be ‘dry’, however some of the questions in Finnish Matriculation board’s are made live and they relate to real life

   Elasticity of bones decreases with age. Bone elasticity can be studied by loading the bone with various power-ups and by measuring the bone elongation. Under Moderate loads, the Hooke’s law \( E \epsilon = \sigma \), where \( \sigma \) is the stress \( E \) is modulus of elasticity of the bone, and \( \epsilon \) the relative elongation.

   In one experiment on the femur bone following is the stress and the relative elongation.

<table>
<thead>
<tr>
<th>( \sigma ) (MN/m²)</th>
<th>0.0</th>
<th>5.00</th>
<th>10.0</th>
<th>15.0</th>
<th>20.0</th>
<th>25.0</th>
<th>30.0</th>
<th>35.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \epsilon )</td>
<td>0.0</td>
<td>0.00031</td>
<td>0.00063</td>
<td>0.00094</td>
<td>0.0013</td>
<td>0.0016</td>
<td>0.0019</td>
<td>0.0022</td>
</tr>
</tbody>
</table>

   a) Draw the stress as a function of the relative elongation.
   b) Specify the graph using the femoral elastic modulus.
3. Though the question paper contains many qualitative questions yet it also has enough questions to **check the quantitative skills of the students.**

   a) The specific heat capacity of many nutrient substances can be estimated by assuming that it consists essentially of water. Estimate the heat capacity of 1.8 kg of the pike.

   b) In a microwave oven of 750 W heated 2.0 ml of cold water is heated for a 30 s period. How much the water temperature does rise?

   c) 1.8 ml freezer at ambient temperature (20°C) is to be deep-frozen cubes of water at a temperature of -18°C. How much heat energy is removed from the water?

4. A few of the questions require the **application physics** in solving practical cases.

   Taljajousessa is a pulley system, which reduces the spring tensioning force required to the final stage strain. Graph shows the power dependence on the length of the one tow of taljajouselle.

   a) How much work does the shooter do when he stretching the spring 45 cm length of pull?

   b) The shot spring-loaded with an arrow of 31.5 g, the output of the speed measured at 63 m/s. What proportion of the spring tensioning work was used to change the direction of arrow as kinetic energy?

5. **A few of the questions require higher order thinking.**

   One theory is that the loss of the dinosaurs some 65 million years ago was due to an asteroid that collided the Earth. Let us assume that the asteroid of mass $1 \times 10^{15}$ Kg a collision speed of respect to the Earth was 29 km/s.

   a) What is the change in speed of Earth’s path caused due to the crash, if it is assumed that the collision took place in the radial direction of the Earth? You can look at the collision coordinate system in which the Earth is at rest. Was it a significant change in the speed of the track?

5.3.2.3 **Biology**

1. As in case the question setters seem to make an attempt to make the questions interesting. One of the ways they seem to adopt is to have **student friendly way to ask the question.** In the following question a ‘dry’ topic like pollination is asked through a cartoon strip.

   1. Many important insects are pollinators by nature.

      a) How does pollination of seed crops happen? (3 pts)

      b) In what other ways pollination can take place? (1 pts)

      c) The comic mentions about mesipistiäiset - important pollinators. Name two plant pollinators (likemesipistiäiset) (2 pts)
2. In some of the questions question makers exhibit a unique practice of assessing. In the example below the students need to show that fundamentals of life process (ATP-Energy requirement) are same for all living cells – whether it animal or plant cell either multicellular, or unicellular.

How do following cells fulfil their need of ATP? Explain in brief (two lines).

   a) the muscle cell  
   b) Birch leaves cell  
   c) tall flower cells (pine flowers)  
   d) lichen green alga  
   e) lichen fungi  
   f) E-coli

3. Some of the topics assess students’ ability to put across their point of view on contemporary topics like conservation of species.

Giant Panda, Tiger and many whale species are known worldwide for endangered animals. How they are protected, and why their conservation is difficult?

4. A number of questions are of higher order thinking.

Disease is caused by a recessive, sex-linked DNA Sequence. What is the probability of disease being inherited in children in the following cases? Please explain your answer.

   a) Father’s mother is sick and healthy, but the maternal grandfather suffers from the disease.  
   b) The father and mother are healthy, but the mother’s mother suffers from the disease.

5. Some of the questions are intense and requires extensive knowledge of subject matter.

The images below (A-C) show important molecules. It has evolved from Earth’s biological evolution in the early days, and they have the common structural features. Some of the molecules form bulky macromolecules. Review the molecules and the formation of macromolecular structure and functions.

![Molecules Diagram](image-url)
5.3.2.4 History

In our view, the assessment items in this question paper are extraordinary. Students are exposed to a very rich set of high quality topics. They are expected to deliberate upon the implications of an event in the past, compare different line of thoughts, analyse contemporary events, synthesis concrete views based on interpretation of an illustration, present a personal interpretation of a data set, and write a commentary on different turn of events. Here are some examples:

1. **Questions on comparison of different line of thoughts:**

   Below is a description of two factories from the 1800s

   "The plant is the residence of nearly six hundred of the department employees, and nearly as a large number of workers living in neighbouring areas will also work there. This is really a large family rather than a workshop. Director’s fervent thanks to the care being complied with all the charity and altruistically principles. Each family has own apartment and a small garden in the place of the old monastery. The factories acquire the basic food at a reduced price and deliver them to workers cheaply. Thus, the plant leader is considered red as if all of these people as a father, he is to them what the biggest influence, and their mood is great."

   (Translation)

   L'Oise department of the Governor’s report on the inspection Ourscampin cotton mill in 1856

   "Modern industry has changed a little workshop of the patriarchal master teollisuuskapitalistin a large factory. Factories huddled masses of workers organized militarily. Industrial line as men they are subjected to non-commissioned officers and officers to form a complete hierarchy supervision. They are not only the bourgeois class, slaves of the bourgeois state, but to enslave them daily, every time the machine, the supervisor and, above all, the individual tehtailijaporvari. This coercion is so petty, meaner, and katkerottavampaa, the more open it proclaims victory tarkoituksekseen."

   Karl Marx and Friedrich Engels, The Communist Manifesto (1998; the first book in 1848)

   a) Compare quotes from workers in the position described and discussed descriptions of historical sources. (3 pts)

   b) How industrialism affected people’s lives in 1800s in Europe? (3 pts)

2. A Question which assesses students’ ability to do a commentary on a **contemporary topic.**

   View the U.S. role in Middle East politics and conflicts from World War II to the present day.

3. Some questions require students to **synthesize concrete views based on an illustration.**

   Here is an artist ArvidLiljelund work made in 1876.

   a) What kind of picture book gives era of Finnish society? (3 pts)

   b) How did the artists take part in the construction of the Finnish nation in the late 1800s and in the early 1900s? Give examples of different art forms. (3 pts)
4. Some of the questions tests very **relevant topics.**

Below is a cartoon, and two documentaries that deal with the reconstruction after World War II.

"The European Union - under construction at last." History of presenting a character says the Soviet leader Josef Stalin: "Congratulations to Joe! This would never have started without the inspiration you give!"

The British cartoonist David Low's drawing Evening Standard magazine, 01/02/1949

*We must build a kind of United States of Europe (...)* The first step in creating the European family must be a strong Franco-German partnership (...) the structure of an individual U.S. state the material power of less importance. Small states will mean as much as the great glory and gain input the common good (...). If all the European countries are not willing or able to join the EU, in spite of everything we have to continue assembling a combination of those who are willing and able."

*(Translation)* Former British Prime Minister Winston Churchill in Zurich, 19.09.1946

"Europe will not be made all at once rather than rely on a single plan. It will be built through concrete achievements which first create de facto solidarity. The nations of Europe require a combination of the old Franco-German confrontation between the removals. All operations must primarily concern the two countries."

*(Translation)*
French Foreign Minister Robert Schuman 05/09/1950

a) How do you interpret David Low's cartoons? (2 pts)

b) Make use of the above documents, and discusses the objectives and the means by which Western Europe States shall endeavour to integrate into the world's second post-war years. (3 pts)

c) How justified is to talk about the European integration process in 1945-1960? (4 points)
5. Any subject matter cannot be understood in isolation, it needs knowledge from other fields, and some of them might be completely unrelated. The following question is a classic! In this question students are expected to interpret a graph and find out the likely time period of an event.

*10. The accompanying text figure deal with the Finnish and 1960-70, the figures of social policy.

"Human-centered social policy is based on human dignity, the human individual's unconditional valuation of (...) The common ultimate goal of economic management cannot be other than continuous economic growth (...) The economic growth geared to society is clearly not afford to allow the production of life outside the old people, invalids, the sick, widows, on the one hand, and participate in live production on the other hand on the lowest incomes will opt out of individual circumstances so that they do not seek to raise their level of consumption."

Social Politician Mr. Six, the 60’s Social Policy (1961)

"Doctrine, under which any increase in production will bring well-being (...) is not based on the reality of objective observation and lähimmäisrakkauteen, but it is the production of life underpinned by an ideology (...) Such a social policy to be chosen, the starting point is the belief that social policy at the top of the target of well-being of citizen the best means animaalisten[bodily] needs and that any increase in production will inevitably lead to the more complete satisfaction, and therefore a greater well-being. "

Professor Urpo Few, Human Welfare State (1964)

Source: Mr.Parkkinen, Government Employed (1995)

The figure shows the operation of the public (public sector) the share of employed persons as a percentage of total employed from 1900 to 1994. (The 1960 case is due to changes in the statistics block.)

a) What is a public activity, and the figure shows the main changes are due? (2 pts)

b) Compare the above views on social policy, and explain by example, what kind of social policy was carried out in Finland from the 1960s to the early 1990s. (4points)

c) What kind of discussion on the role of the public sector has been the subject of the early 1990s, after, and how the public sector's role has evolved during this time? (3 pts)
5.3.2.5 Civic Experience

1. Questions in general are specific and to the point:

   Explain how the Constitution of Finland, ensures the following principles to implement in practice:
   
a) "Personal integrity must not be violated, nor be deprived of liberty arbitrarily and not without a reason prescribed by law."
   
b) "Everyone has the freedom of religion and freedom of conscience."
   
c) "National languages of Finland are Finnish and Swedish."

2. Students are expected to understand a given problem statement, analyse the possible cause and effect and then present a plausible solution.

   In many occupations, the proportions of men and women have levelled off in recent decades, but in some areas Gender gaps are still large.

   Below is a list of shows the proportion of women among new students in 2007 in some areas of study at vocational education institutions (Excluding colleges).

   What factors explain in the list appear to show the apparent gender differences as to why these differences are considered to be problematic, and how to compensate for differences?

   Beauty care 98%
   Cleaning Services 95%
   Health and Social Services 91%
   Teaching, Educational 86%
   Automotive and transport engineering 14%
   Machinery, metal and energy technology by 12%
   In power and automation technology 6%
   Fisheries 8%
   Forestry 5%

   Source: Six, jacket-Sihvonen&Koramo, Education and Gender Equality (2009)

3. Some of the questions tests students on high fundamentals of civic experience.

   Review the following investment targets, in terms of the strengths and weaknesses of the Finnish retail investor:
   
a) of the Finnish forest industry company shares
   b) the term deposit bank
   c) interest in a mutual fund that invests in European Union Member states, bonds

   How are the criminal and civil legal proceeding does different from each other?

4. A few of the questions check students’ ability to present an individual reflection of issues of importance.

   The year 2010 was decided by the European Union Year against poverty, which as one main focus is about the position of the Beggars in Europe. In most Western European countries beggars are now Migratory.

   The City of Helsinki has discussed the prohibition of begging. Mayor JussiPajunensaid in BroadcastingTime for Gender-broadcast in early May 2010: "In Finland, the Finns played with rules. Begging is not part of Finnish culture."

   View the Helsinki planned by a ban on begging in the light of EU legislation and consider what rights of citizenship of the beggars of the European Union are affected directly
5.2.3.6 English

English (Foreign language test) has two parts: text and audio. We have briefly analysed the text portion. It contains a reading comprehension exercise and an exercise in writing, with a grammatical exercise, often in a multiple choice format. The writing exercise is usually on bland topics and the presentation must be grammatically correct with rich vocabulary, not best seller material.

Reading Comprehension consists 5 reading passages and on an average 5 questions per passage. Students are expected to choose the best alternative for each item and mark their answers on the optical answer sheet in pencil. Grammar and Vocabulary sections require students to complete a passage with appropriate words and part translation of a text (Finnish to English). In Production section students are expected to write a composition of between 150 and 250 words on one of the four topics given in a ‘notebook paper’ provided to them. They are required to count the number of words in their essay and write that at the end!

Key points of the analysis are presented below:

1. The reading passages are adapted from reputed magazines, periodicals and newspapers (The Economists, The Oprah Magazine, the Seattle times etc.). A cursory glance reveals that passages of good quality. They touch upon a variety of topics from different contexts. The assessment items are appropriately designed. All the questions have 3 options to choose from, but they require in-depth interpretation of the topics

9. What in particular irritates Lagosian commuters?
   A Missing scheduled appointments
   B Not having fixed taxi fares
   C Wasting time in congestion

10. Why have okadas been so irreplaceable in Lagos?
    A. They have lessened the need for traffic rules
    B. They have facilitated affordable transportation
    C. They have reduced carbon emissions

2. In the passage completion section the students are required to read a passage and use appropriate words from given alternatives to complete the passage, thus the assessment ensures a check of contextual usage and appropriate grammatical forms of the words.
3. In the translation question students are expected to translate a 'Finnish text' into English so as to complete a meaningful conversation, thus the assessment ensures a check of contextual usage of the language.

2.2 You are a reporter for Finnish TV. You are interviewing Mrs Athanasia Kanda from the Iraklion Museum in Crete about the ongoing renovation of the museum. Ask the questions in natural English. You need not translate word for word but remember to be polite. Write your translations on side B of the answer sheet. Write each one on a separate line.

Renovation of a museum

1. Aloita kohdeluaasti ja kysy, mikä museon uudistustyössä on ollut jännittävintä.
   Inled artigt och fråga vad som har varit mest spännande i renoveringen av museet.

Kanda: At one point, we discovered the foundation of a monastery.
We plan to restore the garden with plants that existed in Minoan times, such as olive, fig, and pomegranate trees.

4. In the section on writing (Production) the topics are varied and rich. Students are often given one or two lines (10-15 words) so as to understand the specifics of the essay topic better.

4. Improving safety in traffic

A magazine has asked young people to give their opinions on how safety in traffic could be improved. Look at the statistics below and suggest some concrete measures.

![Car and moped drivers in Finland: casualties according to drivers' ages, 2004 and 2009](source: Tilastokeskus TVV Liikenneturva 2010)

5.4 Case Study – Marking Scheme of Hong Diploma of Secondary Education

HKDSE has comprehensive procedures for the marking of examination papers to ensure fairness and consistency in the marking process.

5.4.1 Written Papers

The marking procedures for the written papers are as follows:

- **Appointment of markers**: Academic qualification and experience in teaching and marking are the key elements for consideration in the selection process. Each year, over 4,000 markers are recruited for script-marking, most of whom are teachers.
- **Marking scheme:** Prepared by the moderation committee, the marking scheme serves as a guide to markers on how marks should be awarded, taking into consideration the question requirements and the range of acceptable responses. Marking schemes are not model answers. Answers not covered by the marking scheme could also merit and score marks if they are relevant to the question and logically presented.

- **Sample scripts:** After the examination has taken place, sample scripts covering different approaches of candidates’ responses are selected. These samples provide useful material for standardising marking.

- **Standardisation meeting:** The examiners compare marks awarded to the sample scripts, agree on marking principles and standards, and revise the marking scheme, where necessary, before the markers’ meeting.

- **Markers’ meeting:** The examiners brief markers on the assessment objectives and demands of individual questions. Some sample scripts are trial marked by markers to identify and rectify discrepancies in interpreting the marking scheme.

- **Allocation of scripts to markers:** Candidates are assigned random candidate numbers by the computer. Each marker's batch of scripts consists of candidates from different districts / centers. Markers do not know the identity of the candidates. Also, markers do not mark the scripts of their own students or close family members. These scripts are taken out of a marker’s batch before script distribution.

- **Marking:** Markers must demonstrate that they have mastered the marking standards before they can proceed to award marks to the scripts. For scripts that are double-marked, there will be two raw marks awarded independently by two different markers. If there is a big difference between these two marks, a third marker will mark the script. A second discrepancy marking will also be conducted if necessary to ensure a fair assessment of the script. The closest pair of marks is added up to form the raw mark for the script.

- **Check marking:** The marked scripts of each marker undergo at least two stages of check marking by the examiners to ensure consistency and to spot problems of marking. If a script has been selected for check marking, the mark awarded by the check marker is also recorded and may override the raw mark if the former (the mark awarded by the check marker) is deemed more reliable.

- **Checking of addition of marks:** For manually marked scripts, a team of checkers checks the addition of marks on all the scripts and their correct input to the computer. They also check that all pages in each script have been marked.

- **Combining the paper marks to form a subject mark:** After the completion of marking the papers, the marks of each marker’s batch of scripts are checked. Coupled with evidence gathered from check marking, appropriate actions such as mark adjustment or remarking are carried out to rectify any marking that is too lenient, strict or erratic. Marks may also be adjusted to ensure comparability between optional questions or sections. These processes give rise to the adjusted mark. The adjusted marks of each question/section achieved by a candidate in an examination paper are then added up according to their relative weightings to form the total marks for the paper. A subject consists of two or more examination papers, the adjusted marks of individual examination papers are converted to the same scale, taking into account the spread of marks in different papers and the published paper weightings, to form the weighted paper marks. This is done because the overall performance of candidates, in terms of the mean and spread of adjusted marks, may be different across the examination papers for a subject and so these marks are not directly comparable with each other. The weighted paper marks for each examination paper are added together and the total so arrived at represents the final marks for each candidate.
• It should be noted that marking involves professional judgments and is not an exact science. Different markers may not award identical marks to the same answer, particularly for questions of an open-ended nature. Marks awarded by persons who have not been trained cannot be regarded as valid assessments of candidates’ performance, if the marks are not standardised.

• For subjects adopting onscreen marking, markers mark the scripts at Assessment Centres via a secure intranet. Marks are input in score boxes and, depending on the marking requirements, markers may or may not put any ticks, crosses or comments on the script. Even for manually marked scripts, markers do not necessarily write comments on the scripts and may only put ticks, crosses and/or marks.

5.4.2 School-based assessments (SBA)

The marking procedures for the SBA are detailed below:

• **Moderation of SBA marks:**

  For subjects with SBA, the SBA marks submitted by schools are moderated to iron out possible differences in marking standards among teachers, and the mean and spread of marks of a school are adjusted.

  HKDSE follows a detail moderation process. The design of SBA components may be different across subjects. Two types of moderation are Statistical moderation and Expert judgment moderation.

  Statistical moderation is based on the use of public examination scores as a moderating variable, is applicable to subjects in which public examination performance is a valid measure of the overall level of performance of students in the moderation group.

  On the other hand, the SBA of Design and Applied Technology, for example, focuses on assessing students’ skills in deriving practical solutions to a real world design problem which is a dimension different from the requirement of the public examination. Hence, it is not appropriate to use examination results to moderate SBA scores (statistical moderation) in Design and Applied Technology.

• **Weighting of Moderated Marks**

  Moderated SBA marks can be directly combined with the weighted examination paper marks for a subject, with no further conversion, in accordance with the prescribed weightings to achieve the subject mark for each candidate.

  For subjects that have both the component and the subject marks reported, the subject mark is the sum of all the component marks. For subjects that have two exam papers or one exam paper and an SBA, the weighted paper marks of the constituent papers (or the constituent paper and the SBA) are added up to form the final mark for the subject concerned. If a subject consists of only one paper, the final mark for the subject is the same as the weighted paper mark.
6. ANALYSIS OF QUALITY OF QUESTIONS OF DIFFERENT EXAMINATION BOARDS

The essence of ‘comparative study of the different examination boards’ was i. to identify the key qualitative issues in the question papers of Gujarat board and ii. to bring out some qualitative features of question papers of other boards.

We have already looked into qualitative aspects of Finnish question paper in the previous section. In this section we will focus on comparative study of four different boards – Gujarat Secondary board, International Baccalaureate (IB) board, Central Board of Secondary Education (GSEB) and Hong Kong’s Secondary Diploma Examination board (HKDSE).

The primary reason for including HKDSE in this study is the fact that it has been taking a series of innovative changes in last two - three years not only the structural aspects but also on the qualitative aspects (sec 4.1.7). It may be noted that IB does not have a board examination at Middle Year Programme (MYP) i.e. grade 10th level, however IB conducts board exams at diploma programme i.e., 12th. IB is characterised by two different levels of papers – Higher level (HL) and Standard level (SL). A norm is that students wishing to pursue their future career opportunities in a particular subject choose HL paper and those who want to just get a certification in diploma exam opt for Standard level. CBSE offered a fair reference point for Gujarat board to be compared against CBSE – which has a more national character.

Section 6.1 contains item wise analysis and section 6.2 we have presented comparative tables, which are essentially the highlights of key differences between the qualities of different board’s questions.

6.1 Item Wise Analysis

In order to do an Item Wise Analysis of question papers we collected different set of question paper from different boards. The set of question papers we analysed are tabulated below:

<table>
<thead>
<tr>
<th>Board</th>
<th>English</th>
<th>Science</th>
<th>Social Science</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarat Board</td>
<td>1-2008</td>
<td>1-2008</td>
<td>1-2008</td>
<td>1-2008</td>
</tr>
<tr>
<td>IB</td>
<td>1-HL,SL(A)</td>
<td>6-P,C,B (HL,SL)</td>
<td>1-2008</td>
<td>4- HL,SL</td>
</tr>
<tr>
<td>CBSE</td>
<td>1-2010 SA</td>
<td>1-Science (Theory)</td>
<td>1-2008 1-2010</td>
<td>1- 2008 2- 2010</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1-Four sample papers P1,P2,P3,P4</td>
<td>1-Integrated Science P1,P2</td>
<td>History P1 History P2 Geo P1 Geo P2</td>
<td>Math P1,P2,E1,E2</td>
</tr>
</tbody>
</table>

Sections 6.1.1 to 6.1.4 contain analysis in English, Science, Social Science and Mathematics respectively.
6.1.1 English

6.1.1.1 Gujarat Board

1. Reading Comprehension questions are very straight forward. They just require restating the facts, issues or event mentioned in the reading texts. There are no questions requiring inference or analysis.

```
King John ruled over England seven hundred years ago. The Abbot of Canterbury was one of the priests in his kingdom. King John was displeased with him because people said that he was richer than the King. So the King summoned him to his court.

Questions:
3. Was the King happy with the Abbot? Why? 1
4. Who ruled over England? When? 1
```

2. In short writing and essay writing sections, the instructions are very generic. Ideally, the assessment rubric should be given to the students with the question instruction itself. This rubric would also help examiners to assess students on a uniform scale and therefore reduce subjectivity.

```
38. Read the telephonic talk and on behalf of Roma, you prepare Jay's message for Monis in about 30 words.
Jay : Can I speak to Monis?
Roma : Sorry. He is sleeping. He is not well. Any message for him?
Jay : Oh, nothing! I am Jay, his classmate. I just called to ask how he is feeling now! Please tell him that our exams will begin from 20th March. I will come and give him the timetable in the evening.

MESSAGE

Start this way:
Monis, your classmate Jay .....................
```
3. Letter writing questions require students to complete the letter by filling in appropriate words. This is too simple for the class level.

43. Complete the following letter by filling the blanks from the words given below it.

Alex is Mehru Havewala's friend living in Canada. He has asked you to send some information about the people living in the tribal areas of Gujarat.

Mehru Havewala,
10, Nandan Van Sc.,
Surat
22nd Sept. '07

Dear Alex,

Thank you for your lovely letter. You want about the tribals in Gujarat. Well, the people living in tribal areas are called . They live in small, but huts. They live peacefully. They celebrate with full . They are good at different . They are loving, simple and innocent. I am sending you a book titled . I hope you will like it.

Regards to all at home.

Your loving friend,
Mehru.

[Comfortable, enthusiasm, to get more information, Adivasis, festivals, crafts, tribals of Gujarat].

4. The Grammar Section looks appropriate.

Section E: Language in Use / Grammar

Rewrite the following paragraph selecting the correct words from the brackets.

(Ques. nos. 44 to 51):

Our first visit (44) (was / will be / would be) to the Taj Mahal, one of the (45) (wonder / wonders) of the world. (46) (Them / They) we will go to Amritsar and see the well-known Golden Temple. We (47) (should / shall) also visit Shantiniketan (48) (which / who) was founded by Rabindranath Tagore (49) (whom / who) was our great poet. Then we shall fly to Chennai and attend (50) (classics / classical) dance performances like Bharatnatyam and Kathakali. From there, we shall go to the Vivekanand Rock Memorial which is in Kanyakumari. It is a beautiful place (51) (that / when / where) three seas meet.
6.1.1.2 IB

1. In Paper One (Course A) students are expected to write a commentary on one of the two passages, generally a poem or an unknown passage. The passages for commentary offer candidates a variety of possibilities for **analysis and interpretation**. The test of any interpretation is that it has to be tied carefully to the words, images and relevant details of the text. Personal response, in the same way, must be tied to the passage. An example is given below -

```
Write a commentary on one of the following:

1. (a)

   **Household Gods**

   "I mirrored their breaking lives, I saw their pale
   Distraught coming and going, lined despair,
   His shaken bulk, her calm pose in the doorway—
   I saw them. I was there."

   5  "I have so long been silent, even now
   Hardly at all remember how her slim
   Long fingers once caressed me—was that how
   At one time she touched him?"

   "His lips on mine in the morning, or, in darkness,
   After a happy embrace, warmed my clay.
   Where is the firm mouth now, where the kiss?
   Broken and swept away."

   "They lay me down to serve their steady feet,
   How many times they strode over my pile!

   15  Of late those steeps were tentative. Now, a street
   For strangers, I am so much jute and wool."

   "Bit by bit they painted my walls, the ceiling,
   Made me in terms of their vision—I was glad
   But signs of time flake down, the walls are peeling,

20  What is a house when occupants are fled?"
```

2. In Paper two (Course A) students are required to write one essay from five options available, this allows students to exhibit their literary prowess by writing on a variety of topics.

<table>
<thead>
<tr>
<th>Drama</th>
<th>Poetry</th>
<th>Prose: The Novel and the short story</th>
<th>Prose: Other than the Novel and the short story</th>
<th>General Questions on literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) &quot;What is drama but life with the dull bits cut out?&quot; To what extent do you find this statement applicable in at least two plays you have studied?</td>
<td>Some poets look from the particular to the universal to explore human experience. Discuss poems from at least two poets in relation to this statement, considering also the ways in which they achieve their effects.</td>
<td>Discuss the ways in which at least two novels or short stories you have studied demonstrate that the search for identity can be a conscious or an unconscious process.</td>
<td>A writer usually attempts to create a bond of trust between writer and reader. How and to what extent have at least two writers you have studied been able to elicit your trust?</td>
<td>(a) &quot;Why won't writers allow children simply to be children?&quot; Discuss the presentation and significance of children, or the state of childhood, in at least two works you have studied in the light of this complaint.</td>
</tr>
</tbody>
</table>
6.1.1.3 CBSE

1. **Straight forward questions.**

   (a) What was the little girl fond of?  
   (b) Why did the little girl’s question confuse the mother?

2. Sometimes the **sections do not match to the stated objective:** For example following question in reading comprehension checks grammatical knowledge, this is especially noticeable as there is a separate grammar section in the same very paper.

   (g) Find out from the passage the adverb form of the words given below:
   (i) usual (Para 1)
   (ii) great (Para 4)

3. **Writing sections include conventional topics like writing a report, letter or a general essay.** Quality of the question items in letter writing seems very ordinary.

   **SECTION B (Writing) (20 Marks)**

   You are Pulkit/ Prachi, a resident of 221, Pocket V, Mayur Vihar, New Delhi. Your elder sister has suddenly fallen ill just before a competitive examination. Write a letter to your father who is away on a business tour to Mumbai, informing him about her condition. Also ask him to return as early as possible.

   OR

   You are a reporter. On Diwali you visited the city and saw certain incidents of minor fire. You took the notes which are given below. Using the information write a report in about 60 words.

   - minor fire - incidents in the capital - Diwali - seven incidents due to crackers - putting out the fire - a dozen fire tenders - deployed - fire extinguished - police alertness seen

4. **Report writing seems to be a very easy affair.** The expected report on the event is to be written in 60 words, and the question gives 50% of the words as 'notes'. Students only need to work on connectors and add beginning and end to the whole write up!

5. **Text book questions (section D) constitute the majority (45%) of weightage.** These questions are straight forward and memory based:

   **7.** Answer any two of the following questions in 30-40 words each on the basis of the lines given below:  
   (a) “I think I know enough of hate....” What does the poet mean by knowing enough of hate?
   (b) “The silence is golden, the freedom is sweet” Why does Amanda say so?
   (c) “Not one is respectable or unhappy Over the whole earth.” Who is the poet talking about? What is their state of mind?
### 6.1.1.4 Hong Kong

1. Every question is preceded by **clear cut instructions** on how the question needs to be attempted:

   **Part A (56 marks)**

   Answer questions 1-38 using information from the magazine article about Hong Kong in 2017 on page 2 of the Reading Passages booklet. Write your answers in the spaces provided. For multiple-choice questions, choose the best answer and blacken ONE circle only.

   1. Look at the expression ‘a mug’s game’ used in the introduction to this article. Decide which of the definitions below is closest in meaning.
      - A. a pointless activity
      - B. a person who is easily deceived
      - C. a large drinking vessel
      - D. a physical assault

2. Reading passage contains **inferential questions**, which check literary awareness and ability to identify the key ideas

   10. The style of this article is…
      - A. formal
      - B. informal
      - C. poetical
      - D. literary

   11. What is the writer’s main purpose in writing the article?
      - A. to protest
      - B. to inquire
      - C. to complain
      - D. to entertain

3. A good number of questions checks **contemporary skills (job oriented)** like understanding information and data, summarising and tabulating

   17. What are the areas of strength and weakness of the following cities/countries if they want to develop into centres for the creative arts? Use the information from paragraph 14 to complete the table. **(4 marks)**

<table>
<thead>
<tr>
<th>Areas of strength</th>
<th>Areas of weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bangkok (Thailand)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Tokyo (Japan)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Singapore</strong></td>
<td></td>
</tr>
</tbody>
</table>

4. Editing – one of the critical writing skills is also **assessed in a very interesting way**. In the following example, students are expected to work on a letter to newspaper but they are not told to write a letter, instead they are expected to edit it by picking the most appropriate -text. This ensures assessment of multiple skills, ‘business vocabulary’, and comprehension of the text flow and ‘readiness of the students’ to apply their literary skills to real life situations.
Give the (red / amber / green) light to universal suffrage

Jake van der Kamp’s article, “What will Hong Kong look like in 2047?” (July 1), is a highly commendable prediction of the path which lies ahead of us. He astutely articulates the (30) aspirations / expiry / enquiries of many people like myself. Too bad if his boss (31) can / can’t / could appreciate the poetry!

It’s (32) obvious / envious / odious that creative arts alone will not sustain us in 2047. (33) Unfortunately / Frankly / Doubtless, banking and finance will continue to play an important role in our economic future. (34) Sensibly / Similarly / Shockingly, I think Hong Kong will further establish itself

5. Writing sections (200 word and 400 words passages) include very contemporary topics.

You have TWO hours to answer Question 1 in Part A and ONE question from Part B.

Part A

Write about 200 words on the following topic:

Sunday, 10th September, 2008

Hong Kong Post

LOCAL NEWS

Trapped in Building

Yesterday, six people were trapped for five hours in a Wan Chai office building when the electricity suddenly went off and they discovered that the fire exits were locked. The Fire Services eventually rescued the six. The drama began at 11 am .......

Part B

Write about 400 words on any one of the following topics:

6. Learning English through Short Stories

Next week, your teacher is going to ask your class to read some short stories about the future. In order to prepare you beforehand, she has set you the following task:

Imagine that you leave Hong Kong in 2008 to study overseas. You return to the city in 2015. Write a letter to Peter, a friend you made while you were overseas, and describe the changes in Hong Kong and how you feel about them.

Write your letter. Sign your name ‘Chris Wong’.
6. English Paper 4 contains topics like ‘Programme proposal’ ‘profile report’ etc. which probably reinforces the fact that **good writing skills are essential in every sphere of life.**

**Task 10 (19 marks)**
Write a proposal for the new reality show. Refer to the information on pages 12, 14, 16 and 17 of your Data File.

**Cableline TV**
Programme Proposal Form

**Proposed name**

**Description**

**Part B - Section 2**

**Task 8 (15 marks)**
Write a brief profile of each of the participants in ‘Flatmates’ for the Cableline magazine. Refer to the notes you made on page 2 and information from page 12 of your Data File.

Richard Ho

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7. The components of external assessments also include – **Group discussion and Individual oral responses.**

**Part A Group Discussion** (Preparation: 10 minutes; discussion: 8 minutes per group of four candidates)

The article below appeared in yesterday’s newspaper:

**A question of privacy?**

Members of the media often complain that the government limits their freedom of expression, though many members of the public feel there is nothing wrong with this. Some years ago, photographs of Twins singer Gillian Chung Yan-tung were published by a local magazine, Easy Finder, and they caused a real storm. The photographs were taken with a hidden camera as she was changing costumes backstage. Many people were upset by this and demanded that press freedom be restricted. The Hong Kong Performing Arts Guild condemned the incident, and insisted the government amend the law and punish the magazine’s owners.

‘Some people thought that the whole episode had been exaggerated, but people buy these magazines for exactly this kind of shocking content so it’s the market itself that demands such pictures,’ explained retired editor John Peters.

Mike Chau

Your group wants to write a letter to the editor of the newspaper responding to the points made by Mike Chau. Discuss with your group what to include in your letter in response to this article. You may want to talk about:

- whether the media have too much freedom
- whether famous people should have their privacy protected
- why people like to read magazines for their shocking content and gossip
- anything else you think is important
6.1.2 Science & Technology

6.1.2.1 Gujarat

1. A majority of questions are procedural (~60%). Primarily these questions require students to: write about a phenomenon, a process, and state known facts, derive a mathematical relationship between quantities, and explain functions and structures etc.

2. A second group of questions (~33%) are those which require students to provide numerical data or define a term.

3. A few questions (~7%) are based on application of few basic concepts ex. Finding numerical values by following one or two steps, or balancing a chemical equation, which may require student to think.

4. Some of the questions do not seem to assess ‘skills of science’, though important; these questions assess ‘general awareness’ of the students more than their understanding of science topics. For example,

   5. 15. In which country was the disease Minamata first seen? (MCQ)
   6. 16. Write full form Of G.S.L.V (1)
   7. 24. Write full form of ATP (1)
   8. 31. State the glimpses of the challenges of Nanotechnology to mankind in future (2)

5. A few questions seem to check awareness of non essential information e.g. the question which requires students to state the number of stars in the universe. In a few questions students are expected to provide numerical data.

   6. 5. How many stars do the universe has? (1) (MCQ)
   7. 6. What is the duration of Moon in one Nakshatra? (1) (MCQ)
   8. 13. What is the diameter of a Chromatid? (1) (MCQ)

6. It appears that the difficulty level of the questions is lower than it should be. Two facts which contribute to this are: Some question loaded with hint while some others are repeats from previous year(s).
7. **Two good quality questions** we observed were: First - Which device converts solar energy directly to electrical energy? Second - Which type of current can be obtained by a battery? These questions certainly requires the student to think and answer, however it must be noted that if such questions are already provided in the text books, than they would no more be as effective.

8. **None of the questions require students to reason,** to make a case or to defend a statement.

9. **There is a complete absence of questions** which require students to explore a process, analyse a case study, and propose a method etc.

6.1.2.2 Hong Kong

1. Students are assessed on a **number of contemporary topics** like Urbanisation, deforestation, depletion of fossil fuels, need of safe renewable energy sources, social and ecological problems encountered due to rapid industrialisation through typical problem analysis. **Students are required to analyse the case, find out cause and effects, synthesise issues both through a scientific and social prism.**

2. Ability of the students to apply their **knowledge of scientific terms and processes and phenomena in practical situations** (real life situations) is a major thrust of many of the questions.
It was a hot summer afternoon. The temperature was 35°C and the relative humidity was 75%. Peter just finished all his lessons. He passed by the basketball court and could not resist playing a game with his schoolmates before going home though the hot sun was shining on them. He finished the game at around 5:00 pm. Sweating heavily, he made his 10 minute-walk back home. When he arrived home, he put two cans of soft drinks into the ~20°C freezer, turned on his bedroom air-conditioner, and headed for a cold shower. After the shower, he finished a whole can of the chilled soft drink and rested in the air-conditioned room.

(b) Identify TWO measures that Peter employed to cool his body down. In each case, briefly explain whether the measure is effective.

(c) Peter’s mother returned home and found her son unwell. Peter told her that he might have got heatstroke when playing basketball under the hot sun. Explain whether Peter’s statement is correct or not.

3. Many of the questions actively encourage objective scientific thinking.

The diagram below shows a 100 m sprinter in a crouch start position with front and rear feet resting on the starting blocks.

![Diagram of a sprinter in a crouch start position]

rear starting block front starting block

(d) Make TWO suggestions to the sprinter which can help improve his performance.

4. Students are expected to analyse and reason out a theory, or a model.

In the early twentieth century, people believed that atoms were like a ‘plum pudding’ in which very tiny electrons were embedded in a diffused volume of positive charges. In 1910, Ernest Rutherford and his team carried out an experiment by firing a thin beam of α-particles at high speed onto a gold foil. They expected most of the α-particles to pass through the foil with little deflection. Out of their expectation, some of the α-particles were found to have deflected by angles greater than 90° or even reflected.

(ii) Based on the experimental results, Rutherford proposed another model of atom. The diagram below shows Rutherford’s model of an atom:

![Model of an atom]

Suggest why the above ‘unexpected’ experimental results can be explained using Rutherford’s model.

5. Some of the questions test higher order thinking skills.
5. In the regulation of body temperature, the skin plays the role of

(1) a receptor.
(2) an effector.
(3) a coordinating centre.

Which of the following combinations is correct?

A. (1) and (2) only
B. (1) and (3) only
C. (2) and (3) only
D. (1), (2) and (3)

6. Some of the questions are to be answered through case studies. Cases are ‘new situations’ in which students are required to apply their learning, exhibit their ability to provide solutions.

5. Read the passage below and answer the questions that follow:

Ciguatoxin

Ciguatoxin is a fat-soluble toxic chemical produced by some algae found in the tropical and subtropical coral reef. When fish feed on the algae, they will get the toxin. The toxin is difficult to be broken down or excreted by the fish. If a human consumes the contaminated fish, ciguata fish poisoning may result. The risk is greater if the contaminated fish consumed is of mass greater than 2 kg. The toxin can affect our nervous, digestive and/or cardiovascular systems.

(a) Explain why eating bigger fish is more likely to cause ciguatoxin poisoning than eating smaller fish.

(b) Suppose that the water where the ciguatoxin-producing algae live is moderately polluted with organic matters. Describe and explain the effect of such pollution on ciguatera fish poisoning.

7. Essay type questions have clear cut instructions which actively guide students on ‘how they will be assessed’.

For question 7, candidates are required to present their answers in essay form. 6 marks will be allocated to science knowledge, and 2 marks to logical presentation and clarity of expression.

7. With reference to the nature of ultraviolet radiation, discuss the health hazards associated with over exposure to the radiation and how its applications have improved our living.

8. Recall based questions, seem relevant and logically placed.
It is noticed that questions which assess the ability of students to handle scientific data through different quantitative tools is absent. However given the overall high quality of assessment items, this factor looks less significant.

6.1.2.3 CBSE

1. Around 45% of CBSE Questions are **short answer / essay type questions** which require students to write about a procedure, explain known phenomena, and derive a given relationship.

2. Around 25% of questions are **simple recall of facts**, stating definitions, explaining a common phenomenon.

3. Around 20% of the questions are **application based**, these questions require students to give reasons, explain an observation, state possible causes of an occurrence. However it must be taken into account that none of the questions asked are ‘new cases’, they are either repeated over the years or are mere repetition of the textbook questions.

---

**Table: CBSE Question Distribution**

<table>
<thead>
<tr>
<th>Type of Question</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short answer / essay type questions</td>
<td>45%</td>
</tr>
<tr>
<td>Simple recall of facts</td>
<td>25%</td>
</tr>
<tr>
<td>Application based</td>
<td>20%</td>
</tr>
</tbody>
</table>

---

**Questions Sample**

3. Explain why a ray of light passing through the centre of curvature of a concave mirror gets reflected along the same path.

8. What is the main constituent of biogas? How is biogas obtained from biomass? Write any two advantages of using this gas.

6. Name the part of our eyes that helps us to focus near and distant objects in quick succession.

5. A charged particle enters at right angles into a uniform magnetic field as shown. What should be the nature of charge on the particle if it begins to move in a direction pointing vertically out of the page due to its interaction with the magnetic field?
4. Only few of the questions are **calculation based** – they are also procedural questions where students are expected to ‘solve a problem’, using a formula and get the answer.

13. At what distance should an object be placed from a convex lens of focal length 18 cm to obtain an image at 24 cm from it on the other side. What will be the magnification produced in this case?

**6.1.2.4 IB Science**

1. Questions in each of the three subjects (physics, chemistry, biology) are **extensive, exhaustive and extremely focussed on Knowledge of subject matter**.

2. **Questions are a mix of application and knowledge.**

   22. A standing wave is established on a string between two fixed points.

   ![Standing Wave Diagram]

   At the instant shown, point T is moving downwards. Which arrow gives the direction of movement of point U at this instant?

3. **Similar to Gujarat and other Indian boards, some of the questions in IB require simple statement** of facts or explanation of process, phenomena or a term.

   | (a) | Statement of Tycho Brahe’s observations that enabled Kepler to formulate his laws of planetary motion. |
   | (b) | Define the terms mass defect and nuclear binding energy. |
   | (c) | Discuss the concerns about safety in nuclear power plants by commenting on two aspects of each of the following: |
   |     | - the withdrawal of all the control rods from the core |
   |     | - the presence of oxygen in the coolant gas passing through the graphite moderator |
   |     | - the breakage of a pipe carrying molten sodium in a breeder reactor |

   ![Diagram](#)
4. Paper one which assesses students on multiple choice questions contains some well thought out good quality questions. **The answer options are well reasoned and discerning.**

21. Light travelling from water to air is incident on a boundary.

Which of the following is a correct statement of Snell’s law for this situation?

A. \( \sin Z = constant \times \sin Y \)

B. \( \sin W = constant \times \sin Z \)

C. \( \sin X = constant \times \sin Z \)

D. \( \sin W = constant \times \sin Y \)

36. What is the correct name of this compound?

\[
\begin{align*}
\text{CH}_3 \\
\text{CH}_3-\text{CH}-\text{CH}_2-\text{CH}_2 \\
\text{CH}_3
\end{align*}
\]

A. 1,3-dimethylbutane

B. 2,4-dimethylbutane

C. 2-methylbutane

D. 2-methylpentane

5. Students are also assessed on their **ability to explain cause, effect and reason of a physical, biological and chemical process, phenomena or occurrence.**

Predict and explain how the hardness and electrical conductivity of \( C_{60} \) fullerene would compare with that of diamond and graphite.

The shape of cold-blooded creatures such as snakes tends to be cylindrical rather than spherical. Explain why the cylindrical shape enables the snake to raise its internal body temperature more rapidly in sunlight than if it were spherical.
6. A majority of questions require students to exhibit their handiness on mathematical tools used to analyse a scientific process. These questions require students to analyse given evidence, and answer questions on information stated through scientific graphs and statistical tables etc.

Using the above spectrum.

(i) Explain why X is not a carboxylic acid.

(ii) Identify, giving reasons, three bonds that are present in X.

F1. The supply of agricultural products and the maintenance of the environment are both essential for human existence and quality of life. The scatter graphs below show trends in global cereal production and in the use of phosphorus and nitrogen fertilizers over the past forty years.

(a) Identify the amount of phosphorus and nitrogen fertilizer used in 1980. [1]

Phosphorus: .................................................................

Nitrogen: .................................................................

(b) Calculate the percentage increase in global cereal production from the year 1960 to 1990. [1]

7. Students are allowed to refer the standard data table (including periodic table, standard formulae list and data table) – Which in effect reduce the need to ‘memorise’ standard data or commonly used formulae.
6.1.3 Mathematics

6.1.3.1 Gujarat

1. A Majority of Questions are procedural (~60%). These questions require students to follow steps (which can be mastered by rote practice of doing a number of similar problems from test preparation booklets).

Q No. 4. The roots of the equation $x^2-x-30 =0$ are..............
Q No. 19. Find the nth term of an Arithmetic Progression 3, 8, 13, 18.....
Q No. 37. Find the mean of the frequency distribution of 100 observations given below ...
Q No. 43. Find the H.C.F and L.C.M of $2a^2-a-15$ and $6a^2+11a-10$.

2. Section E with highest weightage (25%) has all the questions falling into the procedural category.

3. 20% of the questions encourage thinking and application of a learned concept.

Q No. 1. The solution set of $3x+3y-3=0$ and $5x+5y-5=0$ is
(a) {5,3} (b) {3,5} (c) Empty set (d) Infinite set
Q No. 24. How much investment should be done by a woman tax payer earning Rs. 1, 60,000 per annum to get an exemption u/s 80 C?
Q No. 34. The Cash selling price of a radio is Rs. 500 or Rs. 250 cash is to be paid at the time of purchase and Rs. 260 is to be paid after 3 months. Find the rate of interest of instalment plan

4. Around 12 % of the questions require students to ‘substitute’ in a known formula. Students need not know the logic or reasoning behind the formulae. They can learn them by rote and mechanically practise substituting the numerical values to get the desired answer.

Q No. 14. The formulae to find the total surface area of a closed cylinder are......
Q No. 22. Find the simple interest of Rs. 8000 at 10% for 3 years

5. Another 5 % of the questions just need a recall of formulae or definition of term. A definition with an accompanying application problem would have been a better way of asking the questions.

Q No. 3 Premium of Mediclaim up to Rs.... is exempted u/s 8o D (i.e. 100% ) for a senior citizen
Q No. 20 State the formulae for the value of discriminant D.

6. Few questions are ill framed, especially the problems in trigonometry, it is assumed that all trigonometric functions are defined for all values.

Q No. 11 $1/ (\sin^2 \theta ) - 1 =........$ It has been assumed that the given function is valid for all values of theta ($\theta$), which is fundamentally an incorrect assumption

- Key data on this Question paper

<table>
<thead>
<tr>
<th>Section</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitue in to a formulae</td>
<td>6, 10, 12, 13, 14,</td>
<td>22, 25</td>
<td>40</td>
<td>48</td>
<td></td>
<td>12 %</td>
</tr>
<tr>
<td>Recall /Define</td>
<td>3</td>
<td>20, 23, 26, 29</td>
<td></td>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Application Based /Reasonably Ok</td>
<td>1, 2, 7, 15</td>
<td>24</td>
<td>34, 36, 39</td>
<td>44, 46, 49</td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>Calculation (Procedural)</td>
<td>4, 5, 8, 9</td>
<td>16, 17, 18, 19, 21, 27, 28, 30</td>
<td>31, 32, 33, 35, 37, 38, 41, 42</td>
<td>43, 45, 47</td>
<td>50, 51, 52, 53, 54,</td>
<td>62%</td>
</tr>
<tr>
<td>Ill framed</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
6.1.3.2 Hong Kong Board

1. Question Paper seems to be an assortment of questions aimed at different difficulty levels. There are simple procedural questions, substitute in the formula questions, extension of the formula questions and also application based problems.

<table>
<thead>
<tr>
<th>HKDSE Mathematics : An assortment of different difficulty problems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Simple Procedural Problem</strong></td>
</tr>
<tr>
<td>3. Factorize</td>
</tr>
<tr>
<td>(a) $3m^2 - mn - 2n^2$ ,</td>
</tr>
<tr>
<td>(b) $3m^2 - mn - 2n^2 - m + n$ .</td>
</tr>
<tr>
<td>(3 marks)</td>
</tr>
<tr>
<td><strong>Substitute into a known formula</strong></td>
</tr>
<tr>
<td>4. The marked price of a handbag is $560 . It is given that the marked price of the handbag is 49% higher than the cost.</td>
</tr>
<tr>
<td>(a) Find the cost of the handbag.</td>
</tr>
<tr>
<td>(b) If the handbag is sold at $460 , find the percentage profit.</td>
</tr>
<tr>
<td>(4 marks)</td>
</tr>
<tr>
<td><strong>Extension of a formulae</strong></td>
</tr>
<tr>
<td>6. Figure 1 shows a solid consisting of a hemisphere of radius $r$ cm joined to the bottom of a right circular cone of height 12 cm and base radius $r$ cm . It is given that the volume of the circular cone is twice the volume of the hemisphere,</td>
</tr>
<tr>
<td>(a) Find $r$ .</td>
</tr>
<tr>
<td>(b) Express the volume of the solid in terms of $\pi$ .</td>
</tr>
<tr>
<td>(4 marks)</td>
</tr>
<tr>
<td><strong>Application of a concept</strong></td>
</tr>
<tr>
<td>11. In a factory, the production cost of a carpet of perimeter $s$ metres is $SC$ . It is given that $C$ is a sum of two parts, one part varies as $s$ and the other part varies as the square of $s$ . When $s = 2$ , $C = 356$ ; when $s = 5$ , $C = 1250$ .</td>
</tr>
<tr>
<td>(a) Find the production cost of a carpet of perimeter 6 metres .</td>
</tr>
<tr>
<td>(b) If the production cost of a carpet is $539$ , find the perimeter of the carpet .</td>
</tr>
<tr>
<td>(4 marks) (2 marks)</td>
</tr>
</tbody>
</table>

2. Some of the questions emphasise the fact that mathematics is not to be studied in isolation; it is in fact a language to express Science.

17. A researcher defined Scale $A$ and Scale $B$ to represent the magnitude of an explosion as shown in the following table:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A$</td>
<td>$M = \log_{4} E$</td>
</tr>
<tr>
<td>$B$</td>
<td>$N = \log_{8} E$</td>
</tr>
</tbody>
</table>

It is given that $M$ and $N$ are the magnitudes of an explosion on Scale $A$ and Scale $B$ respectively while $E$ is the relative energy released by the explosion. If the magnitude of an explosion is 6.4 on Scale $B$ , find the magnitude of the explosion on Scale $A$ . (5 marks)
3. Some of the questions are based on **application of mathematics to ‘real life situations’**.

15. The seats in a theatre are numbered in numerical order from the first row to the last row, and from left to right, as shown in Figure 7. The first row has 12 seats. Each succeeding row has 3 more seats than the previous one. If the theatre cannot accommodate more than 930 seats, what is the greatest number of rows of seats in the theatre?

![Figure 7](image)

(4 marks)

4. A few questions in mathematics multiple choice questions are **highly discriminating between cursory and indepth knowledge**. Apart from testing the associated concept the distracters (answer options) are nicely framed and are discerning which means that such questions will be difficult for a student with cursory knowledge and will be easy for a student with ‘in depth’ knowledge of the topic.

6. Let \( a \) be a constant. Solve the equation \( (x-a)(x-a-1) = (x-a) \).

   A. \( x = a + 1 \)
   
   B. \( x = a + 2 \)
   
   C. \( x = a \) or \( x = a + 1 \)
   
   D. \( x = a \) or \( x = a + 2 \)

5. A few questions of the **multiple choice questions are of high quality**. They require students to think and analyse.

30. The students' union of a school of 950 students wants to investigate the opinions of students in the school on the services provided by the tuck shop. A questionnaire is designed by the students' union and only the chairperson and vice-chairperson of the students' union are selected as a sample to fill in the questionnaire. Which of the following are the disadvantages of this sampling method?

   I. The sample size is very small.
   II. Not all students in the school are selected.
   III. Not all students in the school have an equal chance of being selected.

   A. I and II only
   
   B. I and III only
   
   C. II and III only
   
   D. I, II and III
6. **HKDSE question papers provide clear instructions to the students.** In the adjoining figure point 5 (instructions on graph paper, bar code), point 6 (unless otherwise specified, all working must be clearly shown), point 7 (give exact answer or answer correct to 3 significant figure) are good and help students to answer the questions in a very specific way.

![INSTRUCTIONS](image)

6.1.3.3 **IB Math**

1. Though many problems in IB paper are higher difficulty problems, yet they are **procedural**; if a student has practiced similar problems he/she can answer such problems easily. These questions are similar to few of the CBSE and Gujarat Board Papers

   Consider triangle ABC with $\angle BAC = 37.8^\circ$, $AB = 8.75$ and $BC = 6$. Find $AC$ (7)

   The following diagram shows part of the graph of $f$, $f = x^2 - x - 2$ [90]

   (a) find both $x$-intercepts (4)

   (b) find the $x$-coordinate of the vertex (2)
2. A few of the questions are of higher order, they are application based and do not require intensive calculation.

6.1.3.4 CBSE

Analysis of 2008 Paper

1. Few questions from CBSE 2008 paper assess students’ ability to apply a studied concept, use their knowledge to solve a new problem.

**A good application problem**

28. A peacock is sitting on the top of a pillar, which is 9 m high. From a point 27 m away from the bottom of the pillar, a snake is coming to its hole at the base of the pillar. Seeing the snake the peacock pounces on it. If their speeds are equal, at what distance from the hole is the snake caught?
A simple yet effective problem

1. Complete the missing entries in the following factor tree:

```
    2
   / \
  3   7
```

2. Some of the questions are procedural, and they do not require students to go beyond ‘ability to reproduce proof of a theorem or finding values for a known problem.

24. Prove that a parallelogram circumscribing a circle is a rhombus.

20. Prove that:

\[(1 + \cot A + \tan A) (\sin A - \cos A) = \sin A \tan A - \cot A \cos A.\]

Analysis of 2010 Paper

3. A majority of the problems are procedural.

Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.

From the top of a 7 m high building, the angle of elevation of the top of a tower is 60° and the angle of depression of the foot of the tower is 30°. Find the height of the tower.

Find the mean, mode and median of the following frequency distribution:

<table>
<thead>
<tr>
<th>Class</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
<th>60-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

4. A few of the questions require simple substitution into a known formula or format.

If \( a, \beta \) are the zeroes of a polynomial, such that \( a + \beta = 6 \) and \( a\beta = 4 \), then write the polynomial.

If \( P(2, p) \) is the mid-point of the line segment joining the points \( A(6, -5) \) and \( B(-2, 11) \), find the value of \( p \).

5. A number of questions form into category of ‘very important problems’ as they are often repeated over a number of years! Year 2010 paper contains a lot of such problems.

If \( 3x = \csc \theta \) and \( \frac{3}{x} = \cot \theta \), find the value of \( 3 \left( \frac{x^2 - 1}{x^2} \right) \).

If all the sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

Without using trigonometric tables, find the value of the following expression:

\[\sec (90^\circ - \theta) \csc \theta - \tan (90^\circ - \theta) \cot \theta + \cos^2 25^\circ + \cos^2 65^\circ - \frac{3 \tan 27^\circ \cdot \tan 63^\circ}{3 \tan 27^\circ \cdot \tan 63^\circ}\]
6.1.4 Social Science

6.1.4.1 Gujarat Board

1. **Around 25% of the questions are not framed appropriately.** Such questions include questions whose objectives are not clear, questions which are specific to time and context, questions which can have more than options.

   1. What is the living example of the fact that India is a land of peace and tolerance? – **Objective not clear.**
   9. In which place there is no software technology park located in the below mentioned places? – **Objective not clear.**
   10. What position does India hold in film making in the world? – **Time dependent**
   14. One of the largest challenges against the unity and oneness of India is? – **More than one answers option possible.**

2. **Around 23% of the questions are essay type questions.** These questions entail the subjectivity of the examinee and the examiner. The lack of specifics in the question stem would mean the student is unable to decide the appropriate depth the answers, similarly the absence of an assessment rubric (different from a marking scheme)

   31. Describe wood carving as an art of ancient India?
   50. Write a note on Gujarati prose and poetry.

3. **Around 12% of the questions are recall based.** These include questions on location of a historical place, name of a historical character, uses of materials etc.

   2. Who composed “SangeetRatnakar”?
   19. Who initiated the use of mercury as a medicine?
   36. What are the uses of limestone?

4. **Some of the questions are weighted disproportionately.** An overview of the question paper reveals that, around 20% of the questions could be of this type.

   38. There will be a need for solar energy in future. Explain. (2marks)
   47. Write a note on the electronic industry of India. (3 marks)

**Key data on this Question paper**

<table>
<thead>
<tr>
<th>Section Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ill framed Questions</td>
<td>1,3,9,10, 14,15,</td>
<td>16,20,25</td>
<td>42</td>
<td>43, 44, 49</td>
<td>54</td>
<td>25%</td>
</tr>
<tr>
<td>Essay type Questions</td>
<td></td>
<td></td>
<td>31,32,33,34</td>
<td></td>
<td>50,51,52</td>
<td>23%</td>
</tr>
<tr>
<td>Recall based</td>
<td>2,4,5,6,7, 8</td>
<td>17,19, 22,24</td>
<td>36</td>
<td></td>
<td></td>
<td>12%</td>
</tr>
<tr>
<td>Disproportionate Weightage</td>
<td></td>
<td>21,29,30</td>
<td>35,37,38,40</td>
<td>45,46,47</td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>Reasonably Ok Question</td>
<td>11,12,13</td>
<td>18,23,26,27,28 ,</td>
<td>39,41</td>
<td>48</td>
<td>53</td>
<td>18%</td>
</tr>
</tbody>
</table>

6.1.4.2 Hong Kong

1. **History Paper One assesses students through extremely intense and thought provoking situations.** Students are assessed on a multitude of skills and topics. Not only they have to answer factual questions, but they also have to interpret, predict, analyse a given situation. The situations are brought about through different sources, like an extract from a novel, a poster published by an
Source D

The following cartoon is taken from a Shanghai magazine in 1918. The magazine was published by a group of radical intellectuals.

Who says the Chinese people can still enjoy freedom and happiness?

A  foreign debt       E  jia ku, miscellaneous taxes
B  government bonds   F  salt tax
C  customs dues, tribute grain tax   G  military contributions, stamp duty
D  land-poll tax       H  people’s freedom

(c) What can you infer from Source D about the purpose of the cartoon? Explain your answer.
2. Students are expected explain a character, analyse an event, react to an episode or predict the result of an action from first, second and third person point of view.

What is the cartoonist’s view of the USSR’s policy towards the West in 1962? Explain your answer with reference to Source G. (4 marks)

The following passage is adapted from ‘The True Solution of Chinese Question’, written by Sun Yat-sen (Sun Yixian) in 1904.

Now it is evident that a new, enlightened and progressive government must be substituted for the old one. Carefully thought-out plans have long been drawn up for the transformation of this out-of-date Manchu monarchy into a Republic of China. The general masses of the people are also ready to accept a new order and are longing for a change for the better so as to uplift them from their present deplorable condition of life. China is now on the eve of a great national movement. A new era would dawn on our beautiful country.

Do you think that Sun Yat-sen would have been satisfied with the development of China in the period 1912-20? Explain your answer with reference to Sources C and D, and using your own knowledge. (8 marks)

3. History Paper Two offer students to exhibit their in-depth knowledge of a historical event, their root causes, features and effects.

To what extent was Hong Kong modernised by the year 2000? Explain your answer with reference to Hong Kong’s political and economic developments in the period 1970s-1990s. (15 marks)

Trace and explain the development of Franco-German relations in the 20th century. (15 marks)

How effective was the United Nations in solving environmental problems in the second half of the 20th century? (15 marks)

In what ways was the Second World War a turning point in 20th-century world history? Explain your answer with reference to any one country or region covered by this syllabus. (15 marks)
4. Geography questions are **contemporary and relevant**.

Which of the following factors favour transnational corporations in developing IT industries in less developed countries?

(1) low labour costs  
(2) stable government policy  
(3) an improved tele-communications system  
(4) a sufficient supply of raw materials

A. (1), (2) and (3) only  
B. (1), (2) and (4) only  
C. (1), (3) and (4) only  
D. (2), (3) and (4) only

Which of the following are possible difficulties that the iron and steel industry in China will face in the future?

(1) an insufficient supply of raw materials  
(2) a rise in power resource prices  
(3) pollution problems  
(4) insufficient skilled labour

A. (1), (2) and (3) only  
B. (1), (2) and (4) only  
C. (1), (3) and (4) only  
D. (2), (3) and (4) only

A group of students are planning to do a field study on the changes of the velocity of a river in different courses. Which of the following data should be collected?

(1) width of the river  
(2) depth of the river  
(3) gradient of that river section  
(4) roughness of the river bed

A. (1) and (2) only  
B. (3) and (4) only  
C. (2), (3) and (4) only  
D. (1), (2), (3) and (4)

5. Some questions are of **very good quality**.

**Feature X** in the above photograph is formed under the following conditions:

(1) a short fetch  
(2) the presence of joints or cracks in the headland  
(3) the deposition of rocks  
(4) strong hydraulic action and abrasion

A. (1) and (2) only  
B. (1) and (3) only  
C. (2) and (4) only  
D. (3) and (4) only
6. Geography Paper Four contains some extremely good application based and practical questions.

The following show a satellite photograph and a mainland official reading news headlines about the sandstorm problem in China in 2002.

Headline: Beijing has been hit by choking sandstorm and experts warned that the sandstorm might be a major problem for the Beijing Olympics.

Headline: Beijing residents were shocked to find a thick brown dust covering trees, roads and cars. They have been forced to wear masks and scarves when going to work.

Headline: A terrible sandstorm enveloped Beijing in mid-March and reduced the visibility to less than 100 metres.

Name the areas affected by the sandstorm shown in the satellite photograph. (3 marks)

If you were a mainland official, suggest three possible measures to alleviate this problem and assess their effectiveness. (6 marks)

Many people were worried that the worsening sandstorms might affect the Beijing Olympic Games in 2008. With reference to the headlines, explain how the Beijing Olympic Games might have been affected by sandstorms. (2 marks)
6.1.4.3.CBSE

1. **Some irrelevant questions.**

   What was the notable event of 1836, regarding novels?

   Explain any three features of Napoleonic Code.

2. **Some very low quality questions.**

   Mention the sowing period of Kharif crops.
   *Definition of Kharif and Rabi Crops is introduced for the first time in Grade 4.*

   Students just need to look at the table and write the answer, there is no interpretation of the data involved.

   Study the data given below in the table and answer the questions that follow:

   **Some Comparative Data on Punjab, Kerala and Bihar**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>49</td>
<td>70</td>
<td>81</td>
</tr>
<tr>
<td>Kerala</td>
<td>11</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>Bihar</td>
<td>60</td>
<td>47</td>
<td>41</td>
</tr>
</tbody>
</table>

   (17.1) Which state has the highest infant mortality rate?

   Name the industry which uses limestone as its main raw material.

3. **Questions with unclear objectives.**

   Examine any four reasons for strained relationship between the Sinhala and Tamil communities.

   “Democracy is better form of government than other forms of governments.” Justify the statement.

4. **A good and contemporary question**

   Why are rules and regulations required for the protection of consumers interest in the market place? Explain two reasons.

   \[1 \frac{1}{2} + 1 \frac{1}{2} = 3\]
6.2 Overall Comparison Tables

Consequent to item wise analysis, in the present section we present overall comparison tables for four different boards:

**Table 6.2.1 Comparison of Science question papers**

| Gujarat Board  
2008-11  
Science & Technology | Hong Kong  
(Sample Paper)  
Integrated Science | IB diploma  
(2006-11)  
Phy,Chem,Bio | CBSE  
(2008-11)  
Science (Theory) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural questions on conventional topics</td>
<td>Analysis and Synthesis of contemporary topics</td>
<td>Procedural questions on conventional topics</td>
<td>Short answer and Essay type questions</td>
</tr>
<tr>
<td>Recall based questions</td>
<td>Encourage objective scientific thinking</td>
<td>Mix of application and recall of knowledge</td>
<td>Simple recall of facts</td>
</tr>
<tr>
<td>Non essential information</td>
<td>Applying Knowledge of scientific process and phenomena</td>
<td>Students need to use Mathematical tools</td>
<td>A number of repeats from the previous years.</td>
</tr>
<tr>
<td>Seems to test General Knowledge</td>
<td>Tests extensive scientific aptitude</td>
<td>Need to explain cause, effect and reason</td>
<td>Requires some basic knowledge</td>
</tr>
<tr>
<td>Lower difficulty level than it should be</td>
<td>Satisfactory difficulty Level</td>
<td>Avg. difficulty level questions</td>
<td>Avg. Difficulty level questions</td>
</tr>
<tr>
<td>Lack of quality questions</td>
<td>Higher order thinking</td>
<td>Good quality questions</td>
<td>Low quality questions</td>
</tr>
</tbody>
</table>

**Table 6.2.2 Comparison of English question papers**

| Gujarat Board  
2008-11  
English Language | Hong Kong  
(Sample Paper)  
English Paper 1,2,3 & 4 | IB diploma  
(2006-11)  
Course A- Paper 1 & 2  
Course B- Overview | CBSE  
(2008-11)  
English language |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Comprehension contains very straightforward questions</td>
<td>Reading Comprehension contains inferential questions which check literary awareness and ability to identify the key ideas.</td>
<td>Reading Comprehension requires students to interpret a variety of authentic texts and show an understanding of specific language items.</td>
<td>Reading Comprehension contains straightforward questions. Some of the sections do not match the stated objectives.</td>
</tr>
<tr>
<td>Unimaginative questions and mere recall of facts</td>
<td>Assessments checks contemporary skills like understanding information and data, summarising, editing texts and tabulating.</td>
<td>In writing forms of the language a student is assessed on a range of styles, registers and situations</td>
<td>Text book questions are straightforward and can be answered via rote learning of answers.</td>
</tr>
<tr>
<td>Writing sections have very generic instructions</td>
<td>Writing sections contains relevant topics like writing a ‘programme proposal’, profile reports’ etc.</td>
<td>Students need to convey ideas clearly, grammatically and coherently</td>
<td>Writing section include conventional topics and pretty easy.</td>
</tr>
<tr>
<td>Grammar section is appropriate</td>
<td>No separate Grammar section</td>
<td>No separate Grammar section</td>
<td>Grammar section is an entirely different section.</td>
</tr>
<tr>
<td>Avg. difficulty level than it should be</td>
<td>Satisfactory difficulty Level</td>
<td>Avg. difficulty level questions</td>
<td>Lower difficulty level than it should be.</td>
</tr>
<tr>
<td>Avg. quality of questions</td>
<td>Very high quality questions.</td>
<td>Very good quality questions</td>
<td>Low quality questions</td>
</tr>
</tbody>
</table>
Table 6.2.3 Comparison of Mathematics question papers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Majority of questions are procedural.</td>
<td>An assortment of different difficulty questions</td>
<td>Procedural questions</td>
<td>A number of procedural questions.</td>
</tr>
<tr>
<td>Many questions require mere substitution in a known formula.</td>
<td>Encourages students to apply mathematics to solve scientific problems.</td>
<td>Mix of application and recall of Knowledge</td>
<td>Year 08 question paper contains some good quality questions.</td>
</tr>
<tr>
<td>Few of the questions just need a recall of a formulae or definitions.</td>
<td>Tests application of Mathematics to real life situations.</td>
<td>Students need to use Mathematical tools</td>
<td>A number of repeats from the previous years.</td>
</tr>
<tr>
<td>Some of the questions are inappropriately framed.</td>
<td>Some of the questions are highly differentiating.</td>
<td>Need to explain cause, effect and reason</td>
<td>Requires some basic knowledge</td>
</tr>
<tr>
<td>Lower difficulty level than it should be</td>
<td>Higher difficulty Level</td>
<td>Higher difficulty level questions</td>
<td>Lower difficulty level questions</td>
</tr>
<tr>
<td>Lack of quality questions</td>
<td>Higher order thinking</td>
<td>Avg. quality questions</td>
<td>Lack of quality questions</td>
</tr>
</tbody>
</table>

Table 6.2.4 Comparison of Social Science question papers

<table>
<thead>
<tr>
<th>Gujarat Board (2008-11) Social Science</th>
<th>Hong Kong (Sample Paper) History &amp; Geography</th>
<th>CBSE (2008-11) Social Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>A number of questions are not framed appropriately.</td>
<td>Questions are contemporary and relevant.</td>
<td>A number of irrelevant questions.</td>
</tr>
<tr>
<td>A large chunk of questions are often repeated essay type questions.</td>
<td>Students need to exhibit in-depth of knowledge of the subject.</td>
<td>A number of questions have very vague objectives.</td>
</tr>
<tr>
<td>Few of the questions are recall based.</td>
<td>Students are expected to explain a character, analyse an event, react to an episode or predict</td>
<td>A number of repeats from the previous years.</td>
</tr>
<tr>
<td>Some of the questions are weighted disproportionately.</td>
<td>Some of the questions, particularly in Geography are based on applying the knowledge and solve a practical problem.</td>
<td>Very few questions based on application of a concept.</td>
</tr>
<tr>
<td>Lower difficulty level than it should be.</td>
<td>Higher difficulty Level.</td>
<td>Lower difficulty level questions</td>
</tr>
<tr>
<td>Lack of quality questions.</td>
<td>Question are intense and thought provoking</td>
<td>Lack of quality questions</td>
</tr>
</tbody>
</table>
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APPENDIX

1. Finland Biology Question Paper

Enintään 8 tehtävää saa vastata. Tehtävät arvostellaan pistein 0–6, paitsi muita vaativammat, +:lla merkittyjä jokeritehtäviä, jotka arvostellaan pistein 0–9. Moniosaisissa, esimerkiksi a-, b- ja c-kohdan sisältävissä tehtävissä voidaan erikseen ilmoittaa eri alakohtien enimmäispisteitä.

   a) Miten hyönteispölytys tapahtuu? (3 p.)
   b) Millä muilla tavoin pölytys voi tapahtua? (1 p.)
   c) Sarjakuvassa mainituna mesipistiäiset tärkeitä pölyttäjiä. Mainitse kaksi mesipistiäistä. (2 p.)

   ![Image](http://www.seppo.net/aikhe/blogi/luonto/otokat/) Luetut 23.8.2010.

   a) lihassolu
   b) koivun lehden solu
   c) mäntykuon solu (lehivihreätön marraskasvi)
   d) jakalan viherlevyosakas
   e) jakalan sieniosakas
   f) kolibakteeri
3. Isopanda, tiikeri ja monet valaslajit ovat maailmanlaajuisesti tunnettuja uhanalaisia eläimiä. Miten niitä suojeillaan, ja miksi niiden suojeleto on vaikaa?

   a) Tee lyhyesti selkoa, mitä kokeissa havaittiin. (3 p.)
   b) Mitkä kaksi valintapainetta vaikuttavat miljloonakalakoiraisiin ja miten? (3 p.)

5. Ihmisen on tasalämpöinen. Mitä tasalämpöä työskentelemässä on? Miten roumiinlämmön nousu ja lapsuus vaikuttavat elintarvikoineimellemme?

   a) Isä on sairas ja äiti terve, mutta äitinä sairastaa tautia.
   b) Isä ja äiti ovat terveitä, mutta äidinä sairastaa tautia.

7. Mitkä ovat luonnonsuojelun (luomu) kasvintuotannon edut ja ongelmat?
   a) Miten kuvajat (1–4) osioittavat pikkulimaskalle ominaisen nopean kasvun ja valkuaisaine-
       tuotannon? (2 p.)
   b) Miksi pikkulimaskaa estää akvaariossa levien kasvua? (2 p.)
   c) Miksi pikkulimaskaa voidaan käyttää rehevöityneiden vesistöjen tehokkaana biopuhdistaja-
       jana? (2 p.)

Kuvat (A–C): Jorma Paranko

1. Tyypin (N) määrä vedessä (mg/l)

2. Pikkulimaskan suhteellinen valku-
    aaisainepitoisuus prosentteina (%)

3. Pikkulimaskan biomassaa (g)

4. Fosforin (P) määrä vedessä (mg/l)


9. Oheinen kuva esittää erään perinnollisen sairauden kartoituustukki-
   musta. Mitä mutaatiotutkimuksen vaiheita kohdat A–F kuvavat,
   ja miksi eri vaiheet on suoritettu?
10. Laonnossa ei esiinny sinikukkaisia neilikoita. Kuvan sininen neilikka on onnistuttu tuottamaan siirtogeeniteknikan avulla. Mitä geeniteknikan menetelmiä käytetään tämä voidaan saada aikaan?

Kuva: Kurt Fagerstedt


<table>
<thead>
<tr>
<th>ATP</th>
<th>DNA-nukleotidi</th>
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</thead>
<tbody>
<tr>
<td><img src="image1" alt="ATP molekyyliesitys" /></td>
<td><img src="image2" alt="DNA-nukleotidi molekyyliesitys" /></td>
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<tr>
<th>sytosiini</th>
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<td><img src="image8" alt="riboosi molekyyliesitys" /></td>
<td><img src="image9" alt="deoksiriboosi molekyyliesitys" /></td>
<td><img src="image10" alt="glukoosi molekyyliesitys" /></td>
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</tbody>
</table>
Enintään 6 tehtävän saa vastata. Tehtävät arvostellaan pistein 0–6, paitsi muita vaativammat, +:lla merkityt jokeritehtävät, jotka arvostellaan pistein 0–9. Moniosaisissa, esimerkiksi a-, b- ja c-kohdan sisältävissä tehtävissä voidaan erikseen ilmoittaa eri alakohtien enimmäispistemäärit.

1. Selitä, millä tavoin Suomen perustuslain seuraavat periaatteet pyritään käytännössä toteuttaamaan:
   a) ”Henkilökohtaiseen koskemattomuuteen ei saa puuttua eikä vapautta riistää mielivaltaisesti eikä ilman laissa säädettyä perustetta.”
   b) ”Jokaisella on uskonnollinen omantunnon vapaus.”
   c) ”Suomen kansalliskieleet ovat suomi ja ruotsi.”


Mitkä tekijät selittävät luettelossa näkyviä sukupuolittaisia eroja, miksi näitä eroja pidetään ongelmallisina, ja miten eroja pyritään tasoittamaan?

<table>
<thead>
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<tr>
<td>Puhdistuspalvelut</td>
<td>95 %</td>
</tr>
<tr>
<td>Sosiaali- ja terveysala</td>
<td>91 %</td>
</tr>
<tr>
<td>Opetus- ja kasvatustyö</td>
<td>86 %</td>
</tr>
<tr>
<td>Ajoneuvo- ja kuljettustekniikka</td>
<td>14 %</td>
</tr>
<tr>
<td>Kone-, metalli- ja energiatekniikka</td>
<td>12 %</td>
</tr>
<tr>
<td>Sähkö- ja automatiotekniikka</td>
<td>6 %</td>
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<tr>
<td>Kalatalous</td>
<td>8 %</td>
</tr>
<tr>
<td>Metsätalous</td>
<td>5 %</td>
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</tbody>
</table>


3. Tarkastele seuraavien sijoituskohdeiden vahvuuksia ja heikkouksia suomalaisen piensijoittajan kannalta:
   a) suomalaisen metsäteollisuusyrityksen osakkeet
   b) määräaikaistalletus parkissa
   c) osuus sijoitusalastossa, joka sijoittaa Euroopan unionin jäsenvaltioiden joukkovelkakirjojen.
4. Tarkastele yritystoiminnan edellytyksiä pienyrityksen kannalta.

5. Miten rikos- ja riita-asian oikeuskäsittely eroavat toisistaan?

   a) Vertaa vuokra- ja omistusasumisen hyviä ja huonoja puolia Tonin ja Maijan tilanteen kannalta. (2 p.)
   b) Mitä oikeustoimia liittyvät yhtäältä vuokra-asunnon ja toisaalta omistusasunnon hankkimiseen? (2 p.)
   c) Mitä muita asumismuutostoa Tonille ja Maijalle on tarjolla, ja miten ne eroavat ylimääräisistä asumismuodoista? (2 p.)

7. Mitä on Euroopan unionin ulkopolitiikka, ja miten Euroopan unioni toimii maailmanpolitiikassa?


Tarkastele Helsingin kaavaimmaa kerjämisen kielteästä EU:n lainsäädännön valossa ja pohdi, mitä oikeuksia Euroopan unionin kansalaisuus suo.

a) Missä kahdessa puolueessa työntekijöiden osuus valtuutettuista on suurin ja missä kahdessa puolueessa pienin? (2 p.)

b) Millaista eroa puolueiden kannattajaryhmissä voidaan taulukon pohjalta päätellä olevan? (3 p.)

c) Pohdi, miten puolueiden kannattajaryhmien koostumus on vaikuttanut puolueiden toimintaan 2000-luvun Suomessa. (4 p.)

<table>
<thead>
<tr>
<th>Valtuutettuja koko</th>
<th>Keskusta</th>
<th>Kok.</th>
<th>SDP</th>
<th>Vas.</th>
<th>Vihreät</th>
<th>PS</th>
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<td>2018</td>
<td>2071</td>
<td>832</td>
<td>370</td>
<td>442</td>
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<tr>
<td>Maa- ja</td>
<td>825</td>
<td>111</td>
<td>3</td>
<td>11</td>
<td>5</td>
<td>33</td>
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<td>metätyömarkkina</td>
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<tr>
<td>Yrittäjät</td>
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<td>330</td>
<td>99</td>
<td>34</td>
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<td>59</td>
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<td>Ylemmat</td>
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<td>783</td>
<td>482</td>
<td>159</td>
<td>190</td>
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<td>Työntekijät</td>
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<td>491</td>
<td>255</td>
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<td>80</td>
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<td>Opiskelijat</td>
<td>87</td>
<td>66</td>
<td>44</td>
<td>21</td>
<td>32</td>
<td>21</td>
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<tr>
<td>Eläkeläiset</td>
<td>280</td>
<td>171</td>
<td>257</td>
<td>131</td>
<td>14</td>
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<td>Muut</td>
<td>142</td>
<td>72</td>
<td>90</td>
<td>72</td>
<td>23</td>
<td>48</td>
</tr>
</tbody>
</table>


Ylemmat toimihenkilöt ovat korkeasti koulutettuja ja työskentelevät johtavissa asemissa sekä asian- 
tuntijatehtävissä (esim. lääkäri, tuomari); alemmilla toimihenkilöillä on matalampi koulutus- ja tulo-
taso ja he työskentelevät tavallisesti suorittavissa palvelutekniikoissa (esim. myynti- ja toimistotyö). 
Työntekijät toimivat tyyppisesti ruumiilisen työn ammateissa.

Puolueiden lyhenteet:
Kok. = Kokoomus
SDP = Sosialidemokraattinen puolue
Vas. = Vasemmistoliitto
PS  = Perussuomalaisten
   a) Vertaa kuvion pohjalta Yhdysvaltojen, Japanin ja EMU-alueen teollisuustuotannon määrän kehitystä vuosina 1990–2009. (3 p.)
   b) Mitkä tekijät selittävät käyräen oscillaman kehityksen? (3 p.)
   c) Pohdi, millaisia seurauksia yhtäältä Yhdysvaltojen ja toisaalta EMU-alueen talouskehityksellä on Suomen kansantalouden kannalta. (3 p.)

**Teollisuustuotannon määrä kausitasoitetuna (2005 = 100)**

Lähde: ETLA/OECD/Tullinhallitus/Tilastokeskus
Единый государственный экзамен по АНГЛИЙСКОМУ ЯЗЫКУ

Демонстрационный вариант КИМ 2009 г.

подготовлен Федеральным государственным научным учреждением
«ФЕДЕРАЛЬНЫЙ ИНСТИТУТ ПЕДАГОГИЧЕСКИХ ИЗМЕРЕНИЙ»

Заместитель директора ФИПИ

А.О. Татур

Изменения внесены в ранее утвержденный документ (10.10.08.) в соответствии с решением Рособрнадзора 28.01.09 (исключена устная часть экзамена: раздел «Говорение»)
Раздел 1. Аудирование

Во время выполнения теста по аудированию перед каждым заданием дан пауза с тем, чтобы вы смогли просмотреть вопросы к заданию, а также паузы после первичного и повторного предъявления аудиотекста для внесения ответов. По окончании выполнения всего раздела «Аудирование» перенесите свои ответы в бланк ответов.

**B1**

Вы услышите 6 высказываний. Установите соответствие между высказываниями каждого говорящего 1 – 6 и утверждениями, данными в списке A – G. Используйте каждое утверждение, обозначенное соответствующей буквой, **только один раз**. В задании есть одно лишнее утверждение. Вы услышите запись дважды. Запишите свои ответы в таблицу.

<table>
<thead>
<tr>
<th>Говорящий</th>
<th>1</th>
<th>2</th>
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<th>4</th>
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<tr>
<td>Утверждение</td>
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**Вы услышите разговор друзей. Определите, какие из приведённых утверждений A1 – A7 соответствуют содержанию текста (1 – True), какие не соответствуют (2 – False) и о чём в тексте не сказано, то есть на основании текста нельзя дать ни положительного, ни отрицательного ответа (3 – Not stated). Обведите номер выбранного вами варианта ответа. Вы услышите запись дважды.**

**A1**  
Mike’s administrative work was very well paid.

1) True
2) False
3) Not stated

**A2**  
Mary did not do well at University because she had to earn her living.

1) True
2) False
3) Not stated

**A3**  
Mary was younger than the other students at her university.

1) True
2) False
3) Not stated

**A4**
Mary thinks that regular classes are rather time-consuming.

1) True
2) False
3) Not stated

**A5**
Mary thinks that she can’t study better than when she was younger.

1) True
2) False
3) Not stated
A6 Distance learning seems to be very convenient for Mary.
1) True 2) False 3) Not stated

A7 Mike does not feel disappointed about going to University.
1) True 2) False 3) Not stated

A8 The narrator was brought up mainly in
1) Denmark.
2) England.
3) the USA.

A9 The narrator is not happy about Danish grocery stores because
1) the quality of the products is very poor.
2) they are too small.
3) the selection of foods is very poor.

A10 The narrator criticizes
1) the lifestyle in Denmark.
2) Danish supermarkets.
3) the Danish diet.

A11 The prices in Danish stores are quite high because
1) the level of service is very high.
2) everything is imported from abroad.
3) no foods are artificial.

A12 According to the unwritten rules of Danish supermarket culture
1) you pack all the food you buy on your own, without any help.
2) shop assistants are always ready to pack your food for you.
3) there are clerks whose duty is to help you with your bagging.
Раздел 2. Чтение

В2

Установите соответствие между заголовками А – Н и текстами 1 – 7. Занесите свои ответы в таблицу. Используйте каждую букву только один раз. В задании один заголовок лишний.

A. First computers  B. Risky sport  C. Shopping in comfort  D. Difficult task  E. Professional sport  F. Shopping from home  G. New users  H. Digging for the past

1. A group of university students from Brazil have been given the job of discovering and locating all the waterfalls in their country. It is not easy because very often the maps are not detailed. The students have to remain in water for long periods of time. Every day they cover a distance of 35 to 40 kilometers through the jungle, each carrying 40 kilos of equipment.

2. For many years now, mail-order shopping has served the needs of a certain kind of customers. Everything they order from a catalogue is delivered to their door. Now, though, e-mail shopping on the Internet has opened up even more opportunities for this kind of shopping.

3. Another generation of computer fans has arrived. They are neither spotty schoolchildren nor intellectual professors, but pensioners who are learning computing with much enthusiasm. It is particularly interesting for people suffering from arthritis as computers offer a way of writing nice clear letters. Now pensioners have discovered the Internet and at the moment they make up the fastest growing membership.

4. Shopping centres are full of all kinds of stores. They are like small, self-contained towns where you can find everything you want. In a large centre, shoppers can find everything they need without having to go anywhere else. They can leave their cars in the shopping centre car park and buy everything in a covered complex, protected from the heat, cold or rain.

5. Not many people know that, back in the fifties, computers were very big, and also very slow. They took up complete floors of a building, and were less powerful, and much slower than any of today’s compact portable computers. At first, the data they had to process and record was fed in on punched-out paper; later magnetic tape was used, but both systems were completely inconvenient.
6. Potholing is a dull name for a most interesting and adventurous sport. Deep underground, on the tracks of primitive men and strange animals who have adapted to life without light, finding unusual landscapes and underground lakes, the potholer lives an exciting adventure. You mustn’t forget, though, that it can be quite dangerous. Without the proper equipment you can fall, get injured or lost.

7. Substantial remains of an octagonal Roman bath house, probably reused as a Christian baptistery, have been uncovered during a student training excavation near Faversham in Kent. The central cold plunge pool was five metres across, and stood within a structure which also had underfloor heating and hot pools, probably originally under a domed roof.
Before the Hubble Space Telescope was launched, scientists thought they knew the universe. They were wrong.

The Hubble Space Telescope has changed many scientists’ view of the universe. The telescope is named after American astronomer Edwin Hubble, 1 ______________. He established that many galaxies exist and developed the first system for their classifications.

In many ways, Hubble is like any other telescope. It simply gathers light. It is roughly the size of a large school bus. What makes Hubble special is not what it is, 2 ______________

Hubble was launched in 1990 from the “Discovery” space shuttle and it is about 350 miles above our planet, 3 ______________. It is far from the glare of city lights, it doesn’t have to look through the air, 4 ______________.

And what a view it is! Hubble is so powerful it could spot a fly on the moon.

Yet in an average orbit, it uses the same amount of energy as 28 100-watt light bulbs. Hubble pictures require no film. The telescope takes digital images 5 ______________. Hubble has snapped photos of storms on Saturn and exploding stars. Hubble doesn’t just focus on our solar system. It also peers into our galaxy and beyond. Many Hubble photos show the stars that make up the Milky Way galaxy. A galaxy is a city of stars.

Hubble cannot take pictures of the sun or other very bright objects, because doing so could “fry” the telescope’s instruments, but it can detect infrared and ultra violet light 6 ______________.

Some of the sights of our solar system that Hubble has glimpsed may even change the number of planets in it.

A. which is above Earth’s atmosphere.
B. which are transmitted to scientists on Earth.
C. which is invisible to the human eye.
D. who calculated the speed at which galaxies move.
E. so it has a clear view of space.
F. because many stars are in clouds of gas.
G. but where it is.

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C1 You have 20 minutes to do this task.

You have received a letter from your English-speaking pen-friend Tom who writes:

... In Great Britain most young people want to become independent from their parents as soon as possible. Could you tell me what you and your friends think about not relying on your parents? Are you ready to leave your family immediately after you finish school? Is it easy to rent a house or an apartment for students in Russia?

As for the latest news, I have just returned from a trip to Scotland...

Write a letter to Tom.
In your letter
- answer his questions
- ask 3 questions about his trip to Scotland

Write 100 – 140 words.
Remember the rules of letter writing.

C2 You have 40 minutes to do this task.

Comment on the following statement.

Our grandparents say their way of life was much more secure. However, young people have many more life opportunities nowadays.

What is your opinion? Which way of life do you find more satisfying?

Write 200 – 250 words.

Use the following plan:
- make an introduction (state the problem)
- express your personal opinion and give reasons for it
- give arguments for the other point of view and explain why you don’t agree with it
- draw a conclusion
IV. Hong Kong History Question Paper

HONG KONG EXAMINATIONS AND ASSESSMENT AUTHORITY
HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION

HISTORY PAPER 1

(SAMPLE PAPER)

Time allowed: 1 hour and 45 minutes
This paper must be answered in English

1. This paper carries 50% of the subject marks. It consists of data-based questions, all of which are to be answered. The mark allocation is shown in brackets at the end of each question. It is a guide to the length of the answer required, which may vary from one sentence to a short paragraph. You should plan your time accordingly.

2. Where a question is divided into a number of sub-questions, you MUST divide your answer into different parts accordingly. You risk mark penalties if you do not do so.
Attempt all questions in this paper.

1. Study Source A

SOURCE A

The following is a poster issued by the Family Planning Association of Hong Kong in 1966.

Don't be overburdened. Plan your family.

Please visit

The Family Planning Association of H.K.

(a) Identify one social problem that Hong Kong faced at the time, as reflected in Source A. Explain your answer with reference to Source A. (1 + 3 marks)

(b) Do you think that the poster was still appropriate for illustrating Hong Kong's social conditions by the end of the 20th century? Explain your answer using your own knowledge. (4 marks)
2. Study Sources B, C and D.

**SOURCE B**

The following passage is adapted from ‘The True Solution of Chinese Question’, written by Sun Yat-sen (Sun Yixian) in 1904.

Now it is evident that a new, enlightened and progressive government must be substituted for the old one. Carefully thought-out plans have long been drawn up for the transformation of this out-of-date Manchu monarchy into a Republic of China. The general masses of the people are also ready to accept a new order and are longing for a change for the better so as to uplift them from their present deplorable condition of life. China is now on the eve of a great national movement. A new era would dawn on our beautiful country.

**SOURCE C**

The following passage is adapted from ‘Lessons Learnt from the Past Five Years’, written by Liang Qichao in 1916 after Yuan Shikai’s death.

I have been pondering the purpose of setting up the Republic, which took place five years ago. This change in the form of government was originally meant to remedy the political ills of the time. However, in the past five years, the form of government was altered and became unstable. This is because none of the political ills have been eliminated, and many have even worsened. Indeed, nothing of what happened in these years lives up to our expectations.

Any obsession with the idea of restoring the past has no place in today’s world. Let’s look at what Yuan Shikai did after 1914. He resorted to every conceivable means to promote old ideas and institutions. Apart from restoring the monarchy, what did he bring about?
SOURCE D

The following cartoon is taken from a Shanghai magazine in 1918. The magazine was published by a group of radical intellectuals.

Who says the Chinese people can still enjoy freedom and happiness?

A foreign debt  E  likin, miscellaneous taxes
B government bonds  F  salt tax
C customs dues, tribute grain tax  G  military contributions, stamp duty
D land-poll tax  H  people’s freedom

(a) According to Source B, what was the ‘true solution of the Chinese question’? (2 marks)

(b) Discuss the limitations of Source B in reflecting Sun Yat-sen’s revolutionary ideas in the first decade of the 20th century. (4 marks)

(c) What can you infer from Source D about the purpose of the cartoon? Explain your answer. (3 marks)

(d) Do you think that Sun Yat-sen would have been satisfied with the development of China in the period 1912-20? Explain your answer with reference to Sources C and D, and using your own knowledge. (8 marks)
3. Study Sources E and F.

**SOURCE E**

The following extract is adapted from a speech given by Neville Chamberlain, Prime Minister of Britain, on 3 October, 1938 in response to the Munich Agreement.

> Today we all meet in joy and thankfulness that the prayers of millions have been answered. My main purpose has been to work for the pacification of Europe, for the removal of those suspicions and animosities¹ which have so long poisoned the air. The path which leads to appeasement is long and bristles with⁵ obstacles. The question of Czechoslovakia is the latest and perhaps the most dangerous. Now we have got past it, I feel that it may be possible to make further progress along the road to sanity³.

¹ animosities: hostilities
² bristles with: is full of
³ sanity: rational state of mind

**SOURCE F**

The following extract is adapted from a speech given by Winston Churchill, member of the UK Parliament, on 5 October, 1938 in response to the Munich Agreement.

> I cannot myself express my agreement with the steps which have been taken.... I have always held the view that the maintenance of peace depends upon the accumulation of deterrents against the aggressor, coupled with a sincere effort to redress grievances. Mr. Hitler’s victory, like so many of the famous struggles that have governed the fate of the world, was won upon the narrowest of margins.

> Britain should declare straight out and a long time beforehand that she would, with others, join to defend Czechoslovakia against an unprovoked aggression. His Majesty’s Government refused to give that guarantee when it would have saved the situation.

> All is over, silent, mournful, abandoned, broken. Czechoslovakia recedes into the darkness.

(a) According to Source E, what was Chamberlain’s attitude towards the Munich Agreement? Explain your answer with reference to Source E. (1 + 2 marks)

(b) Do you think Churchill would have supported the Munich Agreement? Explain your answer with reference to the language and argument used in Source F. (2 + 2 marks)

(c) If you were a British in 1938, whose view – Chamberlain’s or Churchill’s – would you support? Explain your answer with reference to Sources E and F, and using your own knowledge. (7 marks)
4. Study Sources G and H.

SOURCE G

The following cartoon was published in 1962.

Khrushchev: the door to negotiations remains open

SOURCE H

The following extract is adapted from a history book.

Khrushchev hoped to improve relations with the West. The ending of the Korean War in 1953 helped ease tensions. In 1955 the USSR recalled its army of occupation from Austria, and there was a friendly summit meeting of the main powers at Geneva. Although the Hungarian rising and the Suez crisis damaged relations, Khrushchev continued his policy of co-existence with the West, embarking on a series of visits to countries outside the eastern bloc—including the USA. He was able to boast of Soviet achievements in space, especially the launching of the world’s first satellite, Sputnik, in 1957. However, co-existence proved hard to sustain in the face of recurrent crises over such unresolved issues as Germany and the arms race.

(a) What is the cartoonist’s view of the USSR’s policy towards the West in 1962? Explain your answer with reference to Source G. (4 marks)

(b) Is the cartoonist’s view you identified in (a) applicable to the USSR’s policy towards the West in the period 1953-64? Explain your answer with reference to Source H, and using your own knowledge. (7 marks)

END OF PAPER
Gujarat State Board Examination Reform