



آغا خان یونیورسٹی ایگزامینیشن بورڈ

AGA KHAN UNIVERSITY EXAMINATION BOARD

**Higher Secondary School Certificate
Examination Syllabus**

**BUSINESS STATISTICS
CLASS XII**

(based on National Curriculum 2000)

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**Higher Secondary School Certificate
Examination Syllabus**

**BUSINESS STATISTICS
CLASS XII**

**This subject is examined in both
May and September Examination sessions**

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PREFACE

In pursuance of National Education Policy (1998-2010), the Curriculum Wing of the Federal Ministry of Education has begun a process of curriculum reform to improve the quality of education through curriculum revision and textbook development (Preface, National Curriculum documents 2000 and 2002).

AKU-EB was founded in August 2003 with the same aim of improving the quality of education nationwide. As befits an examination board it seeks to reinforce the National Curriculum revision through the development of appropriate examinations for the Secondary School Certificate (SSC) and Higher Secondary School Certificate (HSSC) based on the latest National Curriculum and subject syllabus guidance.

AKU-EB has a mandate by Ordinance CXIV of 2002 to offer such examination services to English and Urdu medium candidates for SSC and HSSC from private schools anywhere in Pakistan or abroad, and from government schools with the relevant permissions. It has been accorded this mandate to introduce a choice of examination and associated educational approach for schools, thus fulfilling a key objective of the National Curriculum of Pakistan: “Autonomy will be given to the Examination Boards and Research and Development cells will be established in each Board to improve the system” (ibid. para. 6.5.3 (ii)).

AKU-EB is committed to creating continuity of educational experience and the best possible opportunities for its students. In consequence it offered HSSC for the first time in September, 2007 to coincide with the arrival of its first SSC students in college or higher secondary school. Needless to say this is not an exclusive offer. Private candidates and students joining AKU-EB affiliated schools and colleges for HSSC Part 1 are eligible to register as AKU-EB candidates even though they have not hitherto been associated with AKU-EB.

This examination syllabus exemplifies AKU-EB’s commitment to national educational goals.

- It is in large part a reproduction, with some elaboration, of the Class XII National Curriculum of the subject.
- It makes the National Curriculum freely available to the general public.
- The syllabus recommends a range of suitable textbooks already in print for student purchase and additional texts for the school library.
- It identifies areas where teachers should work together to generate classroom activities and materials for their students as a step towards the introduction of multiple textbooks, another of the Ministry of Education’s policy provisions for the improvement of higher secondary education (ibid. para. 6.3.4).

This examination syllabus brings together all those cognitive outcomes of the National Curriculum statement which can be reliably and validly assessed. While the focus is on the cognitive domain, particular emphasis is given to the application of knowledge and understanding, a fundamental activity in fostering “attitudes befitting useful and peaceful citizens and the skills for and commitment to lifelong learning which is the cornerstone of national economic development” (Preface to National Curriculum documents 2000 and 2002).

To achieve this end AKU-EB has brought together university academicians, teacher trainers, writers of learning materials and above all, experienced teachers, in regular workshops and subject panel meetings.

AKU-EB provides copies of the examination syllabus to subject teachers in affiliated schools to help them in planning their teaching. It is the syllabus, not the prescribed textbook which is the basis of AKU-EB examinations. In addition, the AKU-EB examination syllabus can be used to identify the training needs of subject teachers and to develop learning support materials for students. Involving classroom teachers in these activities is an important part of the AKU-EB strategy for improving the quality of learning in schools.

The Curriculum Wing of the Federal Ministry of Education has recently released new subject specifications and schemes of study to take effect in September, 2008. These documents are a major step forward towards a standards-related curriculum and have been welcomed by AKU-EB. Our current HSSC syllabuses have been revised to ensure conformity with the new National Curriculum 2006.

We stand committed to all students who have embarked upon the HSSC courses in facilitating their learning outcomes. Our examination syllabus document ensures all possible support.



Dr. Thomas Christie
Director,
Aga Khan University Examination Board
July 2009

1. Rationale of the AKU-EB Examination Syllabus

1.1 General Rationale

- 1.1.1 In 2007, the Curriculum Wing of the Federal Ministry of Education (MoE) issued a revised part-wise Scheme of Studies. It is therefore important for teachers, students, parents and other stakeholders to know:
- (a) that the AKU-EB Scheme of Studies for its HSSC examination (Annex) derives directly from the 2007 Ministry of Education Scheme of Studies;
 - (b) at which cognitive level or levels (Knowledge, Understanding, Application and other higher order skills) the topics and sub-topics will be taught and examined.
- 1.1.2 This AKU-EB examination syllabus addresses these concerns. Without such guidance teachers and students have little option other than following a single textbook to prepare for an external examination. The result is a culture of rote memorization as the preferred method of examination preparation. The pedagogically desirable objectives of the National Curriculum which encourage “observation, creativity and other higher order thinking [skills]” are generally ignored. AKU-EB recommends that teachers and students use multiple teaching-learning resources for achieving the specific objectives of the National Curriculum reproduced in the AKU-EB examination syllabuses.
- 1.1.3 The AKU-EB examination syllabuses use a uniform layout for all subjects to make them easier for teachers to follow. Blank sheets are provided in each syllabus for writing notes on potential lesson plans. It is expected that this arrangement will also be found helpful by teachers in developing classroom assessments as well as by question setters preparing material for the AKU-EB external examinations. The AKU-EB aims to enhance the quality of education through improved classroom practices and improved examinations.
- 1.1.4 The Student Learning Outcomes (SLOs) in Section 2 start with command words such as list, describe, relate, explain, etc. The purpose of the command words is to direct the attention of teachers and students to specific tasks that candidates following the AKU-EB examination syllabuses are expected to undertake in the course of their subject studies. The examination questions will be framed using the same command words or the connotation of the command words, to elicit evidence of these competencies in candidates’ responses. The definitions of command words used in this syllabus are given in Section 6. It is hoped that teachers will find these definitions useful in planning their lessons and classroom assessments.
- 1.1.5 The AKU-EB has classified SLOs under the three cognitive levels Knowledge (K), Understanding (U) and Application of knowledge and skills (A) in order to derive multiple choice questions and constructed response questions on a rational basis from the subject syllabuses ensuring that the intentions of the National Curriculum should be met in full. The weighting of marks to the Multiple Choice and Constructed Response Papers is also derived from the SLOs, command words and cognitive levels. In effect the SLOs derived from the National Curriculum determine the structure of the AKU-EB subject examination set out in Section 3.
- 1.1.6 Some topics from the National Curriculum have been elaborated and enriched for better understanding of the subject and/or to better meet the needs of students in the twenty-first century.

2. Topics and Student Learning Outcomes of the Examination Syllabus

Part II (Class XII)

Topics	Student Learning Outcomes		Cognitive Level ¹		
			K	U	A
1. Introduction to Statistics	Candidates should be able to:				
1.1 Nature and Purpose of Statistics	1.1.1	explain the meaning of statistics;		*	
	1.1.2	distinguish between: i. descriptive and inferential statistics ii. statistic and parameter iii. population and sample;		*	
	1.1.3	describe uses of statistics and their importance in different fields;		*	
	1.1.4	discuss the limitation of statistics;		*	
1.2 Data Collection	1.2.1	define primary and secondary data;	*		
	1.2.2	distinguish between primary and secondary data;		*	
	1.2.3	explain the methods of collection of primary and secondary data;		*	
	1.2.4	describe what the term questionnaire means;		*	
	1.2.5	write the characteristics of a good questionnaire;	*		
	1.2.6	construct a simple questionnaire;		*	
1.3 Types of Data	1.3.1	describe constant, variable, quantitative variables/data, discrete variables/data, continuous variables/data, qualitative variables/data;		*	
	1.3.2	distinguish between: i. constant and variable ii. quantitative variable and qualitative variable iii. discrete variable and continuous variable;		*	

¹ K = Knowledge, U = Understanding, A= Application (for explanation see section 6: Definition of command words used in Student Learning Outcomes and in Examination Questions).

NOTES

			K	U	A
2. Presentation of Statistical Data	Candidates should be able to:				
2.1 Frequency Distribution	2.1.1	describe tabulation and its classification;		*	
	2.1.2	describe class interval, tally marks/frequency, upper class limit/boundary, lower class limit/boundary , class mark and class width;		*	
	2.1.3	construct a frequency distribution table of discrete and continuous data;		*	
	2.1.4	calculate and interpret relative frequency;			*
	2.1.5	calculate and interpret less than cumulative frequency and more than cumulative frequency.			*
3. Graphical Representation	Candidates should be able to:				
3.1 Graphs	3.1.1	draw a frequency polygon and extract information from the graph;			*
	3.1.2	draw a histogram and extract information from the graph;			*
	3.1.3	draw a relative frequency histogram and extract information from the graph;			*
	3.1.4	draw a relative frequency polygon and extract information from the graph;			*
	3.1.5	draw a cumulative frequency polygon or curve (Ogive) and extract information from the graph;			*
3.2 Charts	3.2.1	draw a simple bar chart and extract information from the chart;			*
	3.2.2	draw a multiple bar chart and extract information from the chart;			*
	3.2.3	draw components / subdivided bar chart and extract information from the charts;			*
	3.2.4	draw a pie chart and extract information from it;			*
	3.2.5	solve problems related to the above mentioned graphs and charts.			*

NOTES

			K	U	A
4. Measures of Central Tendency	Candidates should be able to:				
4.1 Arithmetic Mean	4.1.1	describe the measure of a central tendency;		*	
	4.1.2	define the arithmetic mean and weighted arithmetic mean and write their formulae;	*		
	4.1.3	calculate and interpret arithmetic mean (A.M) for ungrouped and grouped data;			*
	4.1.4	calculate the weighted A.M;			*
	4.1.5	explain the following properties of arithmetic mean: i. if $X = a$ (a is constant), then $\bar{X} = a$ ii. if $Y = X \pm a$, then $\bar{Y} = \bar{X} \pm a$ iii. if $Y = bX$, then $\bar{Y} = b \bar{X}$ iv. if $Y = \frac{X}{a}$, then $\bar{Y} = \frac{\bar{X}}{a}$ or $\bar{Y} = \frac{1}{a}(\bar{X})$		*	
	4.1.6	apply the above mentioned properties to solve related problems;			*
	4.1.7	calculate and interpret the meaning of combined mean;			*
4.2 Median	4.2.1	define the median and write its formula;	*		
	4.2.2	calculate and interpret median for ungrouped data and grouped data;			*
	4.2.3	estimate and locate median through a graph ;			*
4.3 Mode	4.3.1	define mode;	*		
	4.3.2	calculate and interpret mode for ungrouped data and grouped data;			*
	4.3.3	estimate and locate mode through a graph;			*
4.4 Relationship between Mean, Median and Mode	4.4.1	write the empirical relation between mean, median and mode;	*		
	4.4.2	use the empirical relationship to solve related problems.			*

NOTES

			K	U	A
5. Measure of Dispersion		Candidates should be able to:			
5.1	Range	5.1.1	define the range for grouped and ungrouped data;	*	
		5.1.2	calculate and interpret range for grouped and ungrouped data;		*
5.2	Mean Deviation	5.2.1	define mean deviation for grouped and ungrouped data;	*	
		5.2.2	calculate and interpret the mean deviation for grouped and ungrouped data;		*
5.3	Standard Deviation and Variance	5.3.1	describe the variance and standard deviation (S.D.) for grouped and ungrouped data;		*
		5.3.2	calculate variance and standard deviation for ungrouped data by using formulas: variance: $\sigma^2 = \frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2$ or $\sigma^2 = \frac{\sum (x - \bar{x})^2}{n}$ standard deviation: $\sigma = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$ or $\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$;		*
		5.3.3	calculate the variance and standard deviation for grouped data by using formulas: variance: $\sigma^2 = \frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2$ or $\sigma^2 = \frac{\sum f(x - \bar{x})^2}{\sum f}$ standard deviation: $\sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2}$ or $\sigma = \sqrt{\frac{\sum f(x - \bar{x})^2}{\sum f}}$		*

NOTES

			K	U	A
	5.3.4	<p>explain the following properties of variance and standard deviation:</p> <p>i. S.D. $(a) = 0$ and $\text{Var}(a) = 0$</p> <p>ii. S.D. $(X + a) = \text{S.D.}(X)$ and $\text{Var}(X + a) = \text{Var}(X)$</p> <p>iii. S.D. $(X - a) = \text{S.D.}(X)$ and $\text{Var}(X - a) = \text{Var}(X)$</p> <p>iv. S.D. $(aX) = a \text{S.D.}(X)$ and $\text{Var}(aX) = a^2 \text{Var}(X)$</p> <p>v. $\text{S.D.}\left(\frac{X}{a}\right) = \left(\frac{1}{a}\right)\text{S.D.}(X)$ and $\text{Var}\left(\frac{X}{a}\right) = \left(\frac{1}{a^2}\right)\text{Var}(X)$;</p>		*	
	5.3.5	apply the above mentioned properties to solve related problems.			*
6. Index Number		Candidates should be able to:			
6.1	Index Number	6.1.1 define index number; 6.1.2 describe price index, quantity index and volume index; 6.1.3 write the uses of index number;	*	*	
6.2	Construction of Index Number	6.2.1 describe the steps involved in the construction of price index; 6.2.2 calculate index number by fixed base method and by chain base method;		*	*
6.3	Construction of Simple Price Index Number or Price Relative	6.3.1 describe the simple price index number; 6.3.2 calculate simple price index and interpret its meaning;		*	*
6.4	Construction of Composite Index Number	6.4.1 describe the composite index number; 6.4.2 apply different methods for calculating the composite index number: i. simple average of relative method; ii. simple aggregative method; iii. weighted price index by Laspeyre's, Paasche's, Fisher's and Marshall – Edgeworth method.		*	*

NOTES

			K	U	A	
6.5	Properties of Index Number	6.5.1	describe the following properties of index numbers; if $I_{a,b} = \frac{p_b}{p_a}$, then i. $I_{a,a} = \frac{p_a}{p_a} = 1$ ii. $I_{a,b} = \frac{p_b}{p_a}$ $I_{a,b} = \frac{1}{\frac{p_a}{p_b}}$ $I_{b,a} = \frac{1}{I_{a,b}}$ iii. $I_{a,b} \times I_{b,c} \times I_{c,d} = \frac{p_b}{p_a} \times \frac{p_c}{p_b} \times \frac{p_d}{p_c}$ $I_{a,b} \times I_{b,c} \times I_{c,d} = \frac{p_d}{p_a}$ $I_{a,b} \times I_{b,c} \times I_{c,d} = p_{d,a}$ where p_a , p_b , p_c and p_d being the prices of a commodity in the years a , b , c and d respectively. $I_{a,b}$ is only a ratio and not a percentage. The factor 100 is neglected to avoid confusion.		*	
		6.5.2	prove the above mentioned properties of index number;		*	
		6.5.3	solve problems related to the above mentioned properties of index number;			*

NOTES

			K	U	A
7. Counting Techniques and Probability	Candidates should be able to:				
7.1 Counting Techniques	7.1.1	identify $n!$ as the notation to express the product of the first n natural numbers;	*		
	7.1.2	describe the fundamental principle of counting;		*	
	7.1.3	illustrate the fundamental principle of counting by using tree diagram;		*	
	7.1.4	solve problems related to fundamental principle of counting and tree diagram;			*
7.2 Permutation	7.2.1	describe permutation;		*	
	7.2.2	apply the formula of permutation for: i. n different objects taken r at a time (repetition is not allowed) ii. n different objects taken r at a time (repetition is allowed) iii. n objects when n_1 are alike, n_2 are alike, n_3 are alike,..... n_k are alike where $n = n_1 + n_2 + n_3 + \dots + n_k$;			*
	7.2.3	solve problems related to permutation;			*
7.3 Combination	7.3.1	describe combination;		*	
	7.3.2	apply the formula of combination to solve related problems;			*

NOTES

			K	U	A	
7.4	Basic Concepts of Probability	7.4.1	describe basic terms used in probability like experiment , outcome, sample space and events;		*	
		7.4.2	describe probability;		*	
		7.4.3	write the axioms of probability;	*		
		7.4.4	calculate probability of an event in simple cases;			*
		7.4.5	distinguish between mutually exclusive and non mutually exclusive events;		*	
		7.4.6	describe the addition rule of probability for mutually exclusive events i.e. $P(A \cup B) = P(A) + P(B)$;		*	
		7.4.7	describe the general addition rule of probability i.e. $P(A \cup B) = P(A) + P(B) - P(A \cap B)$;		*	
		7.4.8	distinguish between dependent and independent events;		*	
		7.4.9	define conditional probability;	*		
		7.4.10	describe the law of multiplication of probability $P(A \cap B) = P(A) \times P(B A)$ OR $P(A \cap B) = P(B) \times P(A B)$ where $P(B A)$ and $P(A B)$ are conditional probabilities and A and B are dependent events;		*	
		7.4.11	describe the law of multiplication of probability $P(A \cap B) = P(A) \times P(B)$ where A and B are independent events;		*	
		7.4.12	apply the above mentioned laws of addition and multiplication of probability to solve related problems;			*

NOTES

3. Scheme of Assessment

Class XII

Table 1: Number of Student Learning Outcomes by Cognitive Level

Topic No	Topics	No. of Sub Topics	SLOs			Total
			K	U	A	
1.	Introduction to Statistics	3	2	10	0	12
2.	Presentation of Statistical Data	1	0	3	2	5
3.	Graphical Representation	2	0	0	10	10
4.	Measures of Central Tendency	4	4	2	9	15
5.	Measures of Dispersion	3	2	2	4	8
6.	Index Number	5	2	6	4	12
7.	Counting Technique and Probability	4	3	12	6	21
	Total	22	13	35	35	83
	Percentage		16	42	42	100

Table 2: Allocation of Marks for the Multiple Choice Questions (MCQs), and Constructed Response Questions (CRQs)

Topic No	Topics	No. of Sub Topics	Marks		
			Multiple Choice Questions	Constructed Response Questions	Total
1.	Introduction to Statistics	3	3	4	7
2.	Presentation of Statistical Data	1	2	4	6
3.	Graphical Representation	2	3	4	7
4.	Measures of Central Tendency	4	4	5	9
5.	Measures of Dispersion	3	2	4	6
6.	Index Number	5	2	5	7
7.	Counting Technique and Probability	4	4	4	8
	Total	21	20	30	50

Table 3: Paper Specifications

Topic No.	Topics	Marks Distributions		Total Marks
1.	Introduction to Statistics	MCQs 3 @ 1 Mark CRQ 1 @ 4 Marks		7
2.	Presentation of Statistical Data	MCQs 2 @ 1 Mark CRQ 1 @ 4 Marks		6
3.	Graphical Representation	MCQs 3 @ 1 Mark CRQ 1 @ 4 Marks		7
4.	Measure of Central Tendency	MCQs 4 @ 1 Mark *CRQs 2 @ 5 Marks each Choose any ONE from TWO		9
5.	Measure of Dispersion	MCQs 2 @ 1 Mark CRQ 1 @ 4 Marks		6
6.	Index Number	MCQs 2 @ 1 Mark *CRQs 2 @ 5 Marks each Choose any ONE from TWO		7
7.	Counting Technique and Probability	MCQs 4 @ 1 Mark *CRQs 2 @ 4 Marks each Choose any ONE from TWO		8
	Total	MCQs 20	CRQs 30	50

* There will be TWO questions and the candidates will be required to attempt any ONE by making a choice out of the TWO.

- 3.1 Table 1 indicates the number and nature of SLOs in each topic in class XII. This will server as a guide in the construction of the examination paper. It also indicates that more emphasis has been given to the understanding (42%) application and higher order skills (42%) in class XII to discourage rote memorization. Table 1, however, does not translate directly into marks.
- 3.2 Table 2 shows the distribution of marks. There will be 20 marks of multiple choice questions each carrying one mark. The constructed response paper will carry 30 marks. It is AKU-EB policy that every topic should be examined.
- 3.3 The question paper will be in two parts: paper I and paper II. Both papers will be of duration of 2 hours.
- 3.4 Paper I will be a separately timed objective test of 30 minutes, administered before the constructed response paper (paper II). There will be no choice in the multiple choice paper.
- 3.5 Paper II will carry 30 marks and consist of a number of compulsory, constructed response questions. There will be no choice among the chapters in constructed response questions but it may be within the topics.
- 3.6 All constructed response questions will be in a booklet which will also serve as an answer script.

4. Teaching–Learning Approaches and Classroom Activities

4.1 As the AKU-EB syllabus focuses on understanding and higher order thinking skills, teachers need to encourage activity and problem-based classroom practices.

4.2 The following strategies are recommended:

4.2.1 Before starting any topic, teachers should give the relevant information from that topic to build up and recall their previous knowledge if they have.

4.2.2 Lecture should be well organised and completed within limited time period with current and practical examples.

4.2.3 To understand the cognitive level of ongoing topics, teacher(s) should provide hard copies of syllabus to the students.

4.2.4 During lecture, teacher(s) should ask the questions randomly from the students to assist the student, are they understanding or not.

4.2.5 If a teacher feels that a student does not understand, the student should be called to the board to clarify the concept. This will facilitate the student to comprehend more accurately.

4.2.6 Take a presentation from the students on selected and applied topics from the syllabus.

4.2.7 Arrange educational trips to different organisations and institutes, i.e. banks and other sort of financial institutes.

4.2.8 Assign tasks to the students to search relevant material from other sources, i.e. library, internet and news papers etc.

4.2.9 Organise group discussions among students to share their views about on going topic.

4.2.10 Plan to organise a meeting of students with different professionals and intellectuals. It will provide moral support and boost their confidence levels.

5. Recommended Texts, Reference Materials

Recommended Books

1. Hamid A. Hakim (2006). *Fundamentals of Business Statistics*. Karachi: Meyari Matboat.
2. Nadeem Akhter Siddiqui (2001). *Business Statistics*, Lahore: Azeem Academy.

Reference Books

1. Schaum's Outline Murray R. Spiegel and Larry J. Stephens (1993). *Statistics*. McGraw Hill JBD Press.
2. Earl K. Bowen and Martin K. Starr (1982). *Basic Statistics for Business and Economics*. McGraw-Hill.

Recommended Websites

<http://math.about.com/library/weekly>
<http://www.textbooks.com/Cat.php?SBC=MEX>
www.webbertext.com/index.html

6. Definition of Cognitive Levels and Command Words

6.1 Definition of Cognitive Levels

Knowledge

This requires knowing and remembering facts and figures, vocabulary and contexts, and the ability to recall key ideas, concepts, trends, sequences, categories, etc. It can be taught and evaluated through questions based on: who, when, where, what, list, define, describe, identify, label, tabulate, quote, name, state, etc.

Understanding

This requires understanding information, grasping meaning, interpreting facts, comparing, contrasting, grouping, inferring causes/reasons, seeing patterns, organizing parts, making links, summarizing, solving, identifying motives, finding evidence, etc. It can be taught and evaluated through questions based on: why, how, show, demonstrate, paraphrase, interpret, summarise, explain, prove, identify the main idea/theme, predict, compare, differentiate, discuss, chart the course/direction, report, solve, etc.

Application

This requires using information or concepts in new situations, solving problems, organizing information and ideas, using old ideas to create new ones, generalizing from given facts, analyzing relationships, relating knowledge from several areas, drawing conclusions, evaluating worth, etc. It can be taught and evaluated through questions based on: distinguish, analyse, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, re-arrange, reconstruct/recreate, re-organize, predict consequences etc.

6.2 Definition of Command Words

Knowledge

- Define:** Only a formal statement or equivalent paraphrase is required. No examples need to be given.
- Identify:** Pick out, recognizing specified information from a given content or situation.
- Write:** To compose, execute or produce in words, characters or figures.

Understanding

- Construct:** To set in order or something formulated or built systematically or frame a concept, model, or schematic idea.
- Describe:** To state in words (using diagrams where appropriate) the main points of the topic.
- Discuss:** To give a critical account of the points involved in the topic.
- Distinguish:** To identify those characteristics which always or sometimes distinguish between two categories.
- Explain:** To give reason or use some reference to theory, depending on the context.
- Illustrate:** To give clear examples to state, clarify or synthesize a point of view.
- Interpret:** To translate information from observation, charts, tables, graphs, and written material in a supportable manner.
- Locate:** To place or to set in a particular spot or position.

Application

- Apply:** To use the available information in different contexts to relate and draw conclusions.
- Calculate:** Is used when a numerical answer is required. In general, working should be shown, especially where two or more steps are involved.
- Draw:** To make a simple freehand sketch or diagram. Care should be taken with proportions and the clear labelling of parts.
- Estimate:** To calculate approximately (the amount, extent, magnitude, position, or value of something).

Find: Is a general term that may variously be interpreted as calculate, measure, determine, etc.

In other contexts, describe and give an account of should be interpreted more generally, i.e. the candidate has greater discretion about the nature and the organization of the material to be included in the answer. Describe and explain may be coupled in a similar way to state and explain.

Solve: To work out systematically the answer of a given problem.

Use: To deploy the required attribute in a constructed response.

HSSC Scheme of Studies²

AKU-EB as a national board offers SSC and HSSC qualifications for both English and Urdu medium schools. The revised HSSC Scheme of Studies issued by the Curriculum Wing was implemented from September 2007. The marks allocated to subjects in the revised National Scheme of Studies have been followed.

HSSC I-II (Classes XI-XII) subjects on offer for examination

HSSC Part-I (Class XI) Science Group (Pre-Medical)

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-I	100	-	100	English
Urdu Compulsory-I OR Pakistan Culture-I ^a	100	-	100	Urdu English
Physics-I	85	15	100	English
Chemistry-I	85	15	100	English
Biology-I	85	15	100	English
Total:	455	45	500	

HSSC Part-II (Class XII) Science Group (Pre-Medical)

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-II	100	-	100	English
Urdu Compulsory-II OR Pakistan Culture-II ^a	100	-	100	Urdu English
Islamiyat OR Ethics ^b	50	-	50	English / Urdu
Pakistan Studies	50	-	50	English / Urdu
Physics-II	85	15	100	English
Chemistry-II	85	15	100	English
Biology-II	85	15	100	English
Total:	555	45	600	

- Foreign students may opt for Pakistan Culture in lieu of Urdu Compulsory, subject to the Board's approval.
- For non-Muslim candidates in lieu of Islamiyat.

Note: Pakistan Studies, Islamiyat / Ethics will be taught in Classes XI and XII, but the examination will be conducted at the end of Class XII.

² Government of Pakistan September 2007. *Scheme of Studies for SSC and HSSC (Classes IX-XII)*. Islamabad: Ministry of Education, Curriculum Wing.

HSSC Part-I (Class XI) Science Group (Pre-Engineering)

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-I	100	-	100	English
Urdu Compulsory-I OR Pakistan Culture-I ^a	100	-	100	Urdu English
Physics-I	85	15	100	English
Chemistry-I	85	15	100	English
Mathematics-I	100	-	100	English
Total:	470	30	500	

HSSC Part-II (Class XII) Science Group (Pre-Engineering)

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-II	100	-	100	English
Urdu Compulsory-II OR Pakistan Culture-II ^a	100	-	100	Urdu English
Islamiyat OR Ethics ^b	50	-	50	English / Urdu
Pakistan Studies	50	-	50	English / Urdu
Physics-II	85	15	100	English
Chemistry-II	85	15	100	English
Mathematics –II	100	-	100	English
Total:	570	30	600	

- a. Foreign students may opt for Pakistan Culture in lieu of Urdu Compulsory, subject to the Board's approval.
- b. For non-Muslim candidates in lieu of Islamiyat.

Note: Pakistan Studies, Islamiyat / Ethics will be taught in Classes XI and XII, but the examination will be conducted at the end of Class XII.

HSSC Part-I (Class XI) Science Group (Science General)

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-I	100	-	100	English
Urdu Compulsory-I	100	-	100	Urdu
Pakistan Culture-I ^a				English
Any one subject combinations of the following:				
Physics-I	85	15	300	English
Mathematics-I	100	-		English
*Statistics-I	85	15		English
Economics-I	100	-	300	English / Urdu
Mathematics-I	100	-		English
*Statistics-I	85	15		English
Economics-I	100	-	300	English / Urdu
Mathematics-I	100	-		English
Computer Science-I	75	25		English
Physics-I	85	15	300	English
Mathematics-I	100	-		English
Computer Science-I	75	25		English
Mathematics-I	100	-	300	English
*Statistics-I	85	15		English
Computer Science-I	75	25		English
Total:			500	

HSSC Part-II (Class XII) Science Group (Science General)

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-II	100	-	100	English
Urdu Compulsory-II OR Pakistan Culture-II ^a	100	-	100	Urdu English
Islamiyat OR Ethics ^b	50	-	50	English / Urdu
Pakistan Studies	50	-	50	English / Urdu
Any one subject combinations of the following:				
Physics-II	85	15	300	English
Mathematics-II	100	-		English
*Statistics-II	85	15		English
Economics-II	100	-	300	English / Urdu
Mathematics-II	100	-		English
*Statistics-II	85	15		English
Economics-II	100	-	300	English / Urdu
Mathematics-II	100	-		English
Computer Science-II	75	25		English
Physics-II	85	15	300	English
Mathematics-II	100	-		English
Computer Science-II	75	25		English
Mathematics-II	100	-	300	English
*Statistics-II	85	15		English
Computer Science-II	75	25		English
Total:			600	

a. Foreign students may opt for Pakistan Culture in lieu of Urdu Compulsory, subject to the Board's approval.

b. For non-Muslim candidates in lieu of Islamiyat.

Note: Pakistan Studies, Islamiyat / Ethics will be taught in Classes XI and XII, but the examination will be conducted at the end of Class XII.

***These subject is offered ONLY in the May examination.**

HSSC Part-I (Class XI) Commerce Group

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-I	100	-	100	English
Urdu Compulsory-I OR Pakistan Culture-I ^a	100	-	100	Urdu English
Principles of Accounting-I	100	-	100	English
Principles of Economics	75	-	75	English
Principles of Commerce	75	-	75	English
Business Mathematics	50	-	50	English
Total:	500	-	500	

HSSC Part-II (Class XII) Commerce Group

Subjects	Marks			Medium
	Theory	Practical	Total	
English Compulsory-II	100	-	100	English
Urdu Compulsory-II OR Pakistan Culture-II ^a	100	-	100	Urdu English
Islamiyat OR Ethics ^b	50	-	50	English / Urdu
Pakistan Studies	50	-	50	English / Urdu
Principles of Accounting-II	100	-	100	English
Commercial Geography	75	-	75	English
*Computer Studies OR Banking	60 OR 75	15 -	75	English
Business Statistics	50	-	50	English
Total:	600	-	600	

- a. Foreign students may opt for Pakistan Culture in lieu of Urdu Compulsory, subject to the Board's approval.
- b. For non-Muslim candidates in lieu of Islamiyat.

Note: Pakistan Studies, Islamiyat / Ethics will be taught in Classes XI and XII, but the examination will be conducted at the end of Class XII.

***This subjects are offered ONLY in the May examination.**

HSSC Part-I (Class XI) Humanities Group

Subjects	Marks	Medium
English Compulsory-I	100	English
Urdu Compulsory-I OR Pakistan Culture-I ^a	100	Urdu English
Any three of the following Elective Subjects	300	
1. Civics-I	(100	English / Urdu
2. Computer Science-I (75+25 practical)	each)	English
3. Economics-I		English / Urdu
4. *Education-I		English / Urdu
5. *Geography-I (85+15 practical)		English / Urdu
6. *Islamic Studies-I		English / Urdu
7. *Islamic History-I		English / Urdu
8. Literature in English-I		English
9. Mathematics-I		English
10. *Psychology-I (85+15 practical)		English / Urdu
11. *Statistics-I (85+15 practical)		English
12. *Sociology-I		English / Urdu
13. Urdu Literature-I		Urdu
14. *Fine Arts-I		English
Total:	500	

HSSC Part-II (Class XII) Humanities Group

Subjects	Marks	Medium
English Compulsory-II	100	English
Urdu Compulsory-II OR Pakistan Culture-II ^a	100	Urdu English
Islamiyat OR Ethics ^b	50	English / Urdu
Pakistan Studies	50	English / Urdu
Any three of the following Elective Subjects	300	
1. Civics-II	(100	English / Urdu
2. Computer Science-II (75+25 practical)	each)	English
3. Economics-II		English / Urdu
4. *Education-II		English / Urdu
5. *Geography-II (85+15 practical)		English / Urdu
6. *Islamic Studies-II		English / Urdu
7. *Islamic History-II		English / Urdu
8. Literature in English-II		English
9. Mathematics-II		English
10. *Psychology-II (85+15 practical)		English / Urdu
11. *Statistics-II (85+15 practical)		English
12. *Sociology-II		English / Urdu
13. Urdu Literature-II		Urdu
14. *Fine Arts-II		English
Total:	600	

- a. Foreign students may opt for Pakistan Culture in lieu of Urdu Compulsory, subject to the Board's approval.
- b. For non-Muslim candidates in lieu of Islamiyat.

Note: Pakistan Studies, Islamiyat / Ethics will be taught in Classes XI and XII, but the examination will be conducted at the end of Class XII.

***These subjects are offered ONLY in the May examination.**