

FEDERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION H-8/4, ISLAMABAD



No. 1-10/FBISE/RES/265

Subject:

GUIDELINES FOR SLOS BASED EXAMINATIONS

With the aim of paradigm shift in the domain of assessment and examination system and in order to do away with the outdated rote learning based examination system and starting in conceptual learning based examination system, FBISE notified and successfully implemented Students Learning Outcomes (SLOs) based examination policy and accordingly conducted SSC and HSSC annual examinations 2022 in eight core subjects of English (Compulsory), Urdu (Compulsory), Physics, Chemistry, Biology, Computer Science, Mathematics and Pakistan Studies. As precursor to these SLOs based examinations and in order to provide support to teaching-learning activity in the classroom, FBISE provided three sets of model question papers together with SLOs alignment charts in each subject on quarterly basis containing detailed instructions for question papers setting. Tables of specification containing coverage of the SLOs of a particular subject and ratio of cognitive domains have been provided for facilitation of teachers, students, heads of institutions and other stakeholders. Solutions of all the model question papers have also been provided. The same are readily available on FBISE website <u>www.fbise.edu.pk</u> for the guidance of stakeholders.

02. In order to enhance understanding of the SLOs based examination reforms of FBISE and to support the stakeholders, lists containing definition of various cognitive domains and command words/action verbs pertaining to the mentioned subjects are being shared herewith. It is expected that all the stakeholders will go through these contents in order to enhance understating of SLOs based examination reforms of FBISE.

03. These action verbs are also SLOs' starters present before each and every SLO which communicate the cognitive domains of SLOs as well apart from their main objective meanings and interpretations. Reference/Recommended books or other supplementary reading material may be relied on keeping in view the demand of the SLOs in order to ensure maximum coverage of the SLOs of a particular subject. The depth and level of exploration of SLOs may be determined by understanding the demand of an SLO keeping in view the class and level of students. The definition of cognitive levels and Command Words (Action verbs) of different subjects is as per the following details:

Physics	Pages 4 – 6
Biology	Pages 7 – 9
Chemistry	Pages 10 – 12
Computer Science	Pages 13 - 15
Mathematics	Pages 16 – 19
English	Pages 20 – 23
Pakistan Studies	Pages 24 – 26
Urdu	Pages 27 – 29

04. It is hoped that teachers, students and other stakeholders will seek guidance from these command words.

25 August, 2022

05. As already notified, the suggested list of reference material is once again being shared hereunder for each subject along with other details at SSC and HSSC levels. The institutions are free to rely on any other instructional/reference material as well to fulfil the instructional requirements of the SLOs. Moreover, institutions will further shape their instructional and assessment practices around SLOs and reference material to prepare their students accordingly. This practice will help to prepare students to discover new abilities, develop an informed curiosity and a lasting passion for learning.

<u>SSC</u>

S #	SUBJECTS	IECTS CURRICULUM/ NAMES OF PUBLISHER OF TEXT/REFERENCE BOOKS		TEXT/REFERENCE BOOKS
3#	SUBJECTS	SYLLABUS	SSC-I	SSC-II
1	English Compulsory	2006	Punjab Curriculum & Textbook Board, Lahore Baluchistan Textbook Board, Quetta Khyber Pakhtunkhwa Textbook Board, Peshawar	Lahore Baluchistan Textbook Board, Quetta Khyber Pakhtunkhwa Textbook Board, Peshawar
2	Urdu Compulsory	2006	Ch Ghulam Rasool & Sons, Lahore Baluchistan Textbook Board, Quetta Khyber Pakhtunkhwa Textbook Board, Peshawar National Book Foundation, Islamabad	Ilmi Kutab Khana, Lahore Baluchistan Textbook Board, Quetta Khyber Pakhtunkhwa Textbook Board, Peshawar National Book Foundation, Islamabad
3	Pakistan Studies	2006	GFH Publishers, 5-Urdu Bazar, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta National Book Foundation, Islamabad	Gohar Publishers, 11-Urdu Bazar, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta National Book Foundation, Islamabad
4	Physics	2006	Caravan Book House, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta National Book Foundation, Islamabad	Malik Sirajuddin & Sons, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta National Book Foundation, Islamabad
5	Biology	2006	PLD Publishers, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta National Book Foundation, Islamabad	PLD Publishers, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta National Book Foundation, Islamabad
6	Chemistry	2006	National Book Foundation, Islamabad Punjab Curriculum & Textbook Board, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta	National Book Foundation, Islamabad Punjab Curriculum & Textbook Board, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta
7	Mathematics	2006	Caravan Book House, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta	Ilmi Kutab Khana, Lahore Khyber Pakhtunkhwa Textbook Board, Peshawar Baluchistan Textbook Board, Quetta
8	Computer Science	2009	National Book Foundation, Islamabad Khyber Pakhtunkhwa Textbook Board, Peshawar Agha Khan University Examination Board, Karachi	National Book Foundation, Islamabad Khyber Pakhtunkhwa Textbook Board, Peshawar Agha Khan University Examination Board, Karachi

HSSC

0 11	CUD IE CTC	CURRICULUM/	NAMES OF PUBLISHER OF TEXT/REFERENCE BOOKS	
S #	SUBJECTS	SYLLABUS	HSSC-I	HSSC-II
1	English Compulsory	2006	Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
	0 1 2	Professional - Statements	Peshawar (Test Edition)	Peshawar (Test Edition)
			Baluchistan Textbook Board, Quetta	Baluchistan Textbook Board, Quetta
2	Urdu Compulsory	2006	Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
			Peshawar	Peshawar
			National Book Foundation, Islamabad	Baluchistan Textbook Board, Quetta
			Baluchistan Textbook Board, Quetta	

3	Pakistan Studies	2002		National Book Foundation, Islamabad Punjab Curriculum & Textbook Board,
				Lahore
4	Physics	2006	Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
			Peshawar	Peshawar
			Baluchistan Textbook Board, Quetta	Baluchistan Textbook Board, Quetta
5	Biology	2006	National Book Foundation, Islamabad	National Book Foundation, Islamabad
	2.0.06)		Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
			Peshawar	Peshawar
			Baluchistan Textbook Board, Quetta	Baluchistan Textbook Board, Quetta
6	Chemistry	2006	National Book Foundation, Islamabad	National Book Foundation, Islamabad
			Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
			Peshawar	Peshawar
			Baluchistan Textbook Board, Quetta	Baluchistan Textbook Board, Quetta
7 N	Mathematics	2000	Punjab Curriculum & Textbook Board,	Punjab Curriculum & Textbook Board,
			Lahore	Lahore
			Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
	×		Peshawar	Peshawar
8	Computer Science	2009	National Book Foundation, Islamabad	National Book Foundation, Islamabad
U			Khyber Pakhtunkhwa Textbook Board,	Khyber Pakhtunkhwa Textbook Board,
			Peshawar	Peshawar
			Agha Khan University Examination Board,	Agha Khan University Examination Board,
			Karachi	Karachi

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Heads of All Institutions affiliated With FBISE at SSC & HSSC levels

Copy to:

- 1. Director General, Federal Directorate of Education, G-9/4, Islamabad
- 2. Director General, FGEI (C&G) Directorate, Sir Syed Road, Rawalpindi Cantt.
- 3. Director Education (Schools/Colleges), PAF Rear Air HQs, Peshawar Cantt.
- 4. Director Education, Directorate of Naval Educational Services, Naval HQ, Islamabad
- 5. Director, Army Public Schools and Colleges System Secretariat, GHQ, Rawalpindi
- 6. Director, CB Education Directorate, C/O Chaklala Cantonment Board, Opp: Health Ways Laboratory, Murree Road, Rawalpindi
- 7. General Manager (Education), Fauji Foundation Head Office, Welfare Division, Chaklala, Rawalpindi
- 8. Director Education, OPF Head Office, F-5, Islamabad
- 9. President, National Council for Tibb, Islamabad
- 10. Executive Director, HEC, Islamabad
- 11. Assistant Director (Trg), FGEI (C&G), Sir Syed Road, Rawalpindi Cantt
- 12. All HODs, FBISE, Islamabad
- 13. Director IT (with the request to upload on website)
- 14. Incharge, Website FBISE, Islamabad
- 15. Incharge, FBISE, Sub-Office, Gilgit
- 16. Incharge, FBISE Sub-Office, Skardu
- 17. APS to Chairman, FBISE, Islamabad
- 18. APS to Director (R&A), FBISE, Islamabad
- 19. Chat Room, FBISE, Islamabad

DEFINITION OF COGNITIVE LEVELS (PHYSICS)

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, identity, 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, summarize, 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 one and 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, analyze, show relationship, propose and alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS (PHYSICS)

The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

- Analyse: Describe with the use of graphs how information on two or more variables is related to other variables.
- Apply: Demonstrate the solution of problems by using the specified procedures.
- Associate: Show the inter connection of phenomena or facts.
- **Calculate:** Is used when a numerical answer is required. In general, working should be shown, especially where two or more steps are involved.
- **Define (the term** Only a formal statement or equivalent paraphrase is required. No examples need to be given.
- **Demonstrate:** Implies that the candidate is expected to show how one thing is related to another, usually it is a reference to theory but sometimes it is physical manipulation or experiment.
- **Derive:** Deduce stepwise of formula from a general from principle or rule.
- **Describe:** To state in words (using diagrams where appropriate) the main points of the topic. It is often used with reference either to particular phenomena or to particular experiments. In the former instance, the term usually implies that the answer should include reference to (visual) observations associated with the phenomena.
- **Determine:** Often implies that the quantity concerned cannot be measured directly but is obtained by calculation, substituting measured or known values of other quantities into a standard formula, e.g. relative molecular mass.
- **Differentiate:** Identify those characteristics which are the defining features of two concepts or phenomena.
- **Discuss:** To give a critical account of the points involved in the topic.
- **Draw/Sketch:** Implies a simple freehand sketch or diagram. Care should be taken with proportions and clear labeling of parts.

Explain: May imply reasoning or some reference to theory, depending on the context.

Give examples: Name specific instances or cases to demonstrate the occurrence of an event or existence of a situation or phenomenon.

Identify: Describe with specific examples how a given term or concept is applied in daily life.

List: Requires a number of points, generally each of one word, with no elaboration. Where the numbers of points are specified, this should not be exceeded.

Name: Mention the commonly used word for an object.

Prove: Demonstrate by logical or numerical evidence.

Recognize: Involves looking at a given example and stating what it most probably is.

Relate: Describe how facts or phenomena depend upon, follow from or are part of another.

Represent: Draw a graph to show the connection between two variables.

Show: Demonstrate with evidence.

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Solve: Deduce in simple numerical terms.

State: Implies a concise answer with little or no supporting argument, e.g. a numerical answer that can be obtained 'by inspection'.

Use: Apply the given information to solve a problem.

DEFINITION OF COGNITIVE LEVELS (BIOLOGY)

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: how, show, demonstrate, paraphrase, interpret, summarize, 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: differentiate, analyze, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS (BIOLOGY)

The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

Classify:	To state a basis for categorization of a set of related entities and assign examples to categories.
Collect:	To gather specimens or information about plants or animals and arrange them in a meaningful way.
Compare:	To list the main characteristics of two entities clearly identifying similarities (and differences).
Define:	Refers to a rather formal definition of terms, which involves their fundamental concepts.
Demonstrate/ Carryout/Design:	To show how one thing is related to another, usually it is reference to theory but sometimes it is by physical manipulation or experiment.
Describe:	To recall the phenomenon or process
Differentiate:	To identify those characteristics which always or sometimes differentiate two categories.
Discuss:	To give critical account of the points involved in the topic.
Draw:	To make a simple freehand sketch or diagram. Care should be taken with proportions and the clear labeling of parts.
Examine:	To identify and explain different aspects of a problem or concept.
Explain:	To reason or use some reference to theory, depending on the context.
Give an account:	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.
Identify:	Describe with specific examples of how a given term or concept is applied in daily life.

Investigate: List:	To examine systematically a situation or problem in order to come to a rational conclusion. Requires a number of points, generally each of one word, with no elaboration. Where a given numbers of points is specified, this should not be exceeded.
Name:	Mention the commonly used word for an object.
Narrate:	To write down the facts and explanation as given or provided in the text.
Outline:	Implies brevity, i.e. restricting the answer to giving essentials
Predict or Deduce:	Implies that the candidate is not expected to produce the required answer by recall but by making a logical connection between other pieces of information. Such information may be wholly given in the question or may depend on answers extracted in an early part of the question.
Prepare:	A practical activity in which choice of equipment, order of procedure and accuracy of measurement all play a part.
Purify:	A practical activity in which the candidate is expected to apply an approved methodology with appropriate safety precautions.
Recall:	To bring back to mind and write down, as it is given in the text that you have already memorized.
Recognize:	Involves looking at a given example and stating what it most probably is.
Relate:	To describe how things are dependent upon each another and follow- from one to the other or is part of another.
Show:	Demonstrate with evidence.
State:	To use when the objective requires the recall of only some aspects of a phenomenon or a process.

DEFINITION OF COGNITIVE LEVELS (CHEMISTRY)

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, summarize, 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 one and 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, analyze, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS (CHEMISTRY)

The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

- **Calculate:** Is used when a numerical answer is required. In general, working should be shown, especially where two or more steps are involved.
- **Classify:** State a basis for categorization of a set of related entities and assign examples to categories.
- **Compare:** List the main characteristics of two entities clearly identifying their similarities and differences.
- **Define the term** Only a formal statement or equivalent paraphrase is required. No examples need to be given.
- **Demonstrate:** Implies that the candidate is expected to show how one thing is related to another, usually it is a reference to theory but sometimes it is physical manipulation or experiment.
- **Describe:** To state in words (using diagrams where appropriate) the main points of the topic. It is often used with reference either to particular phenomena or to particular experiments. In the former instance, the term usually implies that the answer should include reference to visual observations associated with the phenomena.
- **Determine:** Often implies that the quantity concerned cannot be measured directly but is obtained by calculation. Substituting measured or known values of other quantities into a standard formula, e.g. relative molecular mass.
- **Differentiate:** To identify those characteristics which always or sometimes distinguish between two categories.
- **Discuss:** To give a critical account of the points involved in the topic.
- **Draw/Construct:** Implies a simple freehand sketch or diagram. Care should be taken with proportions and clear labeling of parts.
- **Explain:** May imply reasoning or some reference to theory, depending on the context.

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

List/Enlist: Requires a number of points, generally each of one word, with no elaboration. Where the number of points are specified, this should not be exceeded.

Outline: Implies brevity, i.e. restricting the answer to giving essentials.

Predict or Deduce: Implies that the candidate is not expected to produce the required answer by recall but by making a logical connection between other pieces of information. Such information may be wholly given in the question or may depend on answers extracted in an earlier part of the question.

- **Prepare:** Implies a practical activity in which the choice of equipment, order of procedure and accuracy of measurement will play a part.
- **Purify:** Implies a practical activity in which the candidate is expected to apply an approved methodology with appropriate safety precautions.
- **Relate:** Describe how things depend upon, follow from or are part of another.
- State: Implies a concise answer with little or no supporting argument, for example numerical answer that can be obtained by inspection.
- Identify: Describe with specific examples of how a given term or concept is applied in daily life.
- **Explore:** To examine thoroughly and systematically to be able to make a statement about a phenomenon or concept.
- **Recognize:** Involves looking at a given example and stating what it most probably is.

Measure: To determine extent, quantity, amount or degree of something as determined by measurement or calculation.

- Write: To construct full sentences of continuous prose, not abbreviated text.
- **Narrate:** To write down the facts and explanation as given or provided in the text.
- Show: Demonstrate with evidence.
- **Recall:** To bring back to mind and write down, as it is given in the text that you have already memorized.

DEFINITION OF COGNITIVE LEVELS (COMPUTER SCIENCE)

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, summarize, 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, analyze, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS (COMPUTER SCIENCE)

The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

Assign:	Putting data against a variable for doing a programme or a project to achieve certain objectives.
Change:	Implies switching from one programme to another or shifting from a given computer characteristic to a desired one.
Check:	Implies switching verification of given data or any computer software or programme.
Classify:	State a basis for categorization of a set of related entities and assign examples to categorize.
Compare:	List the main characteristics of two entities clearly identifying similarities (and differences).
Convert:	Shift or change the given programme or data into a different form with different characteristics.
Create:	Requires developing a new programme or a set of functions from one's own experience.
Define:	Means only a formal statement about a term or function without any examples.
Demonstrate:	show how one thing is related to another, usually by physical manipulation or experiment to show a computer related skill.
Describe:	State in words (using diagrams where appropriate) the main points of the topic. It is often used with reference either to particular phenomenon or experiments. In the former instance, the term usually implies that the answer should include reference to (visual) observations associated with the phenomenon.
Determine:	Often implies that the quantity concerned cannot be measured directly but is obtained by calculation. substituting measured or known values of

other quantities into a standard formula, e.g. relative molecular mass.

Differentiate:Identify those characteristics which always or usually help us to tell two
categories apart. A list of features is required.Discuss:Express views in a logical and lucid way considering all aspects of a
matter under discussion and draw conclusions.Draw:Implies a simple free hand sketch or diagram. Care should be taken with
proportions and the clear labeling of parts.Enter:Implies feeding in the data by making use of the keyboard.

Explain: Reason or use some referenced to theory, depending on the context.

Identify: Pick out, recognizing specified information from a given content or situation.

Justify: Provide evidence of understanding any concept or skill with sufficient grounds.

Know: Requires remembering the factual information, figures, equipment and contexts.

Make: Putting different items together to develop a set of the desired data or functions.

Name: Identify people, places and organizations.

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Present: Show a programme or any software function or data with related basis.

Recognize: Involves looking at a given example and stating what it most probably is.

Select: Choose the desirable page layout from a given document.

Set: Requires placing a software function in order for further programming.

Show: Demonstrate or prove by evidence and or by argument.

State: Implies a concise answer with little or no supporting argument, e.g. a numerical answer that can be obtained by inspection.

Use: Deploy the required attribute in a constructed response or apply any computer skill of software in a practical way.

Write: Implies making a list of desired entities or functions.

DEFINITION OF COGNITIVE LEVELS (MATHEMATICS)

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, summarize, 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 one, 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, analyze, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS (MATHEMATICS)

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The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

To go beyond using the information for relating different characteristics of Analyse: the components in the given material and drawing conclusions on the basis of common characteristics. To use the available information in different contexts to relate and draw Apply: conclusions. To put different components in an appropriate and systematic way. Arrange: Is used when a numerical answer is required. In general, working should Calculate: be shown, especially where two or more steps are involved. To State a basis for categorization of a set of related entities and assign **Classify:** examples to categories. To List the main characteristics of two entities clearly identifying Compare: similarities (and differences). To calculate an answer or result using different mathematical methods. Compute: To form or prove a concept through observation, experience, facts or Conceptualize: given data. To bring together given elements in a connected or coherent whole. **Construct:** Convert: To change or adapt from one system or units to another. Only a formal statement or equivalent paraphrase is required. No Define (the term or examples need to be given. terms) To show by argument, facts or other evidences the validity of a Demonstrate: statement or phenomenon.

Describe:	To State in words (using diagrams where appropriate) the main points of the topic. It is often used with reference either to particular phenomenon or experiments. In the former instance, the term usually implies that the answer should include reference to visual observations associated with the phenomenon.
Develop:	To expand a mathematical function or expression in the form of series.
Distinguish:	To identify those characteristics which always or sometimes distinguish between two categories.
Discuss:	To give a critical account of the points involved in the topic.
Draw/Sketch:	To make a simple freehand sketch or diagram. Care should be taken with proportions and the clear labeling of parts.
Derive:	To arrive at a general formula by calculating step by step.
Eliminate:	To remove a variable from two or more simultaneous equations.
Establish	To prove correct or true on the basis of the previous examples.
Evaluate:	To judge or assess on the basis of facts, argument or other evidence to come to conclusion.
Explain:	to reason or use some reference to theory, depending on the context.
Express:	Use appropriate vocabulary, language structure and intonation to communicate thoughts and feelings.
Factorize:	To resolve or break integers or polynomials into factors.
Find:	Is a general term that may variously be interpreted as calculate, measure, determine, etc.
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Identify:	Pick out, recognizing specified information from a given content of situation.
Illustrate:	To give clear examples to state, clarify or synthesize a point of view.
Investigate:	Thoroughly and systematically consider a given problem, statement in order to find out the result or rule applied.

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Locate: Measure:	To determine the precise position or situation of an entity in a given context. To determine extent, quantity, amount or degree of something as determined by measurement or calculation.
Plot:	To locate and mark one or more points, on a graph by means to coordinates and to draw a graph through these points.
Present:	To write down in a logical and systematic way in order to make a conclusion or statement.
Prove:	To establish a rule or law by using an accepted sequence of procedures on statements.
Simplify:	To reduce (an equation, fraction, etc.) to a simple form by cancellation of common factors, regrouping of terms in the same variables, etc.
Solve:	To work out systematically the answer of a given problem.
Use:	to deploy the required attribute in a constructed response.
Verify:	To prove, check or determine the correctness and accuracy of laws, rules or references given in the set task.
Visualize:	to form a mental image of the concept according to the facts and then write down about that image.

DEFINITION OF COGNITIVE LEVELS (ENGLISH)

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, summarize, 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, analyze, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS(ENGLISH)

The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

- Compare and
Contrast:Involves (a) listing the main points or characteristics of two distinct
entities (in English these will normally be texts) and (b) clearly identifying
similarities and differences between characteristics.
- **Complete forms:** Give information precisely as specified. The inclusion of irrelevant information may be penalized.
- **Conduct:** Perform in accordance with appropriate connections or instructions to achieve a specified outcome.
- **Construct:** Bring together required elements in a connected or coherent response. The invitation to construct indicates that the structure of the response as well as its content will evaluated and given marks.
- **Deduce:** Go beyond the information given to draw a conclusion which is not explicitly stated in the stimulus material.
- **Demonstrate and** Respond in a manner appropriate to a given text. Candidates will not be **Understanding of:** expected to go beyond the text itself. Imported material, even though relevant to the topic, will tend to be penalized as indicative of incomplete understanding of the given text.
- **Deploy:** Use or apply appropriately in context.
- **Describe:** Attempt to capture the distinguishing features of a scene, object or event. The connotation as well as the denotation of words will usually be important and these connotative meanings should be consistent with each other. Describe is usually an invitation to use figurative language.
- **Devise:** the information or devices asked for should be emphasized in the response. Candidates are expected to draw heavily on their own experience to meet the task requirement.
- **Discuss:** Requires candidates to give a critical account of the issue raised. There should be an introductory paragraph setting out the issue, related points should be drawn together in paragraphs in the body of the text and lead to the conclusion explicitly stated in the final paragraph.

	Provide a brief outline of required material in appropriate order. Need not be written in complete sentences.
	Clarify or enrich given statements or definitions, by providing relevant details or examples.
and a second second second	Give a clear and detailed account of related information with reasons or justification.
	Quote selectively using the relevant words from the text. The candidate is not expected in respond "in your own words".
	Demonstrate an understanding of the information given especially the required sequence of events.
	Provide precise and relevant information without undue repetition. Use the imperative voice.
Identify:	Select the most appropriate from many possibilities on the basis of relevant characteristics. It will not normally be expected that the candidate justifies the choice unless specifically asked to do so.
Infer:	Go beyond the information given to identify what is implied but not stated.
Interpret:	Clarify both the explicit meaning and the implications of given information.
Organize their text:	Use paragraph markers, side headings, bullet points as appropriate to structure their writing.
Paraphrase:	Rewrite in their own words, simplifying the expression.
Predict/anticipate:	Make inferences about probably/possible turns of event from the information given so far.
Rearrange/ Reorganize:	Reorder given information in accordance with a given criterion e.g. rearrange in alphabetical order. Marks will depend upon meeting the required criteria. Accuracy of the transcription of information will not normally be rewarded.
Recapitulate:	Retell in their own words selecting only significant information.
Recognize:	Involves looking at a given example and stating what it most probably is.
Relate/recount:	Retell in spoken form. It is not necessary to sustain a formal register.

- **Reproduce:** Give an accurate version of a message in a different medium, spoken, written or graphical. There is no room here for imaginative reconstruction: Literal translation is rather what is required.
- **Respond:** Identify intended thoughts and feelings deduced from choice of language, tone and expression.
- Skim: To read quickly to search for key information.

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- Suggest: Apply knowledge in a given situation to give a rational opinion.
- Summarize: Write a shorter version of a given text capturing the main points and eliminating detail. The writing must be grammatical and the reference of each statement must be clear.
- **Transcribe:** Convert an oral message to a written form.
- Use: Deploy the required attribute in a constructed response.
- Write: Implies full sentences of continuous prose, not abbreviated text.

DEFINITION OF COGNITIVE LEVELS (PAKISTAN STUDIES)

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, summarize, 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 one and 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, analyze, show relationship, propose an alternative, prioritize, give reasons for, categorize, illustrate, corroborate, compare and contrast, create, design, formulate, integrate, rearrange, reconstruct/recreate, reorganize, predict consequences etc.

DEFINITION OF COMMAND WORDS (PAKISTAN STUDIES)

The purpose of command words given below is to direct the attention of the teachers as well as students to the specific tasks that students are expected to undertake in the course of their subject studies. Same command words will be used in the examination questions to assess the competence of the candidates through their responses. The definitions of command words have also been given to facilitate the teachers in planning their lessons and classroom assessments.

Give an account of: Spell out a chronology and show in what ways the event or circumstance to be accounted for derives from or is dependent on earlier events.

Analyse: Go beyond the given information to relate and/or differentiate aspects of a situation and draw conclusions on the basis of evidence information.

Define: Provide a precise statement or meaning of words or terms to describe their nature, properties or essential qualities.

Demonstrate: Show or prove by evidence and/or argument.

Describe: Explain in words and/or diagrams (where necessary) to demonstrate knowledge of facts.

Discuss: Express views in a logical and lucid way considering all aspects of a matter under discussion and draw conclusions.

Explain: Give a clear and detailed account of related information with reasons or justification.

Give Examples/ Cite specific instances or cases to demonstrate the occurrence of an event or existence of a situation or phenomenon.

- Identify: Pick out, recognizing specified information from a given content of situation.
- **Illustrate:** Give clear examples to state, clarify or synthesize a point of view.

Interpret: Clarify both the explicit meaning and the implications of given information.

List/Name:	Name item-by-item, usually in one or two words, precise information such as dates, characteristics, places, names.
Locate:	Determine the precise position or situation of an entity in a given context, e.g.in a map.
Show:	Indicate by writing, drawing or through graphs/charts.
State:	Give a brief and factual answer with no explanation.
Suggest:	Apply knowledge in a given situation to give a rational opinion.
Trace the developments of:	Mention, list, name information/facts in a sequence.

تفہیجی سطحوں اور کمانڈ درڈز (Command Words) کی تعریف جوامتحانی پر چے میں استعال ہوئے ہیں۔ تنہیجی سطحوں کی تعریف

جاننا:

مید حقائق اوراعدا دو شار، لغت اور سیاق جاننے اور یا در کھنے کا تقاضہ کرتا ہے اورا ہم تصورات ، رجحانات ، سلسلات ، درجہ بندیوں وغیرہ کو جانے اوریا در کھنے سے متعلق ہے۔ اس کوکون ، کہاں ، کیا، فہرست بنانے ، تعریف کرنے ، بیان کرنے ، نشاند ہی کرنے ، لیبل لگانے ، جدول حوالہ دینے ، نام دینے ، بیان کرنے وغیرہ پر بنی سوالات کے ذریعے پڑھایا اور جانچا جاسکتا ہے۔

سمجھنا:

ی معلومات کی سمجھ معنی جانے ، حقائق کی ترجمانی ، موازنہ کرنے ، تقابلہ کرنے ، گروپ بنانے ، اسباب و وجو ہات اخذ کرنے ، نمونوں کودیکھنے، اجزاء کو ترتیب دینے ، را بطے بنانے ، اختصار کرنے ، حل کرنے ، مقاصد کی نثاند ، ی کرنے ، اثبات کو تلاش کرنے وغیرہ کا متقاضی ہے اس کو کیوں ، کیسے ، ثابت کرنے ، اظہار کرنے ، تشرح کرنے ، ترجمانی کرنے ، اختصار کرنے ، وضاحت کرنے ، ثابت کرنے ، مرکز ی خیال یا موضوع کی نثاند ، ی کرنے ، پیشین گوئی کرنے ، موازنہ کرنے ، تفتاک کرنے ، تو کا کی کرنے ، تفتاک کرنے ، تابت کرنے ، ، بیان کرنے ، حل کرنے وغیرہ پر پنی سوالات کی بنیا د پر پڑھایا اور جانچا جا سکتا ہے ۔

اطلاق:

یہ معلومات یا تصورات کو نئے حالات میں استعال کرنے ، سوالات حل کرنے ، معلومات اور تصورات کوتر تیب دینے ، پرانے تصورات کو استعال کرتے ہوئے نئے تصورات کو جنم دینے ، دیے گئے اثبات کوعام کرنے ، تعلقات کا تجزیر کرنے ، معلومات کو مختلف ذرائع سے وابستہ کرنے ، نتائج اخذ کرنے ، قد رجا پنچنے وغیرہ کا متقاضی ہے۔ اس کوانتیا ز کرنے ، تجزیر کرنے ، تعلق کوثابت کرنے ، ایک متبادل حل بیان کرنے ، ترجیح دینے ، وجو ہات بیان کرنے ، درجہ بندی کرنے ، وضا کرنے ، نمونہ بنانے ، فارمولال گانے ، کمل کرنے ، دوبارہ تر جیح دوبارہ بنانے یا تخلیق کرنے ، نتائج کی پیشین گوئی کرنے وغیرہ پر بنی سوالات کی بنیاد پر پڑھایا اور جانچا جا سکتا ہے۔

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