ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Higher Secondary School Certificate
(HSSC)

Examination syllabus

Physics
XII

Based on Provincial revised curriculum (Sindh)

You can approach us:

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PREFACE

The Ziauddin University Examination Board (ZUEB) was established under **Sindh ACT XLI 2018**, with the primary objective of enhancing the quality of education in Sindh. ZUEB is responsible for administering examinations for the **Secondary School Certificate (SSC)** and **Higher Secondary School Certificate (HSSC)** in alignment with the most recent revisions to the **National Curriculum**, as outlined by the **Directorate of Curriculum Assessment and Research (DCAR), Sindh**. Through its ordinance, ZUEB is mandated to provide examination services for both English, Urdu, and Sindhi medium candidates from private schools across Sindh. This examination syllabus reflects ZUEB's dedication to achieving the educational goals set by the provincial authorities.

In collaboration with subject professors, ZUEB has developed a comprehensive syllabus for each subject. It is important to distinguish between the syllabus and the curriculum. The syllabus serves as a guide for both teachers and students, outlining the key areas of focus within the subject. It provides students with a clear understanding of what is expected of them in their studies and helps them prepare effectively for their exams.

This examination syllabus incorporates all cognitive outcomes derived from the **Provincial Curriculum Statement**, ensuring that assessments are both valid and reliable. While the focus is primarily on the cognitive domain, significant emphasis is placed on the application of knowledge and understanding.

The syllabus is made available to all stakeholders via the ZUEB website to assist affiliated schools in planning their teaching. It is crucial to note that the syllabus, rather than the prescribed textbook, forms the foundation of ZUEB examinations. Additionally, this syllabus supports the development of learning materials for both students and teachers. ZUEB remains committed to supporting students undertaking the SSC and HSSC courses by facilitating their learning outcomes through this detailed syllabus document.

To further assist in the learning process, ZUEB provides a dedicated **e-resource tab** on its website, offering both text-based and video content on various subjects. These 15-20 minute instructional videos, created around key subject concepts, allow students to learn at their own pace and convenience. The videos can be used as a reinforcement tool to revisit lessons already taught or as pre-lesson material. This initiative is an ongoing effort, and new videos will continue to be uploaded.

We encourage all students and educators to make the most of these resources for a more enriched and flexible learning experience.

Sincerely,

Shahbaz Nasim
Head – Measurement & Testing
Ziauddin University Examination Board

Reviewed by Beena Kohati-Bilal
Head - Curriculum & Assessment
Ziauddin University Examination Board
29.01.2025

Rationale For The Reviewed Provincial Curriculum

The process of revising the National Curriculum 2006 began in August 2004, when the newly elected government of Pakistan initiated education reforms across the country. These reforms included the introduction of a new National Education Policy, a National Education Census, and a revision of curricula (Ministry of Education, 2009).

In practice, the overhaul of the secondary school curriculum began in 2006, leading to a review of the scheme of studies for classes I to XII and the revision of curricula for 25 compulsory subjects.

The 18th Amendment to the Constitution of Pakistan, enacted in 2010, significantly altered the federal-provincial relationship by abolishing the "concurrent legislative list." This amendment granted provinces greater legislative and financial autonomy in sectors such as education and health. The most notable implication of the 18th Amendment for education was the transfer of responsibility for curriculum development, syllabus planning, policy formation, and educational standards to the provinces, marking a significant step forward for education.

In Sindh, the School Education Department tasked a Curriculum Review Team with revising the National Curriculum 2006 for all subjects. The goal was to create a curriculum better suited to the needs of students and teachers while aligning with the principles of the 18th Amendment. Subject-specific curriculum review committees were established to critically examine and align the curriculum's content, both contextually and textually, ensuring coherence across various subjects. The Bureau of Curriculum (BoC) played a crucial role in organizing workshops and meetings in Hyderabad to facilitate the completion of this task. The support of numerous educationists, researchers, and teachers was invaluable in successfully revising the curriculum.

The revised National Curriculum, along with the original version, is available on the DCAR website at http://dcar.gos.pk/BoC_Other_Pages/curriculum_dev.html for easy access.

The Ziauddin University Examination Board (ZUEB) SSC and HSSC syllabi are developed in accordance with the Sindh Revised Curriculum. To date, textbooks for various subjects have been developed based on the revised curriculum.

AIMS AND OBJECTIVES:

VISION STATEMENT

Promotion of process skills, problem solving abilities and application of concepts, useful in real life situation for making physics learning more relevant, meaningful and stimulating.

AIMS

The Aims of Physics at higher secondary level are to enable student to:

- Develop among the students the habit of scientific and rational thinking and an attitude to search for order and symmetry in diverse phenomena of nature and thereby to appreciate the supreme wisdom and creative powers of the creator.
- Become lifelong learner, effective problem solver, responsible and productive citizens in a technological world.
- Strengthen the concepts developed at the secondary level to lay firm foundation for further learning of physics at the tertiary level, in engineering or in other physics dependent and vocational courses.
- Develop process skills and experimental, observational, manipulative, decision making and investigatory skills in the students.
- Understand and interpret scientific information presented in verbal, mathematical or graphical form and to translate such information from one form to another.
- Understand and appreciate the inter relationship and balance that exists in nature, the problems associated with the over exploitation of the environmental resources and disturbance because of the human activities in the ecological balance, thus taking care of the environment.

CURRICULUM DESIGN ON FOLLOWING OBJECTIVES

- The curriculum is designed to emphasize on the understanding and application of physics concepts and principles to prepare the learners for rapidly changing technological as well social scenario of the world and requirements of the market and society.

- This approach has been adopted in recognition of the need for students to develop skills that will be of long-term value in an increasingly technological world.
- The curriculum framework is based on the standards and benchmarks framed by Provincial Curriculum Council. It comprises of eight main themes/sections.
- Each section is further divided into “units” showing their conceptual linkages.
- Each unit is furthermore divided into Students Learning Outcomes which not only covers the fundamental laws/principles of physics but also cutting-edge technological application used in our daily life.

- In order to specify the syllabus as precisely as possible and also to emphasize the importance of higher order abilities and skills other than recall, learning outcomes have been used throughout.

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- Each unit of the syllabus is specified by content section/major concepts followed by detailed learning outcomes.
- The intended level and scope of treatment of a content is defined by the stated learning outcomes with easily recognizable domain of

(i) Recalling
(ii) Understanding
(iii) Applying
(iv) Analyzing
(v) Evaluating
(vi) And creating, under the subhead "skills" measuring, observing, manipulating, recording and interpreting /analyzing, predicting and communicating

abilities/ skills are expected to be developed through related investigations, activities
And practical work.

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ZIAUDDIN UNIVERSITY EXAMINATION BOARD

SLOs CATEGORIZATION

XII-PHYSICS

Detailed Syllabus

Chapters	Topics	Student learning outcomes (SLOs)
CH # 11 **HEAT**	• Thermal equilibrium • Heat and work • Internal energy • First law of thermodynamics • Molar specific heats of a gas • Heat engine • Second law of thermodynamics • Carnot's cycle • Refrigerator • Entropy	• Describe that thermal energy is transferred from a region of higher temperature to a region of lower temperature. • Describe that regions of equal temperatures are in thermal equilibrium. • Describe that heat flow and work are two forms of energy transfer between systems and calculate heat being transferred. • Define thermodynamics and various terms associated with it. • Relate a rise in temperature of a body to an increase in its internal energy. • Describe the mechanical equivalent of heat concept, as it was historically developed, and solve problems involving work being done and temperature change. • Explain that internal energy is determined by the state of the system and that it can be expressed as the sum of the random distribution of kinetic and potential energies associated with the molecules of the system. • Calculate work done by a thermodynamic system during a volume change. • Describe the first law of thermodynamics expressed in terms of the change in internal energy, the heating of the system and work done on the system. • Explain that first law of thermodynamics expresses the conservation of energy. • Define the terms, specific heat and molar specific heats of a gas. • Apply first law of thermodynamics to derive Cp – Cv = R. • State the working principle of heat engine. • Describe the concept of reversible and irreversible processes. • State and explain second law of thermodynamics.

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		• Explain the working principle of Carnot's engine • Explain that the efficiency of a Carnot engine is independent of the nature of the working substance and depends on the temperatures of hot and cold reservoirs. • Describe that refrigerator is a heat engine operating in reverse as that of an ideal heat engine. • Derive an expression for the coefficient of performance of a refrigerator. • Describe that change in entropy is positive when heat is added and negative when heat is removed from the system. • Explain that increase in temperature increases the disorder of the system. • Explain that increase in entropy means degradation of energy. • Explain that energy is degraded during all natural processes. • Identify that system tend to become less orderly over time.
CH # 12 ELECTROSTATICS	•Force between charges in different media • Electric field • Electric field of various charge configurations • Electric field due to a dipole • Electric flux • Gauss's law and its applications • Electric potential • Capacitors • Energy stored in a capacitor	• state Coulomb's law and explain that force between two-point charges is reduced in a medium other than free space using Coulomb's law. • derive the expression E = l/4πεo q/r2 for the magnitude of the electric field at a distance 'r' from a point charge 'q'. • describe the concept of an electric field as an example of a field of force. • define electric field strength as force per unit positive charge. • solve problems and analyze information using E = F/q. • solve problems involving the use of the expression . • E = l/4πεo q/r2 Conceptual linkage: ²This chapter is built on Electrostatics Physics X 35 • calculate the magnitude and direction of the electric field at a point due to two charges with the same or opposite signs. • sketch the electric field lines for two point charges of equal magnitude with same or opposite signs. • describe the concept of electric dipole. • define and explain electric flux. • describe electric flux through a surface enclosing a charge. • state and explain Gauss's law. • describe and draw the electric field due to an infinite size conducting plate of positive or negative charge. • sketch the electric field produced by a hollow spherical charged conductor.

		• sketch the electric field between and near the edges of two infinite size oppositely charged parallel plates. • define electric potential at a point in terms of the work done in bringing unit positive charge from infinity to that point. • define the unit of potential. • solve problems by using the expression V =W/q. • describe that the electric field at a point is given by the negative of potential gradient at that point. • solve problems by using the expression E = V/d. • derive an expression for electric potential at a point due to a point charge. • calculate the potential in the field of a point charge using the equation V = l/4πεo q/r. • define and become familiar with the use of electron volt. • define capacitance and the farad and solve problems by using C=Q/V. • describe the functions of capacitors in simple circuits. • solve problems using formula for capacitors in series and in parallel. • explain polarization of dielectric of a capacitor.
CH # 13 CURRENT ELECTRICITY	Steady current • Electric potential difference • Resistivity and its dependence upon temperature • Internal resistance • power dissipation in resistance • Thermoelectricity • Kirchhoff's Laws • The potential divider • Balanced potentials (Wheatstone bridge and potentiometer	• describe the concept of steady current. • state Ohm's law. • define resistivity and explain its dependence upon temperature. • define conductance and conductivity of conductor. • state the characteristics of a thermistor and its use to measure low temperatures. • distinguish between e.m.f and p.d. using the energy considerations. • explain the internal resistance of sources and its consequences for external circuits. • describe some sources of e.m.f. • describe the conditions for maximum power transfer. • describe thermocouple and its function. • explain variation of thermoelectric e.m.f. with temperature. • describe the working of rheostat in the potential divider circuit. • describe what is a Wheatstone bridge and how it is used to find unknown resistance. • describe the function of potentiometer to measure and compare potentials without drawing any current from the circuit.
	• Induced Emf • Faraday's law • Lenz's law	• describe the production of electricity by magnetism.

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CH # 14 Electromagnetism	• Eddy currents • Mutual inductance • Self-inductance • Energy stored by an inductor • Motional emf,s • A.C. Generator • A.C. motor and Back emf • Transformer	• explain that induced emf's can be generated in two ways. (i) by relative movement (the generator effect). (ii) by changing a magnetic field (the transformer effect). • infer the factors affecting the magnitude of the induced emf. • state Faraday's law of electromagnetic induction. • account for Lenz's law to predict the direction of an induced current and relate to the principle of conservation of energy. • apply Faraday's law of electromagnetic induction and Lenz's law to solve problems. • explain the production of eddy currents and identify their magnetic and heating effects. • explain the need for laminated iron cores in electric motors, generators and transformers. • explain what is meant by motional emf. Given a rod or wire moving through a magnetic field in a simple way, compute the potential difference across its ends. • define mutual inductance (M) and self-inductance (L), and their unit henry. Describe the main components of an A.C generator and explain how it works. • describe the main features of an A.C electric motor and the role of each feature. • explain the production of back emf in electric motors. • describe the construction of a transformer and explain how it works. • identify the relationship between the ratio of the number of turns in the primary and secondary coils and the ratio of primary to secondary voltages. • Describe how set-up and step-down transformers can be used to ensure efficient transfer of electricity along cables.
CH # 15 Measuring Instrument	• Galvanometer • Sensitivity of Galvanometer • Am-meter • Volt-meter • Conversion of galvanometer In to an ammeter.	• Describe the construction working of galvanometer • What is an ammeter. How can we convert galvanometer into an ammeter. • What is voltmeter? How can we convert galvanometer into voltmeter? • Derive the expression of wheat stone bridge.

	• Conversion of galvanometer Into voltmeter. • Wheat stone bridge.	
CH # 16 Electromagnetic waves and Electronics	• Electromagnetic waves • Semi-conductors • Rectifier • Transistor	• Derive the value of speed of light. • Describe the working of semi-conductor diode. • Describe half wave and full wave rectifier. • Describe npn and pnp transistor • Describe the working of transistor.
CH # 17 Advent of modern physics	• Special theory of relativity • Quantum theory of radiation • Photoelectric effect • Compton's effect • Pair production and pair annihilation • Wave nature of particles • Uncertainty Principle	• distinguish between inertial and non-inertial frames of reference. • describe the significance of Einstein's assumption of the constancy of the speed of light. • identify that if c is constant then space and time become relative. • explain qualitatively and quantitatively the consequence of special relativity in relation to: – the relativity of simultaneity – the equivalence between mass and energy – length contraction – time dilation – mass increase • explain the implications of mass increase, time dilation and length contraction for space travel. • describe the concept of black body radiation. • describe how energy is distributed over the wavelength range for several values of source temperature. • describe the Planck's hypothesis that radiation emitted and absorbed by the walls of a black body cavity is quantised. • elaborate the particle nature of electromagnetic radiation. • describe the phenomenon of photoelectric effect. • solve problems and analyse information using: $E = hf$ and $c = f\lambda$. • identify data sources, gather, process and present information to summarise the use of the photoelectric effect in solar cells & photocells • describe the confirmation of de Broglie's proposal by Davisson and Germer experiment in which the diffraction of electrons by the surface layers of a crystal lattice was observed.

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		• describe the impact of de Broglie's proposal that any kind of particle has both wave and particle properties. • explain the particle model of light in terms of photons with particular energy and frequency. • describe Compton effect qualitatively. • explain the phenomena of pair production and pair annihilation. • describe uncertainty principle.
CH # 18 **Atomic spectra**	• Atomic spectra • Emission of spectral lines • Ionization and excitation potentials • Inner shell transitions and characteristic X-rays • Laser	• describe and explain the origin of different types of optical spectra. • show an understanding of the existence of discrete electron energy levels in isolated atoms (e.g. atomic hydrogen) and deduce how this leads to spectral lines. • explain how the uniqueness of the spectra of elements can be used to identify an element. • analyse the significance of the hydrogen spectrum in the development of Bohr's model of the atom. • explain hydrogen atom in terms of energy levels on the basis of Bohr Model. • determine the ionization energy and various excitation energies of an atom using an energy level diagram. • Solve problems and analyse information using. • $1/\lambda = R_H [1/p_2 – 1/n_2]$. • understand that inner shell transitions in heavy elements result into emission of characteristic X-rays. • explain the terms spontaneous emission, stimulated emission, meta stable states, population inversion and laser action. • describe the structure and purpose of the main components of a He-Ne gas laser.
	• Composition of atomic nuclei • Isotopes • Mass defect and binding energy • Radioactivity (properties of α, β and γ rays) • Energy from nuclear decay • Half life and rate of decay	• describe a simple model for the atom to include protons, neutrons and electrons. • Determine the number of protons, neutrons and nucleons it contains for the specification of a nucleus in the form $A_z X$. • explain that an element can exist in various isotopic forms each with a different number of neutrons. • define the terms mass defect and calculate binding energy using Einstein's equation. • explain the relevance of binding energy per nucleon to nuclear fusion and to nuclear fission.

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CH # 19 The atomic nucleus	• Interaction of radiation with matter • Nuclear reactions • Nuclear fission (fission chain reaction) • Nuclear reactors (types of nuclear reactor) • Nuclear fusion (nuclear reaction in the Sun) • Radiation exposure • Biological and medical uses of radiations (radiation therapy, diagnosis of diseases, tracers techniques) • Basic forces of nature	• identify that some nuclei are unstable, give out radiation to get rid of excess energy and are said to be radioactive. • describe that an element may change into another element when radioactivity occurs. • identify the spontaneous and random nature of nuclear decay. • describe the term half-life and solve problems using the equation $\lambda=0.693/T_{1/2}$. • determine the release of energy from different nuclear reactions. • explain that atomic number and mass number conserve in nuclear reactions. • describe energy and mass conservation in simple reactions and in radioactive decay. • describe the phenomena of nuclear fission and fusion. • describe the fission chain reaction. • describe the function of various components of a nuclear reactor. • describe the interaction of nuclear radiation with matter. • describe the use of Geiger Muller counter and solid state detectors to detect the radiations.
CH # 20 Nuclear radiations	• Radiation detectors (GM counter and solid state detector) •Wilson cloud chamber	• describe the use of Geiger Muller counter and solid state detectors to detect the radiations. •describe the construction working of Wilson cloud chamber.

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Ziauddin University Examination Board

Grade XII - PHYSICS

Scheme of Assessment

Maximum marks: 85

Science (Pre-Engineering, Pre-Medical & Science General Groups)

Section 'A': Multiple Choice Questions (20%) 17 marks (1x17=17)

Multiple Choice Question must be covered complete Syllabus of Education

- Each MCQs carry 1 mark
- Given MCQs will be = 17 MCQs
- All MCQs to be answered

Section "B" (Constructed Response questions) (40%) 36 Marks (9x4=36)

- Short Answer Question must be given from the prescribed Syllabus all content is to be followed.
- Fourteen (14) Short Answer Questions may be given. Each Question having (4 Marks). In this Section Student shall attempt (9 Questions).

Section "C" (Extended Response Questions) (40%) 32 Marks (8x4=32)

- Three (03) Questions of (two parts like Question 3.(a)(b), 4.(a)(b) & 5. (a)(b) of 8,8 marks) may be given in this section and (02 Questions) are to be answered and each Question having (16 Marks).

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DEFINITIONS OF COGNITIVE LEVELS

Remember

Remembering is the act of retrieving knowledge and can be used to produce things like definitions or lists. The student must be able to recall or recognise information and concepts. The teacher must present information about a subject to the student, ask questions that require the student to recall that information and provide written or verbal assessment that can be answered by remembering the information learnt.

Question Stems

- Can you name all the …?
- Describe what happens when …?
- How is (are) …?
- How would you define …?
- How would you identify …?
- How would you outline …?
- How would you recognise…?
- List the … in order.
- What do you remember about …?
- What does it mean?
- What happened after?
- What is (are) …?
- What is the best one?
- What would you choose …?
- When did …?
- Where is (are) …?
- Which one …?
- Who spoke to …?
- Who was …?
- Why did …?

Understand

The next level in the taxonomic structure is Understanding, which is defined as the construction of meaning and relationships. Here the student must understand the main idea of material heard, viewed, or read and interpret or summarise the ideas in their own words. The teacher must ask questions that the student can answer in their own words by identifying the main idea.

Question Stems

- Can you clarify…?
- Can you illustrate …?
- Condense this paragraph.
- Contrast …
- Does everyone think in the way that … does?
- Elaborate on …
- Explain why …
- Give an example
- How can you describe...?
- How would you clarify the meaning...?
- How would you compare …?
- How would you differentiate between …?
- How would you describe…?
- How would you generalise…?
- How would you identify …?
- Is it valid that …?
- Is this the same as …?
- Outline …
- Select the best definition...
- State in your own words...
- This represents …
- What are they saying?
- What can you infer from …?
- What can you say about …?
- What could have happened next?
- What did you observe?

	• What does this mean? • What expectations are there? • What information can you infer from…? • What is the main idea of …? • What restrictions would you add? • What seems likely? • What seems to be …? • What would happen if …? • What might happen if …? • Which are the facts? • Which statements support …?
Apply The third level in Bloom's taxonomy, Applying, marks a fundamental shift from the pre-Bloom's learning era because it involves remembering what has been learnt, having a good understanding of the knowledge, and applying it to real-world exercises, challenges or situations. Students must apply an abstract idea in a concrete case to solve a problem or relate it to prior experience. The teacher must provide opportunities for students to use theories and problem-solving techniques in new situations and review and check their work. Assessment questions should be provided that allow students to define and solve problems. **Question Stems** • Can you group by characteristics such as …? • Choose the best statements that apply... • Clarify why … • Do you know of another instance where …? • Draw a story map... • Explain why a character acted in the way that he did... • From the information given, can you develop a set of instructions about …? • How would you develop …? • How would you change …? • How would you demonstrate…?	**Analyse** Analysing is the cognitive level where students can take the knowledge they have remembered, understood and applied, then delve into that knowledge to make associations, discernments or comparisons. Students should break down a concept or idea into parts and show relationships between these parts. Teachers must give students time to examine concepts and their requisite elements. Students are required to explain why they chose a solution. **Question Stems** • Can you distinguish between …? • Can you explain what must have happened when …? • Determine the point of view, bias, values, or intent underlying the presented material... • Discuss the pros and cons of … • How can you classify … according to …? • How can you compare the different parts? • How can you sort the different parts…? • How is … connected to …? • How is … similar to …? • How would you categorise…? • How would you explain...?

• How would you develop? • How would you explain …? • How would you modify …? • How would you present…? • How would you solve … ? • Identify the results of … • Illustrate the … • Judge the effects of … What would result …? • Predict what would happen if … • Tell how much change there would be if … • Tell what would happen if … • What actions would you take to perform …? • What do you think could have happened next? • What examples can you find that ? • What other way would you choose to …? • What questions would you ask of …? • What was the main idea …? • What would the result be if …? • Which factors would you change if …? • Who do you think…? • Why does this work? • Write a brief outline … • Write in your own words …	• What could the ending have been if ... had taken place? • State the point of view of … • What are some of the problems of …? • What assumptions …? • What can you infer about…? • What can you point out about ? • What conclusions …? • What do you see as other possible outcomes? • What does the author assume? • What explanation do you have for …? • What ideas justify the conclusion? • What ideas validate…? • What is the analysis of …? • What is the function of …? • What is the problem with …? • What motive is there? • What persuasive technique is used? • What statement is relevant? • What was the turning point? • What were some of the motives behind …? • What's fact? Opinion? • What's the main idea? • What's the relationship between? • Which events could not have happened? • Why did … changes occur? • Why do you think ?

BLOOM'S TAXONOMY WITH EXAMPLES

Conclusion

If you are a teacher looking for ways to engage your students in learning, this LIST of questions might be interesting for your classroom practice. Bloom's Taxonomy question stems can help elicit higher-order thinking skills and promote critical thinking among learners at different taxonomy levels. These question stems can also encourage students to think about their knowledge through reflection before answering questions.

ACTION WORDS FOR COGNITIVE LEVELS

Knowledge	Understand	Apply	Analyze	Evaluate	Create
					
define	explain	solve	analyze	reframe	design
identify	describe	apply	appraise	criticize	compose
describe	interpret	illustrate	judge	evaluate	create
label	paraphrase	modify	support	order	plan
list	summarize	use	compare	compare	combine
name	classify	calculate	decide	classify	formulate
state	compare	change	discriminate	contrast	invent
match	differentiate	choose	recommend	distinguish	hypothesize
recognize	discuss	demonstrate	summarize	infer	substitute
select	distinguish	discover	assess	separate	write
examine	extend	experiment	choose	explain	compile
locate	predict	relate	convince	select	construct
memorize	associate	show	defend	categorize	develop
quote	contrast	sketch	estimate	connect	generalize
recall	convert	complete	grade	differentiate	integrate
reproduce	demonstrate	construct	measure	divide	modify
tabulate	estimate	dramatize	predict	order	organize
tell	express	interpret	rank	prioritize	prepare
Copy	identify	manipulate	score	survey	produce

discover	indicate	paint	select	calculate	rearrange
duplicate	infer	prepare	test	conclude	rewrite
enumerate	relate	teach	argue	correlate	adapt
listen	restate	act	conclude	deduce	anticipate
observe	select	collect	consider	devise	arrange
omit	translate	compute	critique	diagram	assemble
read	ask	explain	debate	dissect	choose
recite	cite	list	distinguish	estimate	collaborate
record	discover	operate	editorialize	evaluate	facilitate
repeat	generalize	practice	justify	experiment	imagine
retell	group	simulate	persuade	focus	intervene
visualize	illustrate	transfer	rate	illustrate	make
	judge	write	weigh	organize	manage
	observe			outline	originate
	order			plan	propose
	report			question	simulate
	represent			test	solve
	research				support
	review				test
	rewrite				validate
	show				

HSSC PART II EXAMINATION
MARKS BREAKUP GRID FOR EXAMINATION 2025

GROUP: PRE-MEDICAL

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
PHYSICS	85	15	100
CHEMISTRY	85	15	100
BIOLOGY	85	15	100
TOTAL	505	45	550

GROUP: PRE-ENGINEERING

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
PHYSICS	85	15	100
CHEMISTRY	85	15	100
MATHEMATICS	100	--	100
TOTAL	520	30	550

GROUP: GENERAL SCIENCE

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
PHYSICS	85	15	100
COMPUTER SCIENCE	75	25	100
MATHEMATICS	100	--	100
TOTAL	510	40	550

GROUP: COMMERCE

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
ECONOMICS	75	-	75
P.O.C	75	-	75
ACCOUNTING	100	--	100
BUSINESS MATHEMATICS	50		50
TOTAL	550	---	550

GROUP: HUMANITIES

(Any Three Electives)

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
COMPUTER SCIENCE	75	25	100
ISLAMIC STUDIES	100		100
MATHEMATICS	100	-	100
SOCIOLOGY	100	--	100
ECONOMICS	100		100
EDUCATION	100		100
CIVICS	100		100
NURSING	85	15	100
TOTAL	550	---	550

GROUP: MEDICAL TECHNOLOGY

SUBJECT	THEORY	PBA	TOTAL
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	100	-	100
PAKISTAN STUDIES	50	-	50
MICROBIOLOGY	85	15	100
CHEMICAL PATHOLOGY & SEROLOGY	85	15	100
ELEMENTARY CHEMISTRY & CHEMICAL PATHOLOGY	85	15	100
TOTAL	505	45	550