

# Rubrics : SSC 1st ANNUAL EXAMINATION 2023

## Subject: PHYSICS-II (HA)

## FINAL 4-5-2023

Q No/ Part No	Criteria	Level 1 (Marks)	Level 2 (Marks)	Level 3 (Marks)	Level 4 (Marks)	Level 5 (Marks)
2 (i)	Calculating of time required by the waves to cross the ripple tank	Correct calculation (03)	Partially correct (02)	Some relevant steps of calculation (01)	Wrong (0)	
2 (ii)	Waves as means of energy transfer	Correct explanation with the help of an experiment OR correct explanation with example (03)	Partially correct (02)	Some relevant information (01)	Wrong (0)	
2 (iii)	Inaudible sound produced by a simple pendulum	Correct reason (03)	Partially correct (02)	Some relevant information (01)	Wrong (0)	
2 (iv)	Calculation of speed of sound in air	Correct calculation (using given formula or any relevant formula) (03)	Partially correct (02)	Some relevant steps of calculation (01)	Wrong (0)	
2 (v)	Definition of total internal reflection	Correct definition (01)	Partially correct (0.5)	Wrong (0)		
	Brief description of total internal reflection	Correct brief description OR two conditions (01)	Partially correct description OR one condition (0.5)	Wrong (0)		
	Diagram of total internal reflection	Correct Diagram (1)	Partially correct diagram (0.5)			
2 (vi)	Calculation of angle of refraction of light in water	Correct calculation (03)	Partially correct (02)	Some relevant steps of calculation (01)	Wrong (0)	
2 (vii)	Proof of potential difference	Correct proof with diagram (03)	Partially correct (02)	Some relevant steps of calculation (01)	Wrong (0)	
2 (viii)	Definition of electric field	Correct definition (01)	Partially correct (0.5)	Wrong (0)		
	Brief description of electric field intensity	Correct brief description OR definition of electric field intensity, its formula and unit etc. (02)	Partially correct (01)	Some relevant information (0.5)	Wrong (0)	
2 (ix)	Factors affecting the resistance of a metallic conductor	Correct brief description of three factors (03)	Correct brief description of two factors (02)	Correct brief description of any one factor OR writing correct formulas (01)	Some relevant information (0.5)	Wrong (0)

2 (x)	Calculation of power consumption in the bulb	Correct calculation (03)	Partially correct (02)	Some relevant steps of calculation (01)	Wrong (0)	
2 (xi)	To find polarity of magnetic field of current carrying solenoid	Correctly stating rule for finding polarity of magnetic field in solenoid (e.g. right hand rule) with correct figure (03)	Partially correct (02)	Some relevant information (1)	Wrong (0)	
2 (xii)	Factor affecting induced emf	Any three correct factors e.g. increasing/ decreasing rate of change of magnetic field in a coil/circuit, changing in the number of turns, area of the coil, strength of magnetic field through the coil, relative velocity between magnet and coil etc. (03)	Any two correct factors (02)	Any one correct factor (01)	Wrong (0)	
2 (xiii)	Description of NAND gate	Correctly describing the NAND gate OR correct circuit diagram (01)	Partially correct (0.5)	Wrong (0)		
	Symbol of NAND gate	Correct symbol (0.5)	Wrong (0)			
	Truth Table of NAND gate	Correct truth table (1.5)	Partially correct (01)	Any correct output with inputs (0.5)	Wrong (0)	
2 (xiv)	Purpose of using optical fiber in communication	Correct reasons (03)	Partially correct (02)	Some relevant information (01)	Wrong (0)	
2 (xv)	Calculation of the fraction left from original sample of Cobalt-60	Correct calculation (03)	Partially correct (02)	Some relevant steps of calculation (01)	Wrong (0)	
3 (a)	Draw forces acting on it at point A and B in the figure of simple pendulum	Correct labelled diagram which shows the forces and their required rectangular components at point A and at point B (02)	Partially correct (01)	Wrong (0)		
	the restoring force and its explanation	Correct name of restoring force or correct formula (1.5)	Partially correct (01)	Wrong (0)		
	Velocity of the bob at point A and brief description	Correct brief description (1.5)	Partially correct (01)	Wrong (0)		
3 (b)	Description of process of nuclear fission chain reaction	Correct description of fission chain reaction (03)	Sufficiently correct with minor deficiencies (02)	Partially correct (01)	Wrong (0)	

	Figure of nuclear fission chain reaction	Correct figure (02)	Partially correct (01)	Wrong (0)		
4 (a)	Deriving the formula for the equivalent capacitance for parallel combination of capacitors	Correct derivation of equivalent capacitance (04)	Any three correct steps in deriving equivalent capacitance (03)	Any two correct steps (02)	Any one correct step (01)	Wrong(0)
	Diagram	Correct labelled diagram (01)	Partially correct response (0.5)	Wrong (0)		
4 (b)	Calculation of resistance of the filament	Correct calculation (02)	Partially correct (01)	Wrong (0)		
	Calculation of energy in kWh	Correct calculation with correct unit (03)	Partially correct (02)	Some relevant steps (01)	Wrong(0)	
5 (a)	Torque in a current carrying coil in a magnetic field	Correctly explaining torque in a current carrying coil placed in a magnetic field by discussing forces on all its sides, direction of torque or rotation (04)	Correctly explaining all aspects mentioned in rubric level-1 with minor deficiencies (03)	Partially Correct response as compared to rubric level-2 (02)	Some relevant information (01)	Wrong(0)
	Labelled diagram of Torque in a current carrying coil in a magnetic field	Correct labelled diagram (02)	Partially correct (01)	Wrong (0)		
5(b)	Definition of analogue quantities	Correct definition (01)	Partially correct (0.5)	Wrong (0)		
	Definition of digital quantities	Correct definition (01)	Partially correct (0.5)	Wrong (0)		
	Comparison of analogue and digital electronics	Any three correct comparisons (02)	Any two correct comparisons (01)	Any one correct comparison (0.5)	Wrong (0)	

**Note: All the markers must know the solution of the questions of the Question Paper before starting marking.**