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Scoring Indicators

COURSE NAME : APPLIED PHYSICS II

QID : 2106220113

COURSE CODE : REV(21) - 2003

Q. No.	Scoring Indicators	Split score	Sub Total	Total score
PART A				9
I.1	Uniform circular motion		1	
I.2	Sound Navigation and Ranging		1	
I.3	water		1	
I.4	equal to		1	
I.5	Concave mirror		1	
I.6	Statement of Ohm's law OR $V=IR$		1	
I.7	Gold		1	
I.8	doping		1	
I.9	Any one application of solar cell.		1	
PART B				24
II.1	Transverse Waves Longitudinal Waves	1.5 1.5	3	
II.2	Any three methods. 1 mark each.	1x3	3	
II.3	Definition: The phenomenon of bending of light when it travels from one medium to another is known as refraction. Ist Law: The incident ray, the refracted ray, and the normal at the point of incidence, all lie in the same plane. IInd Law: The ratio of the sine of the angle of incidence to the sine of the angle of refraction is a constant for a given pair of media.	1 1 1	3	
II.4	$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$ Correct substitution $\frac{1}{12} = \frac{1}{v} - \frac{1}{-10}$ $V = -60 \text{ cm}$	1 1 1	3	
II.5	Definition: 1 mark for each condition.	1 2	3	

II.6	Statement: $F = k \frac{q_1 q_2}{r^2}$	2 1	3	
II.7	1. Faraday's first law of electromagnetic induction 2. Faraday's second law of electromagnetic induction:	1.5 1.5	3	
II.8	Any three factors. 1 mark for each.	1x3	3	
II.9	Three laws of photoelectric effect. 1 mark for each.	1x3	3	
II.10	Any three properties: 1 mark each. 1. A bulk material should have constant physical properties, but at the nano-scale size-dependent properties are observed. 2. Percentage of atoms at the surface of a material is increased 3. Increased surface area 4. Aspect ratio or surface to volume ratio will increase considerably	1x3	3	
PART C				42
III.1	$y = a \sin \omega t$ Expression for velocity $v = \frac{dy}{dt} = \frac{d(a \sin \omega t)}{dt}$ $= a \omega \cos \omega t$ The acceleration of the particle $a = \frac{d^2 y}{dt^2} = \frac{dv}{dt} = \frac{d(a \omega \cos \omega t)}{dt}$ $= -a \omega^2 \sin \omega t$	2 1.5 2 1.5	7	
III.2	Write given data Equation $v = f \lambda$, $f = v/\lambda$ Substitution Answer with unit $f = 1.5 \times 10^8$ Hz	1 2 2 2	7	
III.3	Definition for each carries 1 mark Short on beats.	4 3	7	
III.4	Diagrams. 2 mark each. a). The image formed is real, inverted, and exactly the same size as that of the object. b). The image formed is real, inverted, and larger than the object.	4 1.5 1.5	7	
III.5	Diagram of simple microscope	2	7	

	Working	5		
III.6	Write the given data The equivalent focal length is given by $\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2}$ $f = \frac{f_1 \times f_2}{f_1 + f_2} = \frac{20 \times (-15)}{20 - 15}$ $f = -60 \text{ cm} = -0.6 \text{ m}$ The power of the combination is $P = 1/f$ <u>$P = -1.67\text{D}$</u>	1 2 1 1 1 1	7	
III.7	Figure for series combination Derivation Figure for parallel combination Derivation	1 2.5 1 2.5	7	
III.8	Write the given data $S = \frac{i_g G}{(i - i_g)}$ Correct substitution Answer with unit. <u>$S = 50\text{m}\Omega$</u> connected parallel to the galvanometer	1 2 2 2	7	
III.9	Figure Principle Working with proper explanation Final expression $\theta = (nBA / \alpha) i$ angle of deflection θ is proportional to current i .	2 1 3 1	7	
III.10	a). Any two applications of diode Any two applications of transistor. b) Any three applications of photoelectric effect.	2 2 3	7	
III.11	Band theory Band structure of conductors, insulators and semiconductors	4 3	7	
III.12	Diagram of He-Ne Laser. Construction working	2 2 3	7	