

## Scoring Indicators

**COURSE NAME : APPLIED PHYSICS II**

**COURSE CODE : REV(21) - 2003**

**QID : 2106220113**

Q. No.	Scoring Indicators	Split score	Sub Total	Total score
<b>PART A</b>				9
I.1	Hertz or Hz		1	
I.2	false		1	
I.3	Atmospheric refraction or refraction of light		1	
I.4	diopetre		1	
I.5	total internal reflection		1	
I.6	capacitance		1	
I.7	Electric current		1	
I.8	Any two. ( arsenic (As), phosphorus (P), bismuth (Bi),antimony (Sb).	$\frac{1}{2} \times 2$	1	
I.9	Larger surface area		1	
<b>PART B</b>				24
II.1	Any three applications. Each carry 1 mark	1x3	3	
II.2	Any three differences. Each carry 1 mark. <b>Echo:</b> Echo is a reflection of sound which arrives at the listener sometime after the sound is produced. Echo is a single reflection of sound. An echo is usually clear and can be clearly distinguished. An echo can be heard both in open and closed spaces <b>Reverberation:</b> Reverberation is defined as persistence of sound in an enclosure after the sound producing source is removed. Reverberation is multiple reflections of sound. Reverberation is not a clear replica of the original sound sample.	1x3	3	

	Reverberation is usually experienced in closed spaces with multiple reflecting objects.			
II.3	Definition: Two laws of reflection. 1 mark each.	1 2	3	
II.4	Definition of spherical aberration It can be minimized by using stops, crossed lenses, and plano-convex lenses.	2 1	3	
II.5	Drawing Proper marking	2 1	3	
II.6	Statement: $F = k \frac{q_1 q_2}{r^2}$	2 1	3	
II.7	Explanation for specific resistance Expression	2 1	3	
II.8	1. Faraday's first law of electromagnetic induction 2. Faraday's second law of electromagnetic induction:	1.5 1.5	3	
II.9	Explanation for population inversion.	3	3	
II.10	a) Emitter: moderate size and somewhat heavily doped. It supplies a large number of majority carriers. b) Base: This is the central narrow region with other type of majority charge carriers. It is very thin and lightly doped. c) Collector: This is the farther end region of the transistor structure. The collector part is moderately doped and larger in size as compared to the emitter.	1  1 1	3	
<b>PART C</b>				42
III.1	Figure Explanation Expression for displacement $y = a \sin \omega t$	2 3 2	7	
III.2	Write given data Equation $v = f \lambda$ , Substitution Answer with unit, $v = 420$ m/s	1 2 2 2	7	
III.3	a). Describe any four characteristics of wave. b). Short note on sound waves.	4 3	7	

<b>III.4</b>	Any four applications	4	7	
	Any three advantages	3		
<b>III.5</b>	Diagram of simple microscope	2	7	
	Working	4		
	Magnification, $m = 1 + \frac{D}{f}$	1		
<b>III.6</b>	$f = -20 \text{ cm}$ and $u = -35 \text{ cm}$	1	7	
	$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$	1		
	$\frac{1}{v} = \frac{1}{f} + \frac{1}{u}$	1		
	$v = \frac{f \times u}{f + u} = \frac{(-20) \times (-35)}{-20 - 35} = -12.73 \text{ cm}$	2		
	$m = \frac{v}{u}$	1		
	$m = \frac{-12.73}{-35} = 0.364$	1		
<b>III.7</b>	Figure	2	7	
	Construction	2		
	Working	3		
<b>III.8</b>	Write given data, $G = 50 \Omega$ , $E = 10 \text{ V}$ , $i_g = 10 \text{ mA} = 10 \times 10^{-3} \text{ A}$	1	7	
	$R = \frac{E}{i_g} - G$	2		
	Substitution	2		
	Answer with unit. $R = 950 \Omega$ connecting in series with the galvanometer.	2		
<b>III.9</b>	The effective resistance of $12 \Omega$ and $6 \Omega$ in parallel is:		7	
	$R_p = \frac{R_1 R_2}{R_1 + R_2}$	1		
	$R_p = \frac{12 \times 6}{12 + 6}$	1		
	$R_p = 4 \Omega$	2		
	This $4 \Omega$ is in series with the $8 \Omega$ resistance. Therefore, the effective resistance of the total combination,	1		
	$R_{eff} = 4 \Omega + 8 \Omega$ $= 12 \Omega$	1		
<b>III.10</b>	Diagram of He-Ne Laser.	2	7	
	Construction	2		
	working	3		

<b>III.11</b>	Explanation for p-n junction.	1	7	
	I-V characteristic curve	2		
	Discussion on forward biasing	4		
<b>III.12</b>	a). 1. The photoelectric effect is frequency dependent	1	7	
	2. The photoelectric current is intensity dependent	1		
	3. Photoelectric effect is an instantaneous process	1		
	$h\nu = h\nu_0 + \frac{1}{2}mv^2$	1		
	b) Any three application. Each carry 1 mark.	3		

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