

SECOND SEMESTER DIPLOMA EXAMINATION IN ENGINEERING
AND TECHNOLOGY

(Common to all Diploma Programmes)

APPLIED PHYSICS II
MODEL QUESTION PAPER

Time: 3 hours

Maximum Marks: 75

PART A

I. Answer all questions in one word or one sentence. Each question carries one mark.

(9 x 1 = 9 Marks)

1	The unit of frequency of wave is -----	M1.01	R
2	As the wavelength of a sound wave decreases, its frequency will -- -----	M1.02	R
3	The unit of power of lens -----	M2.02	R
4	The nature of lens used in simple microscope is -----	M2.03	R
5	Brilliance of diamond is due to -----	M2.04	U
6	Coulomb(C) is the S I unit of -----	M3.01	R
7	Ammeter is an instrument used to measure -----	M3.04	R
8	The majority charge carriers in p- type semiconductor is -----	M4.01	R
9	The process of adding impurity to a semiconductor is called ----- ----	M4.01	R

PART B

II. Answer any eight questions from the following. Each question carries 3 marks

(8 x 3 = 24 Marks)

1	Show that simple harmonic motion is the projection of a uniform circular motion along a diameter of the circle.	M1.01	U
2	What is ultrasonic wave. Give its applications.	M1.03	R
3	State some methods to control reverberation time	M1.04	U

4	How will you distinguish a glass plate, convex lens and concave mirror by observing the image?	M2.01	U
5	Suggest some methods to reduce defects of lens.	M2.02	R
6	Evaluate the factors affecting the resistance of material	M3.02	R
7	Explain the series combination of resistance.	M3.02	R
8	Red, orange and black are the colour codes of resistor. Find its resistance.	M3.02	U
9	Explain the principle behind photocells.	M4.02	R
10	What do you understand by nanoparticles?	M4.04	U

PART C

Answer all questions. Each question carries seven marks

(6 x 7 = 42 Marks)

III	Explain the terms wavelength, frequency and time velocity of a wave and the relation connecting them. OR	M1.02	R
IV	A human heart is found to beat an average of 75 times in a minute. Calculate the frequency of heart beat and period.	M1.02	U
V	Refractive index of water is 1.33 and that of glass is 1.5. What is the refractive index of glass with respect to water OR	M2.01	A
VI	A convex lens of power 0.04 dioptre produces a real image which is double the size of the object placed in front of it. Find the position of the object.	M2.02	A
VII	A real image is to be produced with a image size 2 times that of the object using a convex lens of focal length 20 cm. Find the object distance. OR	M2.02	A
VIII	What is optical fibre and explain how light is propagated through optical fibres.	M2.04	U

IX	Show that meter bridge is an application of Wheatstone's network	M3.03	U
	OR		
X	Explain how Kirchhoff's laws are applied in Wheatstone's bridge	M3.03	U
XI	A galvanometer coil has a resistance of 15 ohm and it shows full scale deflection for 2 mA. How can it be converted to an ammeter of range 4 A?	M3.04	A
	OR		
XII	Explain colour code of resistance. Color codes on a carbon resistor are red, red, orange and gold. Find its resistance and tolerance.	M3.02	U
XIII	What are the characteristics of lasers? Define spontaneous and stimulated emissions.	M4.03	U
	OR		
XIV	Explain different types of lasers.	M4.03	R