

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2025**

**APPLIED PHYSICS II**

[Maximum Marks: 75]

[Time: 3 Hours]

**PART-A**

**I. Answer ‘all’ the following questions in one word or one sentence. Each question carries ‘one’ mark.**

**(9 x 1 = 9 Marks)**

		Module Outcome	Cognitive level
1.	Write an example for periodic motion.	M1.01	R
2.	Sound waves having frequency above 20 KHz are called -----	M1.03	R
3.	Give an example for regular reflection.	M2.01	U
4.	Name any one defects of a lens.	M2.02	R
5.	The unit of charge is -----	M3.01	R
6.	State ohms law.	M3.02	R
7.	Choose the correct one from the following statements. 1. Resistance is a constant of a metal 2. Resistivity is a constant of a metal	M3.02	U
8.	The type of majority charge carriers in N-type semiconductor is-----	M4.01	R
9.	Name one pumping method used in LASER.	M4.03	R

**PART-B**

**II. Answer any ‘eight’ questions from the following. Each question carries ‘three’ marks.**

**(8 x 3 = 24 Marks)**

		Module Outcome	Cognitive level
1.	Differentiate between transverse waves and longitudinal waves.	M1.02	U
2.	What is superposition of waves?	M1.02	R
3.	Explain the refraction of light.	M2.01	U
4.	Rewrite, the following incorrect statements a) Concave mirrors are used in vehicles to see the rear side. b) The angle between the incident ray and reflected ray is called angle of incidence. c) The geometric centre of lens is called pole.	M2.01	U
5.	Discuss the condition for total internal reflection.	M2.04	U
6.	Briefly explain the series combination of resistors.	M3.02	U
7.	The colour bands of the given resistor is observed as follows: <b>Brown, Yellow, Red, Silver.</b> Calculate the value of the resistor.	M3.02	A

8.	Organise the following table to get the correct match.																
	<table><tr><th>Column A</th><th>Column B</th></tr><tr><td>Silver</td><td>Semiconductor</td></tr><tr><td>Addition of impurities</td><td>Diode</td></tr><tr><td>Reasonably small band gap</td><td>Transistor</td></tr><tr><td>Voltage regulator</td><td>Solar cell</td></tr><tr><td>Amplifier</td><td>doping</td></tr><tr><td>Photovoltaic effect</td><td>Conductor</td></tr></table>	Column A	Column B	Silver	Semiconductor	Addition of impurities	Diode	Reasonably small band gap	Transistor	Voltage regulator	Solar cell	Amplifier	doping	Photovoltaic effect	Conductor	M4.01  M4.02	U
Column A	Column B																
Silver	Semiconductor																
Addition of impurities	Diode																
Reasonably small band gap	Transistor																
Voltage regulator	Solar cell																
Amplifier	doping																
Photovoltaic effect	Conductor																
9.	List any three applications of photoelectric effect.	M4.02	R														
10.	Write a short note on nanomaterials.	M4.04	R														

### PART-C

Answer 'all' questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	Calculate the wavelength of the wave generated by a tuning fork of frequency 484 Hz. The velocity of sound in air is 330 m/s.	M1.02	A
	<b>OR</b>		
IV.	Derive the differential equation for simple harmonic motion.	M1.01	U
V.	Write a note on acoustics of building.	M1.04	R
	<b>OR</b>		
VI.	Draw the ray diagram and explain the image formation of convex lens in the following conditions. a) Object at infinity (3.5 marks) b) Object between F and 2 F (3.5 marks)	M2.02	U
VII.	A converging lens forms a real image. If the image is twice the size of the object and 117 cm from the object. Calculate the power of the lens.	M2.02	A
	<b>OR</b>		
VIII.	A concave lens of focal length 20 cm is placed at a distance 30 cm from an object. Find the magnification.	M2.02	A
IX.	State Kirchhoff's laws with necessary illustration.	M3.03	R
	<b>OR</b>		
X.	Derive the balancing condition for a Wheatstone's Bridge.	M3.03	U
XI.	Explain the working of moving coil galvanometer.	M3.04	U
	<b>OR</b>		
XII.	Explain the V-I characteristics of diode.	M4.01	U
XIII.	a) Write the principle of Laser b) List any three applications of LASER.	M4.03	R
	<b>OR</b>		
XIV.	Explain the working of He-Ne laser.	M4.03	U

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