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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2022

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 1 mark

		(9 x 1 = 9 Marks)	
		Module	Cognitive
		outcome	level
1	SI unit of frequency is	M1.01	R
2	State the following statement is true or false.	M1.02	R
	The heat waves are longitudinal waves.		
3	Sun is visible before sunrise and after sunset because of	M2.01	U
4	SI unit of power of a lens is	M2.02	R
5	Name the principle behind the phenomenon of mirage?	M2.04	R
6	is the ratio of magnitude of charge 'Q' on either plates and	M3.01	R
	potential difference across the plate.		
7	Ohm's law states a relation between the potential difference and the	M3.02	R
8	Give the names of two dopants for making n-type semiconductors.	M4.01	R
9	Nanoparticles have relatively surface area when compared to the same	M4.04	R
	volume of the bulk material. (smaller/larger)		

PART B

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

	(8)	$3 \ge 3 = 24$	Marks)
		Module	Cognitive
·		outcome	level
1	Give three applications of ultrasonic waves	M1.03	R
2	Distinguish between echo and reverberation.	M1.04	U
3	What is reflection of light? State the laws of reflection	M2.01	R
4	What is spherical aberration? How it can be eliminated?	M2.02	R
5	Sketch the image formation by a convex lens when object is placed between	M2.01	U
	focus and optic centre of lens.		
6	State Coulomb's law. Write its mathematical expression.	M3.01	R
7	Explain the term specific resistance of a material? Write its expression	M3.02	U
8	State Faraday's law of electromagnetic induction	M3.04	R
9	Explain the population inversion.	M4.03	U
10	Differentiate the emitter, base and collector based on their size and doping?	M4.01	U



PART C

III. Answer all questions. Each question carries seven marks

		5 x 7 = 42 Marks)	
		Module	Cognitive
		outcome	level
1.	Show that simple harmonic motion is the projection of a uniform circular	M1.01	U
	motion along a diameter of the circle		
2.	The wavelength of sound waves of frequency 210 Hz is /m in water. What	M1.02	А
	is the speed of sound in water?	N(1.02	D
3.	(a) What are the characteristics of a wave? (4marks)	M1.02	K
	(b) write a short note on sound waves. (3 marks)	M1.02	
	OP		
	UR (a) Write any four amplications of artical fibras (4 marks)	M2 04	р
4.	(a) while any four applications of optical fibres. (4 marks)	M2.04	ĸ
	(b) what are the advantages of using optical fibres in the		
5	With the help of a diagram, explain the principle of a simple microscope	M2 02	ΤŢ
5.	Write the expression for magnification of the image when it is formed at	IVI2.05	U
	least distance of distinct vision		
	OR		
6	A concave lens of focal length 20cm is placed at a distance of 35cm from	M2.02	А
0.	an object Find the position of the image and its magnification		
	an object. I fild the position of the initige the its inaginiteation.		
7	Explain the working of a Meter bridge with a diagram	M3 03	I
7.	Explain the working of a wheter officige with a diagram.	113.05	U
	OR		
8	Design a voltmeter of range 0 to 10 V. Given a galvanometer of resistance	M3.04	А
Ũ	50Ω which shows full scale deflection for 10mA.	112101	**
9.	Two resistors 24Ω are connected in parallel and the combination is then	M3.02	A
	connected in series with 822. Find the effective resistance.		
	OD		
10	UK Describe with response the meriling of the Ne see LASED	M4 02	ΤŢ
10	Describe with necessary theory, the working of He-Ne gas LASER.	M4.03	U
11	What is a p-n junction diode? Discuss the forward biasing of a p-n junction	M4.01	U
	diode by drawing I-V characteristic curve?		
10	OR		
12	(a) Discuss the laws of Photoelectric effect and write	M4 02	ŢŢ
	Einstein's photoelectric equation. (4 marks)	1017.02	
	(b) Give any three applications of solar cells. (3 marks)		
