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16BS1003 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMET, TEKKALI
(AUTONOMOUS)
I B. Tech II Semester Supplementary Examinations, August-2017

ENGINEERING PHYSICS
(Common to CE, EEE & ME Branches)

Time: 3 Hours **Max Marks: 70M**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of question must be answered at one place only

UNIT-I

1.	a)	State the conditions necessary for obtaining sustainable interference pattern using two sources.	4M
	b)	Explain the theory for formation of Newton's rings. Determine the wavelength of sodium light using Newton's rings experiment.	8M
	c)	Enumerate any two applications of interference.	2M

(OR)

2.	a)	Distinguish between interference and diffraction.	4M
	b)	Obtain the condition for primary and secondary maxima in fraunhofer diffraction due to a single slit and derive an expression for width of the central maxima.	10M

UNIT-II

3.	a)	List the characteristics of LASERs.	4M
	b)	With the help of suitable diagram explain the construction and working of a He-Ne gas laser.	8M
	c)	What are the applications of lasers in Medical field?	2M

(OR)

4.	a)	Explain the differences between the single mode fiber and multi mode fiber.	4M
	b)	Draw the block diagram of fiber optic communication system and explain function of each.	6M
	c)	What are the advantages of optical fiber?	4M

UNIT-III

5. a) What is de-Braglie Hypothesis and derive expression for de-Braglie wave length. 6M

   b) Show that wavelength associated with an electron of mass m and kinetic energy E is given by $\lambda = \frac{h}{\sqrt{2mE}}$. 4M

   c) Calculate the uncertainty measurement of momentum of an electron if the uncertainty in locating it is 1 A^o. 4M

(OR)

6. a) Derive the time independent Schrödinger wave equation. 4M

   b) Explain the physical significance of wave function. 3M

   c) Apply Schrödinger's wave equation to the case of particle in a box and show that energies of particle are quantized. 7M

UNIT-IV

7. a) Define the terms i) Magnetic field intensity ii) Magnetic flux density iii) permeability iv) susceptibility 4M

   b) Explain the origin of magnetic moment at the atomic level. 6M

   c) Explain the ferrimagnetisms and anti ferromagnetism. 4M

(OR)

8. a) What are hysteresis losses? Explain hysteresis loop observed in ferromagnetic materials. 6M

   b) What are hard magnetic materials? Write their properties. 4M

   c) What are ferrites? Enumerate their applications. 4M

UNIT-V

9. a) Explain electronic polarization and derive an expression for electronic polarization in terms of radius of the atom. 10M

   b) Explain ionic polarization and derive expression for ionic polarization . 4M

(OR)

10. a) What is orientational polarization and derive an expression for orientational polarizability. 8M

    b) What is piezoelectricity? Discuss some important applications of piezoelectric. 6M

AR16

CODE: 16BS1004 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B. Tech II Semester Supplementary Examinations, August-2017

ENGINEERING CHEMISTRY

(Common to ECE, CSE & IT Branches)

Time: 3 Hours **Max Marks: 70M**

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT-I

1.	a)	Define polymerisation and explain different types of polymerisation reactions with suitable examples.	8M
	b)	Write note on compounding of plastics.	6M
		(OR)	
2.	a)	How Portland cement was manufactured from raw materials by wet process.	8M
	b)	Explain the setting and hardening of Portland cement with chemical reactions.	6M

UNIT-II

3.	a)	Explain the various methods involved in the treatment of water for drinking purpose.	10M
	b)	Define permanent and temporary hardness of water.	4M
		(OR)	
4.	a)	Describe the method for softening of hard water by Ion-exchange method with neat diagram.	8M
	b)	Explain the electrodialysis method using ion selective membrane pairs.	6M

UNIT-III

5.	a)	Define corrosion and explain the mechanism of dry corrosion with suitable example.	8M
	b)	What is Galvanic series and mention its significance?	6M
		(OR)	
6.	a)	Write note on (i) Stress corrosion (ii) Pitting corrosion	8M
	b)	How corrosion can be controlled by impressed voltage method	6M

UNIT-IV

7.	a)	Define fuel and explain the manufacture of synthetic petrol by Bergius method.	8M
	b)	Write note on Cetane and octane number.	6M
		(OR)	
8.	a)	Define lubricant and write the classification of lubricants with suitable examples	7M
	b)	Explain the following; (i) Viscosity (ii) Cloud point	7M

UNIT-V

9.	a)	Explain the faraday's laws of electrolysis.	8M
	b)	Explain the construction and working of Normal hydrogen electrode	6M
		(OR)	
10.	a)	Explain the concentrated solar power plant by using solar power tower.	8M
	b)	What are photovoltaic cells and write its importance	6M

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