Total No. of Questions: 4

Enrollment No. EN21C330618

Faculty of Engineering

Mid Sem – II Examination May 2022

EN3BS14 Engineering Chemistry

Programme: B.Tech. Branch/Specialisation: All

Duration: 2 Hrs. **Maximum Marks: 40**

Q.1

i. Which of these carbon allotropes can be formed by graphene? 1
(a) Diamond (b) CNT
(c) both (a) and (b) (d) None of the above

ii. The smallest bucky ball cluster is _____: 1
(a) C_{20} (b) C_{80} (c) C_{60} (d) None

iii. The metal not showing superconductivity is : 1
(a) Zn (b) Ti (c) V (d) Au

iv. In optical fibre communications, the signal source is _____ waves: 1
(a) Light (b) Infrared
(c) Radio (d) Very-low frequency

v. Optical fiber works on the phenomenon of : 1
(a) Total internal Reflection (b) Diffraction
(c) Polarization (d) Refraction

vi. Hydrogen deuterium lamp is used for: 1
(a) UV light (b) IR Radiation
(c) VIS light (d) None

vii. Beers law is used for: 1
(a) Dilute solution (b) Highly concentrate solution
(c) Both (a) and (b) (d) None of these

viii. Which Gas is used as carrier gas in gas chromatography: 1
(a) N_2 (b) CO_2 (c) Methane (d) None of these

ix. Which Electronic transition require minimum energy is: 1
(a) $\sigma \rightarrow \sigma^*$ (b) $n \rightarrow \sigma^*$ (c) $\pi \rightarrow \pi^*$ (d) $n \rightarrow \pi^*$

x. Figure print region in IR Spectroscopy is: 1
(a) 20-10 cm^{-1} (b) 100-10 cm^{-1}
(c) 1400-600 cm^{-1} (d) 400-140 cm^{-1}

Total No. of

Q.2	i.	Write short note on Optical fibres.	4
	ii.	What is Superconductivity? What is the cause of superconductivity? Discuss some application.	6
OR	iii.	What its Graphene? Give its properties and uses.	6
Q.3	i.	Derive Lambert-Beer's law? Write any two limitations.	5
	ii.	What is Fullerene? Give its properties and uses.	5
OR	iii.	What are the nanowires? Write their properties and applications.	5
Q.4	i.	What is electromagnetic spectrum.	4
	ii.	Explain Principle, Instrumentation, and applications of UV spectroscopy.	6
OR	iii.	Write the essential components of Gas chromatography? Give 3 applications of gas chromatography.	6

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