

B.Tech I Year I Semester (R19) Regular Examinations January 2020

FUNDAMENTAL CHEMISTRY

(Food Technology)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Explain effect of doping on band structures.
 - What are the bond order present in O_2 and CO?
 - Define conductivity, give the units.
 - What are the photovoltaic cells?
 - What is the functionality of polymer?
 - What are the uses of conducting polymers?
 - Draw the electromagnetic spectrum.
 - Define Bathochromic shift.
 - What is micelle formation?
 - Give BET equation.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 (a) Define anti bonding orbital. Explain pi-molecular orbital diagram of Butadiene.
(b) Give brief note on dual nature of matter.
- OR**
- 3 (a) Explain crystal field splitting in octahedral geometry.
(b) Explain significance of Ψ and Ψ^2 .

UNIT – II

- 4 (a) Define reference electrode, explain Ag/AgCl electrode.
(b) Give brief note on potentiometric sensors.
- OR**
- 5 (a) Give detailed explanation about methanol fuel cell.
(b) Explain acid base conductometric titrations.

UNIT – III

- 6 (a) Explain condensation reaction mechanism by taking suitable example.
(b) How Bakelite will be prepared? Give its important applications.
- OR**
- 7 (a) Explain mechanism of conduction and applications of polyacetylene.
(b) Give brief note on carbon fibres.

UNIT – IV

- 8 (a) What is the basic principle involved in IR spectroscopy? Give its important applications.
(b) Explain stationary phase and mobile phase in chromatography.
- OR**
- 9 (a) What is the basic principle involved in HPLC? Give its important applications.
(b) Give important applications of potentiometry.

UNIT – V

- 10 (a) Explain preparation of nanomaterials and its stabilization.
(b) Give brief note on solid – liquid interface.

OR

- 11 (a) Describe stabilization of colloids and important stabilizing agents.
(b) How nanomaterial will be characterized by TEM. Explain
