B.Tech. (Chemical Engineering) Fourth Semester (C.B.S.)

Electronics & Instrumentation Paper – II

P. Pages : 2 **TKN/KS/16/7822**

Time : Three Hours * 0 5 9 1 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Explain the requirement and classification of engineering materials in accordance to the industrial applications. **10**

b) Write a note on plastic. **4**

OR

2. a) Compare Additional and condensation polymerization of polymers. **7**

b) Write a short note on. **7**
i) Polymers. ii) Composite materials.

3. a) Distinguish between dia, para and ferromagnetic materials. **8**

b) Explain why iron is ferromagnetic but copper is not. **5**

OR

4. a) Explain magnetic flux density, magnetic flux intensity and magnetization. How are they related to each other. **8**

b) What are ferrites? In what respect they are superior to ferromagnetic materials. **5**

5. a) Explain with the help of neat diagram how the conductivity changes with increasing temperature in the extrinsic semiconductor. **7**

b) What do you understand by extrinsic and intrinsic semiconductor. **6**

OR

6. a) Explain in brief. **13**
i) Photodiode ii) LED iii) Photocell

7. a) What is meant by polarization? Mention different mechanisms of polarization in dielectric material. **7**

b) Write short notes on polar and non-polar dielectrics. **6**

OR

8. a) In what way does Ferroelectrics differ from ordinary dielectrics. **5**

b) Draw and explain the P - E curve of Ferro electric materials. **8**

9. a) What are metals. Give their physical and mechanical properties. **8**

b) Write a short note on corrosion. **5**

OR

10. a) How are superconductors different from conductors, Explain the significance of critical temperature and critical magnetic field for super conductors. **8**

b) Explain why type -I superconductors are poor correct carrying conductors. **5**

11. a) What are different number systems? **8**
Discuss
i) Binary to Decimal and
ii) Decimal to Binary conversion by taking one example.

b) Write a note on universal logic gates. **6**

OR

12. a) What is Brian bridge mass spectrograph? Explain its working principle with a well labelled diagram. Explain the role of cross field configuration in the selection of mono velocity electrons. **9**

b) Write a note on thermistor. Explain how is it useful in electronic and electrical applications. **5**

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