

CH3206: INSTRUMENTATION IN CHEMISTRY – MID-SEMESTER EXAMINATION

Time: 60 min

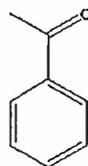
20-02-2019

Marks: 20

1. With a diagrammatic representation of the instrument explain how X-rays are generated. (2)
2. State three differences between reflection, refraction and diffraction. (3)
3. Draw the interaction volume of an electron probe inside a sample. Show the different resultant processes. (2)
4. What is structure factor of a particular hkl reflection? (1)
5. What are chromatic and spherical aberrations? Explain with diagram. (2)
6. Using which technique, one can measure the molecular weight of the polymer? Explain the principle. (2)
7. What is the difference between TEM and SEM analysis? (1)
8. Molecules A and B are given to you. If you are using Hexane and Acetone (9:1) for a column chromatography, then which molecule will come first? Draw a TLC spots for these two molecules for the same solvent ratio. (1)



A



B

9. Why KBr is used for making pellets to do IR measurements? (1)
10. What is a micelle? How does it differ from vesicle? Explain (2)
11. What is CAC? How is it measured? Explain the measurement of CAC using either UV or FL Spectroscopy. (2)
12. What is Cryo-TEM why it is done for a soft material? (1)