CAT-I PTA for CHDX04: Functional Materials and Applications

1. Discuss synthesis, properties and applications of Nylon 6,6.
2. Discuss the synthesis and properties of ABS polymer for 3-D printing.
3. What is PLA? Discuss its manufacturing process. How is PLA used for 3-D printing?
4. Give any three advantages of titanium alloys over the steel.
5. Elaborate any three methods for the 3-D printing of silver.
6. Discuss DMLS and lost PLA casting methods in detail for the 3-D printing of silver.
7. Discuss the construction and working of silicon solar cells.
8. Mention any three limitations of solar cells.
9. Write a descriptive note on quantum dots. Discuss its applications in LEDs and optical storage devices.
10. Discuss any three advantages of LCDs.
11. Point out any three disadvantages of LCDs.
12. With a neat diagram explain the construction and working of LEDs.
13. How is LED different from diode?
14. Mention any three advantages of LEDs.
15. Expand VLSI. Discuss the production of silicon wafers for VLSI.
16. Discuss the colloidal synthesis of any quantum dot.
17. Discuss the classification of single walled carbon nanotube with diagram.
18. Elaborate the synthesis of carbon nanotube by CVD method. Discuss special features and applications of it.
19. What is meant by biosensor? Elaborate the basic principle and components of a biosensor.
20. What is meant by a gas sensor? Give any four applications of it.
21. Discuss the features of IR touchscreens. Give its advantages and disadvantages.
22. Write a descriptive note on DNA microarray chips.
23. Explain the principle and working of ring sensors. Mention any two advantages and disadvantages of it.
24. Write a note on potentiometric MOSFET gas sensors.
25. What is meant by the chemical sensor? Discuss its features. Give any four examples.
26. Write a short note on the IR sensor. Give any four applications of it.
27. Give any four applications of wireless sensors.