L-3, JTS (Phy)

Indian Institute of Information Technology Design and manufacturing, Kancheepuram

Question paper for the post of Technical superintendent in Physics
(Level 3 practical test)
Answer all the questions. Each question carries 2 marks.
Duration: 120 minutes.

1. How do you obtain interference fringes with high band width?
2. A shift of 100 circular fringes is observed when a movable mirror of Michelson's interferometer is moved by 0.03mm. Calculate the wavelength of light.
3. In a Newton's ring experiment, the diameter of the fifth ring was 0.03cms and the diameter of the twenty fifth ring was 0.8cms. If the radius of curvature of the plano convex lens is 100cms, find the wavelength of light used.
4. A parallel beam of sodium light is allowed to be incident normally on a plane grating having 4250 lines per centimeter and a second order spectral line is observed to be deviated through 30 degrees. Calculate the wavelength of the spectral line.
5. Write the differences between diffraction and interferance.
6. A particle executes a SHM of a period of 10seconds and amplitude of 1.5 meter. Calculate its maximum acceleration and velocity.
7. Explain measurement of acceleration due to gravity using a simple pendulam.
8. Define Rigidity modulus and Young's modulus with units and write their applications.
9. A load of 2kgs produces an extension of 1mm in a wire of 3 meters in length and 1mm in diameter. Calculate young's modulus of the wire.
10. Classify magnetic materials based on their magnetic moments/ spins.
11. Write an experiment to find the magnetic susceptibility of a magnetic material.
12. Write the silent differences of different magnetic materials.
13. What is piezoelectricity and write its applications.
14. Draw the hysteresis curve for ferroelectric material and briefly explain.
15. Differentiate prism spectra and grating spectra

16. Explain P-N junction diode solar cell experiment and write about its importance.
17. Define dielectric breakdown strength in a dielectric material.
18. What is the Hall effect? How can you differentiate N type and P type semiconductors experimentally
19. Write the principle of photovoltaic effect and mention few applications of solar cell
20. Explain a single slit diffraction experiment using a laser light source.