Visit QB365-SLMS - https://www.qb365.in/slms/ Complete Questions and Answers

Questions:

PART-D

IV. ANSWERS ALL THE QUESTIONS

1. Describe the Fizeau's method to determine the speed of light.
2. Discuss the spectral series of hydrogen atom.
3. Derive the equation for refraction at single spherical surface.
4. Obtain the law of radioactivity.
5. Prove law of refraction using Huygens' principle.
6. What is an LED? Give the principle of its operation with a diagram.
7. Obtain Einstein's photoelectric equation with necessary explanation.
8. Briefly explain the principle and working of electron microscope.
9. What is meant by satellite communication? Give its applications.
10. Discuss diffraction at single slit and obtain the condition for n^{th} minimum.

PART-C

III.ANSWER ANY 6 OF THE FOLLOWING QUESTIONS.(Q.NO.33 IS COMPULSORY)

11. Obtain the equation for apparent depth.
12. Obtain the equation for critical angle.
13. Derive the relation between f and R for a spherical mirror.
14. What is Fresnel's distance? Obtain the equation for Fresnel's distance.
15. Differentiate between polarised and unpolarised light.
16. What are plane polarised, unpolarized and partially polarised light?
17. Discuss about pile of plates.
18. What are the advantages and disadvantages of a reflecting telescope?
19. Explain about compound microscope and obtain the equation for the magnification.

PART-B

II.ANSWER ANY 6 OF THE FOLLOWING QUESTIONS.(Q.NO.24 IS COMPULSORY)

20. What is power of a lens?
21. What is angle of minimum deviation?
22. What is dispersion?
23. What are the salient features of corpuscular theory of light?
24. What are the important points of wave theory of light?
25. What is the significance of electromagnetic wave theory of light?
26. How does wavefront division provide coherent sources?
27. How do source and images behave as coherent sources?
28. What is polarisation?

PART-A

I. CHOOSE THE BEST ANSWER

29. When a biconvex lens of glass having refractive index 1.47 is dipped in a liquid, it acts as plane sheet of glass. This implies that the liquid must have refractive index, _____.
    (a) less than one (b) less than that of glass (c) greater than that of glass (d) equal to that of glass
30. A ray of light travelling in a transparent medium of refractive index n falls, on a surface separating the medium from air at an angle of incidents of 45º . The ray can undergo total internal reflection for the following n, _____.
    (a) n = 1.25 (b) n = 1.33 (c) n = 1.4 (d) n = 1.5
31. A plane glass is placed over a various coloured letters (violet, green, yellow, red) The letter which appears to be raised more is _____.
    (a) red (b) yellow (c) green (d) violet
32. First diffraction minimum due to a single slit of width 1.0 x 10^{-5} cm is at 30º. Then wavelength of light used is,_____.
    (a) 400 $\mathring{A}$ (b) 500 $\mathring{A}$ (c) 600 $\mathring{A}$ (d) 700 $\mathring{A}$
33. The transverse nature of light is shown in,
    (a) interference (b) diffraction (c) scattering (d) polarisation
34. In photoelectric emission, a radiation whose frequency is 4 times threshold frequency of a certain metal is incident on the metal. Then the maximum possible velocity of the emitted electron will be _____.
    (a) $\sqrt{\frac{h\nu_0}{m}}$ (b) $\sqrt{\frac{6h\nu_0}{m}}$ (c) $2\sqrt{\frac{h\nu_0}{m}}$ (d) $\sqrt{\frac{h\nu_0}{2m}}$
35. If the mean wavelength of light from sun is taken as 550 nm and its mean power as 3.8 x 10^{26} W, then the number of photons emitted per second from the sun is of the order of _____.

(a) 10^{45} (b) 10^{42} (c) 10^{54} (d) 10^{51}

36. The work functions for metals A, B and C are 1.92 eV, 2.0 eV and 5.0 eV respectively. The metal/metals which will emit photoelectrons for a radiation of wavelength 4100 Å is/are _____.

(a) A only (b) both A and B (c) all these metals (d) none

37. Emission of electrons by the absorption of heat energy is called _____ emission.

(a) photoelectric (b) field (c) thermionic (d) secondary

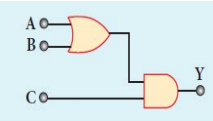
38. Atomic number of H-like atom with ionization potential 122.4 V for n = 1 is _____.

(a) 1 (b) 2 (c) 3 (d) 4

39. The half-life period of a radioactive element A is same as the mean life time of another radioactive element B. Initially both have the same number of atoms. Then _____.

(a) A and B have the same decay rate initially (b) A and B decay at the same rate always (c) B will decay at faster rate than A (d) A will decay at faster rate than B

40. The output of the following circuit is 1 when the input ABC is_____.



(a) 101 (b) 100 (c) 110 (d) 010

41. The materials used in Robotics are _____.

(a) Aluminium and silver (b) Silver and gold (c) Copper and gold (d) Steel and aluminum

42. The gravitational waves were theoretically proposed by _____.

(a) Conrad Rontgen (b) Marie Curie (c) Albert Einstein (d) Edward Purcell

43. In an unbiased p-n junction, the majority charge carriers (that is, holes) in the p-region diffuse into n-region because of _____.

(a) the potential difference across the p-n junction (b) the higher hole concentration in p-region than that in n-region (c) the attraction of free electrons of n-region (d) the higher concentration of electrons in the n-region than that in the p-region

QB 365 Study Material
QUESTION BANK 365