**Questions Bank**

1. What do you understand pulse dispersion? Discuss the role of primary line constants in pulse dispersion.
2. List advantages and disadvantages of digital modulation communication systems.
3. List various steps in pulse code modulation.
4. Discuss the problems associated with quantization.
5. What do you understand by BER? Discuss probability of error.
6. What is a Pseudo-Random Code?
7. List various error detection and correction code.
8. State True or False and Justify:

PCM is a digital modulation technique.

1. What do you mean by band rate?
2. Discuss the difference between band rate and bit rate.
3. What is the difference between coherent & non-coherent digital modulation techniques.
4. Give the expression for ASK modulated signal.
5. Is ASK a digital modulated signal? Justify your answer.
6. Draw signal space diagram of ASK.
7. Draw PSD for ASK signal.
8. What is BER for ASK?
9. Explain the concept of non-coherent binary ASK.
10. For coherent ASK, the error probability is given by:

(a)  (b) 

(c)  (d) 

1. \_\_\_\_\_\_\_\_\_ is most affected by noise

(a) PSK (b) ASK (c) FSK (d) DPSK

1. Sketch the ASK waveform signal for input binary sequence 1100100010.
2. Give atleast five systems that have TDM. System must be from some existing applications.
3. To multiplex three signals which digital equipment is required & give its analog counter part also.
4. How sampling process supports multiplexing?
5. Draw the waveforms of a TDM-PCM systems.
6. What is the basic/smallest circuit for sampling.
7. What is the difference between TDM & FDM technique?
8. What do you mean by synchronization in TDM-PCM signal?
9. Why TDM is required? State its advantages and disadvantages.
10. The bandpass signal is represented as a combinations \_\_\_\_\_\_ & \_\_\_\_\_\_.
11. Give B/D for PCM receiver.
12. Compare analog modulation system with digital modulation system.
13. What do you mean by two tone FSK.
14. Which system is better among ASK, PSK & FSK and why?
15. Give the mathematical equation for FSK system.
16. Give IC No. of FSK modulator and demodulator.
17. Give the waveforms of modulating signal, carrier signal & FSK modulated signal.
18. What do you understand by coherent and non-coherent FSK detection?
19. What is fast frequency shift key? Discuss.
20. What is continuous – phase FSK CP-FSK?
21. Give the practical application of FSK system.
22. What is a linearly polarized mode?
23. State the necessity of cladding for an optical fiber.
24. Relate the mode‐field diameter and spot size .
25. Outline any four advantages of an optical communication system
26. What is meant by Conical Half angle?
27. Relate a formula for the normalized frequency and NA. Hence, find  the Numerical aperture for a step index fiber that has normalized  frequency V=26.6 at a 1300nm wavelength and core radius of 25µm.
28. Apply the ray transmission theory to find the critical incident angle  for a glass rod of refractive index 1.5, surrounded by air.
29. With the knowledge of the total internal reflection, calculate the  critical angle of incidence between two substances with different  refractive indices where n1 = 1.5 and n2 = 1.46.
30. Sort out the fundamental parameter of a single mode fiber .
31. List out the advantages of the multimode fiber.
32. Distinguish Step index fibers and graded index fiber
33. Evaluate the critical angle with the relative refractive index difference of 1% for an optical fiber. Given the core refractive index
34. Determine the cutoff wavelength of a single mode fiber with core  radius of 4µm and ∆ = 0.003.
35. The refractive indexes of the core and cladding of a silica fiber are  1.48 and 1.46 respectively. Find the acceptance angle for the fiber.  Propose a suggestion to increase the acceptance angle of optical fiber.
36. Formulate the normalized frequency at 820 nm for a step index  fiber having a 25µm radius. The refractive indexes of the cladding  and the core are 1.45 and 1.47 respectively. Solve to find the  number of modes that propagate in this fiber at 820 nm?