BON SECOURS ARTS & SCIENCE COLLEGE FOR WOMEN

Rukmanipalayam, Mannargudi

DEPARTMENT OF PHYSICS

SEMESTER II

APPLIED PHYSICS-II

TWO MARKS

1. What are conductors? Give examples.
2. What is an insulators? Give examples.
3. What is a semiconductor?
4. What is the difference between a semiconductor and a conductor?
5. What is a valance band?
6. What is a forbidden energy gap?
7. What are the two types of semiconductors?
8. What are the two types of semiconductors?
9. What is N-type semiconductor?
10. What is P-type semiconductor?
11. Give any two different between N-type and P-type semiconductor.
12. Why is intrinsic semiconductor?
13. What are uses of tunnel diode?
14. What is a tunnel diode?
15. What is zener break down?
16. What is called Hall effect?
17. What are the uses of Hall effect?
18. Define Hall voltage.
19. What is a transistor?
20. What is a FET?
21. Draw the circuit of common base mode.
22. What are the characteristic of common emitter configuration?
23. What is a oscillator?
24. Define the voltage gain of an amplifier.
25. Define input impedence in common base mode.
26. What is called the static characteristic curve of a transistor?

27. What are the three parts of a transistor?
28. Give any two differences between a FET and transistor.
29. Define mutual conductance in a FET.
30. Why is a FET called as unipolar device?
31. What is expansion for LASER?
32. What is expansion for MASER?
33. What is spontaneous emission?
34. What are the difference between spontaneous emission and stimulated emission?
35. What is population inversion?
36. What are the necessary conditions for LASER action?
37. What is pumping in laser?
38. What are the advantages of four level lasers?
39. What is a metastable state?
40. Draw the energy levels of four level lasers?
41. What is a ruby crystal?
42. What are the main parts of ruby laser?
43. Draw the energy level diagram of a ruby laser.
44. Draw the energy level diagram of a He-Ne laser.
45. Give the most important transitions in He-Ne laser.
46. What are the advantages of He-Ne laser?
47. What are called photo-devices?
48. What is extrinsic photoelectric effect?
49. What is intrinsic photoelectric effect?
50. What are the three groups of photo devices?
51. What is electroluminescence?
52. What are the types of luminescence?
53. What are the methods of excitation?
54. What is intrinsic excitation?
55. What is an avalanche excitation?
56. What is tunneling excitation?
57. What is injected electro luminescence?

58. What is LED?
59. Give some material used in LED.
60. What are the uses of LED?
61. What is photodiode?
62. Draw the characteristic curve of a photo diode.
63. Give any three advantages of LED.
64. What are the disadvantages of LED?
65. What is LCD?
66. What are the two types of LCD?
67. What are the advantages of LCD over that of LED?
68. What is an operational amplifier?
69. Mention any four properties of an ideal operational amplifier.
70. What is an inverting OP-AMP?
71. What is a non-inverting OP-AMP?
72. What is a differential OP-AMP?
73. What is CMRR?
74. What are the uses of OP-AMP?
75. What is a comparator?

FIVE MARKS

1. Describe the theory of energy bands in crystal?
2. On the basis of energy band theory, give explanations for semiconductor, insulator and conductor.
3. What is the intrinsic and extrinsic semiconductor?
4. Describe the N-type and P-type semiconductors distinguish between them.
5. What is breakdown in P-N junction? Describe avalanche and zener break down.
6. Describe the principle of Laser and Maser action.
7. What is stimulated emission? Describe the Einstein's co-efficient.
8. Find the condition for population inversion in three level laser.
9. Describe the radiative transition.
10. What is Luminescent efficiency? Find an expression for it.

11. Describe the different methods of excitation.
12. What is LED? Describe is construction and working .
13. Write a note on the material for LED.
14. What is photoconduction? Derive an expression for photoconductivity.
15. What is an OP-AMP? Mention the properties of an ideal OP-AMP.
16. Draw the basic inverting and non-inverting OP-AMP. Derive an expression for voltage gain.
17. Describe the action of a differential OP- AMP.

TEN MARKS

1. What is Hall-effect? Describe how this effect is used to find the concentration of electrons and holes in semiconductor?
2. Discuss the construction and working of a zener diode. Explain with a neat circuit, how you will determine the zener diode characteristic.
3. What is a tunnel diode? Describe the characteristic of a tunnel diode. Mention its advantages and disadvantages.
4. Write a note on backward diode.
5. Describe metastable state.
6. Describe the construction and working of an ammonia Maser.
7. Describe the construction and working of a Ruby laser.
8. Describe the construction and working of a He-Ne laser.
9. Describe Liquid crystal display.
10. Describe the seven segment LED display.
11. With a block diagram, describe the function of a digital clock.
12. Describe the construction and working of a phototransistor.
13. Describe the construction and working of a photodiode.
14. Define CMRR. Derive an expression for CMRR.
15. Describe the function of an OP-AMP as (a) sign changer (b) scale changer and (c) phase shifter.
16. Write a note on the use of an OP-AMP as an integrator and a differentiation.
17. Describe how an OP-AMP used as an added.
18. What is a comparator? Describe OP-AMP as a comparator.