B.Sc 5th Semester Unit Test 2024

Paper: PHY-HE/RE-5046

Time: 60 minutes | Date: 25-09-2024 | Total marks: 20

A. Answer the following questions: 1 x 4 = 4
   1. FET is a …… controlled device.
   2. For a p-channel JFET, current carriers are ……
   3. What is phase locked loop?
   4. EGS is obtained by……
B. Answer the following questions: (**any three**) 2 x 3 = 6
   1. Draw the symbol of UJT, n-channel JFET and p-channel JFET.
   2. Explain the different parts of a phase locked loop using block diagram.
   3. Write about the functions of voltage-controlled oscillator.
   4. How is doping achieved during IC fabrication process?
   5. What do you mean by AM, FM and PM?
   6. What is SSB transmission in case of AM?
   7. If carrier power is 10 Watts, what should be the power of an AM wave for 100 % modulation.
C. Answer the following questions: (**any two**) 5 x 2 = 10
   1. Draw and explain in brief the block diagram of a regulated power supply.
   2. Describe in brief the function and mechanism of a filter in a power supply.
   3. What is a UJT? Explain the working of a UJT with diagram.
   4. What is phase detector? Draw the wave diagram to explain its working.
   5. Write the difference between locked phase and unlocked phase with schematic diagram.
   6. What is a photo-resist? Why is it used in IC fabrication process? What are its types? Explain in brief about their types.
   7. Explain the nature of an AM wave when the modulation index changes from its minimum value to maximum value.

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