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C46

B. Tech. EXAMINATION, 2020

(Third Semester)

(B Scheme) (Re-appear Only)

(CHE)

ECE205B

ELECTRONICS ENGINEERING

Time : 2½ *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Define Semiconductor. Distinguish between Intrinsic and Extrinsic Semiconductor. Explain, why a semiconductor acts as an insulator at zero degree kelvin and why its conductivity increases with increasing the temperature.

(b) Describe the action of PN Junction diode under forward bias and reverse bias. Explain V-I characteristics of PN Junction diode.

2. Draw the circuit diagram of a PNP Junction transistor CB configuration and describe the static input and output characteristics. Also define active, saturation and cut-off regions and saturation resistance of a CB transistor. Why does the CE configuration provide large current amplification while the CB configuration does not ?

3. (a) Define “Operational Amplifier”. Draw the ideal voltage transfer characteristics of an op-amp and also explain why an op-

amp behaves like this in an open loop configuration. Explain the three configuration of an op-amp and give the expression for the output voltage in these configuration.

(b) What is the function of the capacitor in the basic differentiator ? Draw the circuit diagram of an op-amp differentiator and derive an expression for the output in the term of the input

4. (a) Define SMPS. Describe the block diagram and working of SMPS. State its application also.

(b) Explain the basic operating principle and working of voltage regulator circuit. State its advantages and disadvantages.

5. (a) Find the binary equivalent of each decimal number :

(i) 457.225

(ii) 78.014

(iii) 1854

(iv) 94.668

(b) Find the decimal equivalent of each binary number :

(i) 1011

(ii) 110111

(iii) 1001.101

(iv) 1010.0101

6. (a) Define CRO. Draw the block diagram of a CRO and explain briefly the function of each block. Describe the applications of CRO.

(b) Define Transducer. What are active and passive transducers ? Why are they called so ? State its application also.

7. (a) Define “Communication System”. Describe the block diagram of basic communication system. What are the difference between analog communication system and digital communication system ?

(b) Define “Modulation and Demodulation”. Compare AM, FM and PM.

8. (a) Define Microprocessor. Describe the architecture of 8085 microprocessor.

(b) Define Interrupt. Describe different types of interrupts used in 8085 microprocessor.