QUESTION BANK FOR SYME (SUBJECT BEM – CODE 17302)

CHAPTER 1 –MARKS 3

1. Define intrinsic and extrinsic semiconductor. Give examples of trivalent and pentavalent impurities.
2. Draw symbol and VI characteristics of pn junction Diode
3. Draw symbols for SCR , UJT, TRIAC
4. Define Breakdown voltage and Knee voltage in PN junction diode.
5. What are effects of temperature on Semiconductors?

CHAPTER 2 –MARKS 3

1. Define line and load regulation.
2. Define Ripple factor and efficiency of rectifier.
3. Draw block diagram of regulated power supply.
4. Draw block diagram of OFF Line UPS.
5. What is Amplifier? Draw block diagram of Amplifier.

CHAPTER 1 –MARKS 4

1. Draw and explain PN junction in Forward bias and Reverse bias.
2. Draw and explain Valence band, conduction band and energy gap for semiconductors.
3. Compare FET with BJT (any four points).
4. Draw a labeled V-I characteristics of UJT. Define peak point and valley point.
5. Draw the circuit diagram of Half wave rectifier and explain its working with waveforms.
6. Compare Half wave rectifier, Full wave center tapped transformer rectifier & Bridge rectifier.

CHAPTER 2 –MARKS 4

1. Draw the circuit diagram of Bridge rectifier and explain its working with waveforms.
2. Draw the circuit diagram of Full wave center tapped transformer rectifier and explain its working with waveforms.
3. What are types of filters? Draw LC filter with full wave rectifier. Also draw its waveform.
4. Explain series or shunt voltage regulator with block diagram.
5. Draw and explain RC coupled amplifier.
6. How transistor is used as Voltage Amplifier?

Mechanical Department Sub- BEM(17302)

Chap-3. Analog Circuits

1] Draw the symbol of op-amp. Give its any four ideal characteristics. [3]
2] Draw and explain block diagram of an op-amp. [4]
3] Define inverting op-amp. Draw the circuit diagram of its. [3]
4] Draw and explain instrumentation amplifier. [4]
5] Draw the functional pin diagram of IC-555 and write its specifications. [4]
6] Draw and explain monostable multivibrator. [4]
7] Compare the RC,LC and Crystal oscillators. [4]

Chap-4. Digital Circuits

8] Draw the symbol and truth table of NOT, OR, AND, Ex-NOR gate. [4]
9] Draw the logic circuit for 4:1 MUX with its truth table and logic symbol. [4]
10] Draw the circuit diagram of 3:8 decoder. [4]
11] Draw and explain master slave JK flip-flop. [4]
12] Define level trigger and edge trigger with its type. [3]
13] Draw the 3-bit ring counter alongwith waveforms. [4]

14] Write the features of 8085 microprocessor and 8051 Microcontroller. [4]
15] Compare the microprocessor and microcontroller. [4]

Chap-5. Transducer and signal conditioning

16] Define transducer and explain characteristics of its. [3]
17] Define the term active, passive, primary and secondary transducer . [4]
18] Draw the data logger system and explain it. [4]
19] State the principle of DAC and ADC with its applications. [4]

Chap-6. Mechatronics and PLC

20] Define the term mechatronics. State any six applications of its. [4]
21] Draw the block diagram of CNC. State the types of Real time mechatronics system. [4]
22] Explain briefly Robotics system. [4]
23] Sketch PLC ladder for AND, OR, NOT, NAND logic. [4]
24] Sketch architecture of PLC and explain it. [4]
25] State the selection factors for PLC. [4]