**Question Bank (I-Scheme)**

**Name of course: Basic Electronics Unit Test: I**

 **Subject code: 22225 (BEC) Semester: II Program: CM/IF**

CHAPTER N0: 1

1. Define Active and Passive components.
2. Compare Active and Passive Components.
3. Draw the symbols of following components:
4. Resistor b) Capacitor c) Inductor
5. Write down color code for following resistor values:
6. 270Ω; ±10%
7. 5.6KΩ; ±5%
8. 100Ω; ±10%
9. 47KΩ; ±5%
10. State the functions of Inductor.
11. State the functions of Capacitor.
12. List the specifications of following components:
13. Resistor b) Capacitor c) Inductor
14. Define the terms:
15. Amplitude b) Frequency c) Phase d) Wavelength
16. Sketch ideal and practical current source and voltage source.
17. Define Integrated circuits. State different scales of Integration.
18. Compare Analog IC & Digital IC.
19. Draw the waveforms of sinusoidal, Square & Triangular analog signals & Label it properly.

CHAPTER: 2 (Diodes & their Applications)

2 marks questions

1. Define : a) P-N Junction Diode b) Zener Diode
2. Define : a) Rectifier b) Filter
3. Draw the Symbols of a) P-N Junction Diode b) Zener Diode c) LED
4. Draw constructional diagram of LED.
5. List the applications of zener diode & LED.
6. State two advantages of full wave rectifier.
7. State the need of Filters.

 4 marks Questions

1. Explain working of P-N Junction diode, when it is connected in forward bias.
2. Explain working principle of zener diode with V-I characteristics.
3. Explain working principle of inductor filter with its neat circuit diagram.
4. Explain working principle of capacitor filter with its neat circuit diagram.
5. Explain working principle of π filter with its neat circuit diagram.
6. Compare L, C, & π filter with respect to given features:
7. Components used d) place of filter
8. Output Dc voltage e) ripple factor
9. Load regulation f) Applications
10. Explain working principle of Half Wave Rectifier with a neat circuit diagram.
11. Explain working principle of Bridge Rectifier with a neat circuit diagram.
12. Compare Half Wave & Full Wave Rectifiers with respect to given parameters:
13. No. of Diodes
14. PIV
15. Ripple Factor
16. Rectification Efficiency
17. Output Waveforms
18. Define the following terms:

a) PIV b) Ripple Factor c) Rectification Efficiency d) Ripple

 11) Sketch the block diagram of regulated power supply & explain its working principle.

 12) Explain Zener diode as a Voltage Regulator with neat circuit diagram.

**Chapter: 3 Bipolar Junction Transistors**

**2 mark questions:**

1. Define Transistor & Draw symbol of NPN Transistor.
2. Draw the construction of NPN Transistor.
3. Define: a) Current gain( α) b) Current gain( β)
4. Draw the output characteristics of Transistor in CE mode.
5. Define DC load line & Operating point.
6. State need of biasing.
7. State the advantages of voltage divider biasing over base bias.
8. State the applications of RC coupled CE amplifier.

**4 mark Questions**

1. Explain working principle of NPN Transistor.
2. Derive the relationship between α & β of transistor.
3. Draw & explain voltage divider biasing.
4. Compare CB & CE configuration of transistor.
5. If α of a transistor is 0.9, calculate β.
6. If β of a transistor is 98, Ic= 4.5mA, then calculate base current.
7. State the significance of operating point in Transistor biasing.
8. Explain how transistor can be used as switch.
9. Draw & explain single stage CE amplifier.
10. In a voltage divider biasing ckt, Vcc=10V, R1=10KΩ, R2=5Ω, & RE= 100Ω, RC= 1 KΩ, calculate Ic & Vce.

(Consider β=100, Vbe= 0.7v)

**Chapter: 4 (FIELD EFFECT TRANSISTOR)**

2 mark questions:

1. State different types of FET.
2. Draw the symbol of N-channel & P-channel JFETs.
3. Draw the symbol of Depletion type & Enhancement type MOSFET.
4. State the application of JFET.
5. State the application of MOSFET.

4 mark questions:

1. Compare FET & BJT.
2. Draw & Explain N-channel JFET construction.
3. Draw & Explain P-channel JFET construction.
4. Explain Working Principle of N-channel JFET.
5. Draw & Explain Transfer characteristics of JFET.
6. Define following terms:
7. Dynamic Drain Resistance
8. Amplification Factor
9. Transconductance
10. Pinched off voltage
11. Explain Working Principle of Depletion type MOSFET (n-channel).
12. Explain Working Principle of Enhancement type MOSFET (n-channel).

**Question bank 2**

1. Marks questions
2. Draw the construction of NPN Transistor.
3. Define: a) Current gain( α) b) Current gain( β)
4. Draw the output characteristics of Transistor in CE mode.
5. Define DC load line & Operating point.
6. State need of biasing.
7. State different types of FET.
8. Draw the symbol of N-channel & P-channel JFETs.
9. Draw the symbol of Depletion type & Enhancement type MOSFET.
10. State the application of JFET
11. Define Transducer
12. Define Active & Passive Transducer
13. Marks Questions
14. Derive the relationship between α & β of transistor.
15. Draw & explain voltage divider biasing
16. If β of a transistor is 98, Ic= 4.5mA, then calculate base current, emitter current & α
17. Draw & Explain N-channel JFET construction.
18. Explain Working Principle of N-channel JFET.
19. Explain selection Criteria for Transducer.
20. Explain Resistive Transducer With an example.
21. Explain Inductive Transducer With an example.