PSG POLYTECHNIC COLLEGE, COIMBATORE - 641 004

G12302 ELECTRONIC DEVICES AND CIRCUITS

Model Question Paper

Time: 3 Hours **Max. Marks: 100**

Instructions:

1. **Group A** and **Group B** questions should be answered in the Main Answer book.
2. Answer any **TEN** questions in **Group A**. Each question carries three marks.
3. Answer **ALL** questions either **(a)** subdivision or **(b)** subdivision in **Group B**. Each question carries 14 marks.

Group – A **Marks: 10 x 3 = 30**

1. What is meant by biasing? State different methods of biasing?
2. State Emitter follower .
3. Compare Half wave rectifier and Full wave rectifier.
4. Draw the Darlington pair circuit.
5. What is cross over distortion?
6. In a silicon transistor biased by feedback resistor method, Vcc=20V, R_C=1KΩ, R_B=100KΩ, β=100. Determine the operating point.
7. Compare Oscillator and Amplifier.
8. How to make a transistor to operate as a switch?
9. Why FET is called voltage controlled device? Mention its application.
10. Describe why Zener diode is used as Regulators.
11. State the applications of Thyristor.
12. In a negative-feedback amplifier, A=100, β=0.04 and Vi=50mV. Find
    (a) Gain with feedback (b) output voltage (c) feedback factor (d) feedback voltage.
13. Derive the rectification efficiency for Full wave rectifier.
14. Name the types of Amplifiers with its applications.
15. What are the merits and demerits of Multivibrators?

Group– B **Marks: 5 x 14 = 70**

16. a) [i] Explain the working of Hartley Oscillator. (5)
    [ii] A 230V, 50 Hz voltage is applied to primary of the 5:1 step down centre tap full wave rectifier having a load of 100 Ω. Diodes are assumed to be ideal having zero signal resistance. Determine i) dc output voltage ii) PIV iii) efficiency (9)

    (OR)

    b) [i] Give comparison of CB,CC,CE configurations (5)
    [ii] Explain the operation of the BJT under CE configuration. (9)

17. a) Explain RC Coupled transistor amplifier with frequency response characteristics.

(OR)

b) Describe the working operation of complementary symmetry Push pull amplifier with merits and demerits.

18. a) Describe the construction and working of enhancement MOSFET.

(OR)

b) Explain the operation of SCR with its characteristics.

19. a) (i) List the applications of DIAC and TRAIC. (5)

(ii) Explain the principle of operation of UJT. (9)

(OR)

b) Explain in detail about CE configuration with necessary diagram.

20. a) With a Drain characteristics, explain the operation of Depletion MOSFET.

(OR)

b) For the circuit given, fine (i) I_B (ii) I_C (iii) I_E and (iv) V_{CE}. Neglect V_{BE}.