

C 31886

Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
JUNE 2007

EC / PT 2K 404—ELECTRONIC CIRCUITS

Time : Three Hours

Maximum : 100 Marks

- I. (a) Design base resistor bias circuit for a CE amplifier such that operating point is $V_{CE} = 8\text{ V}$, $I_C = 2\text{ mA}$. You are supplied with a fixed 15 V dc supply and a silicon transistor with $\beta = 100$. Take $V_{BE} = 0.6\text{ V}$. Calculate the value of load resistance that would be employed.
- (b) Write short notes on stabilization of operating point.
- (c) Write the difference between FET and BJT.
- (d) A FET has the following parameters. $I_{DSS} = 32\text{ MA}$, $V_{as(OH)} = -8\text{ V}$, $V_{as} = -4.5\text{ V}$. Find the value of drain current.
- (e) The gain of an amplifier without feedback is 50 whereas with negative feedback it falls to 25. If due to ageing, the amplifier gain falls to 40, find the percentage reduction in stage gain (i) without feedback and (ii) with negative feedback.
- (f) Write short notes on crystal oscillator.
- (g) What is meant by push-pull amplifier?
- (h) Give examples for wide band amplifier.
- (8 × 5 = 40 marks)
- II. (a) Explain the principle of RC coupled Amplifier with a neat circuit diagram.
- Or
- (b) Discuss the design of CB and CE configurations.
- (15 marks)
- III. (a) Give the analysis of CD amplifier configuration.
- Or
- (b) Discuss the fixed biasing for enhancement mode MOSFET.
- (15 marks)
- IV. (a) Derive the expressions for the condition for oscillation and frequency of oscillation of RC phase shift oscillator.
- Or
- (b) Discuss the principles of voltage series and voltage shunt feedback configurations.
- (15 marks)
- V. (a) Discuss the principle of Class A amplifier and derive the expression for the maximum collector efficiency.
- (15 marks)
- Or
- (b) Explain the principles of Class C, Class D and Class S power amplifier.
- (15 marks)
- [4 × 15 = 60 marks]