

B.Sc. Semester-2 Examination**CC-3-P Ele-103****Electronics****May-2024****Time : 2-30 Hours]****[Max. Marks : 70**

- Instructions :** (1) All questions carry equal marks.
 (2) Figures to the right indicate Full Marks.
 (3) Symbols are used have their usual meaning.

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|----|-------|--|---|
| 1 | (a) | Explain the mechanism of current flow in a PNP & NPN transistor. | 7 |
| | (b) | Explain a common emitter configuration of NPN transistor in detail. | 7 |
| OR | | | |
| 1 | (a) | Draw the circuit of collector to base bias & obtain stability factor "S". | 7 |
| | (b) | Draw the circuit of voltage divider bias & obtain stability factor "S". | 7 |
| OR | | | |
| 2 | (a) | Draw practical circuit of CE transistor amplifier & discuss how dc load line and operating point can be opted on out put characteristics. | 7 |
| | (b) | Give comparison of CB, CE & CC amplifier. | 7 |
| OR | | | |
| 2 | (a) | Discuss impedance Z parameters & obtain Z_{11} , Z_{12} , Z_{21} & Z_{22} . | 7 |
| | (b) | Draw a circuit of CE amplifier. Derive the equation of current gain (A_i) & input resistance (R_i) from its h-parameters equivalent circuit. | 7 |
| OR | | | |
| 3 | (a) | Explain parallel resonance circuit & derive the expression of resonance frequency. | 7 |
| | (b) | What is bandwidth? Obtain the equation of bandwidth $\Delta f = \frac{fr}{Q}$ in the series resonance circuit. | 7 |
| OR | | | |
| 3 | (a) | Explain the method to convert T-network into equivalent Π network. | 7 |
| | (b) | State & explain Norton's theorem. | 7 |
| OR | | | |
| 4 | (a) | Show the K-MAP for equation : $\underline{Y} = F(A, B, C, D) = \Sigma m(1, 2, 3, 6, 7, 8)$. | 7 |
| | (b) | Write notes on Don't care condition. | 7 |
| OR | | | |
| 4 | (a) | Explain about multiplexer circuit in detail. | 7 |
| | (b) | Explain about seven segment decoder in detail. | 7 |

[P.T.O.]

5 Answer briefly (any seven) :

- (1) Define α & β of a transistor.
 - (2) In which configuration amplifier has highest voltage gain? What is the full form of BJT.
 - (3) Why is base made thin?
 - (4) Define stability.
 - (5) Define Q point.
 - (6) Why 'h' parameters are called hybrid? Which is the smallest of four 'h' parameters of transistor?
 - (7) How many types of transistor circuit configuration are there? Name it :
 - (8) What is bandwidth?
 - (9) Define impedance?
 - (10) Give full form of BCD & ROM.
 - (11) What is rolling in K-Map.
 - (12) "AND-OR" circuit can be replaced by " _____ " circuit? "OR-AND" circuit can be replaced by " _____ " circuit.
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