

MODEL QUESTION PAPER FOR TERM 1 TEST

II PU Electronics [40]

Max Marks –35

Instructions

- The Question paper has five parts A, B, C, D and E
- Part A is compulsory
- Part D contains only problems
- Read the instruction given for each part

PART A

Answer ALL questions

5 x 1 = 5

- In which region of characteristics a transistor behaves as closed switch?
- What is faithful amplification?
- What is buffer amplifier?
- Write the symbol of XNOR gate.
- Give one example for weighted code.

PART B

Answer any THREE questions

3 x 2 = 6

- Write a note on the selection of Q point.
- Write the steps involved in drawing DC equivalent circuit of an amplifier.
- Define class B and class C power amplifiers.
- Convert the SOP Boolean expression $Y = A\bar{B} + B\bar{C} + ABC$ into canonical form.
- Write the logic circuit of D flip flop using only NAND gates.

PART C

Answer any THREE questions

3 x 3 = 9

- Define the terms – Thermal runaway, Heat sink and Leakage current.
- Write any one application of CE, CB and CC amplifier.
- Why do we express the gain in decibels?
- Write the logic circuit and Boolean expressions for half subtractor.
- What is race around condition? How is it eliminated?

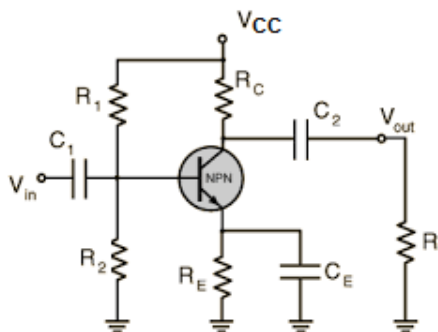
PART D

Answer any ONE question

1 x 5 = 5

- Find the input resistance and voltage gain of the CE transistor amplifier for the data given below:

$$R_1 = 47K\Omega, R_2 = 12K\Omega, R_C = 3.3K\Omega,$$
$$R_E = 1K\Omega, R_L = 10K\Omega, V_{CC} = 18V,$$
$$\beta = 100, V_{BE} = 0.3V \text{ and } r_e' = 52mV/I_E.$$
$$V_{in} = 10mV.$$



17. Simplify the following Boolean expression using K map

$$Y = \sum m(0,2,4,8,10) + \sum d(12, 14)$$

Draw the logic circuit for the simplified expression using only NAND gates.

PART E

Answer any TWO questions

2 x 5 = 10

18. Explain the working of CB amplifier

19. Explain the working of 2 stage RC coupled amplifier

20. Draw the pin diagram of IC7402. Realize the basic gates and XNOR gate using NOR gates.

21. Explain the working of SR Flip-Flop with logic circuit and truth table
