BACHELOR OF SCIENCE (COMPUTER SCIENCE) (CBCS - 2018 COURSE)
F.Y.B.Sc.(Computer Science) Sem-I :SUMMER- 2022
SUBJECT : PRINCIPLES OF ANALOG ELECTRONICS-I

Day : Tuesday

Date : 12/7/2022

S-20070-2022

Time : 11:00 AM-02:00 PM

Max. Marks : 60

N.B.
1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw diagrams **WHEREVER** necessary.
4) Use of calculator is **ALLOWED**.

Q.1 Attempt any **TWO** of the following: (12)

a) i) With neat diagram explain the action of transistor as a switch.

ii) Define α and β for transistor.

b) Explain the working principle of n – channel FET.

c) Explain the action of Light Dependent Resistor. Also draw symbol for it.

Q.2 Attempt any **TWO** of the following: (12)

a) i) Explain the working of NPN transistor with neat diagram.

ii) State different configurations of transistor .

b) With neat diagram explain the working of N – channel enhancement MOSFET.

c) i) Give the statement for Thevenins's theorem.

ii) Determine Thevenin's equivalent circuit for the following network and also find I_L
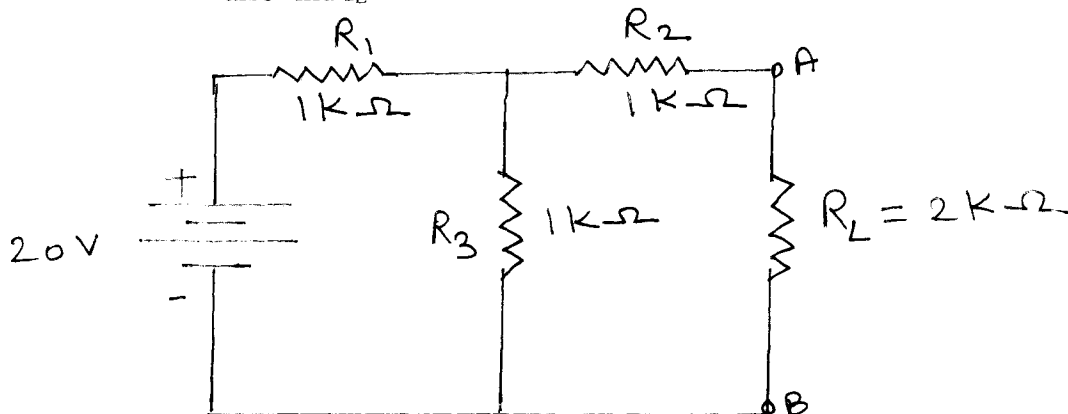
Q.3 Attempt any **TWO** of the following: (12)

a) With neat diagram explain the working principle of UJT. Also define intrinsic stand – off ratio for it.

b) Obtain expressions for growth and decay of current for RC circuit.

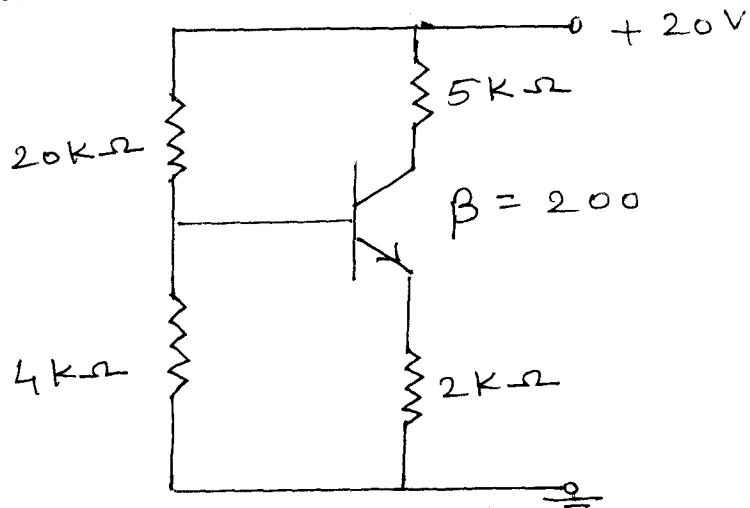**c)** Draw and explain the output characteristics for transistor in CE – mode.

P.T.O.

Q.4 Attempt any **THREE** of the following: (12)

a) Draw dc load line for the following circuit and locate Q – point. Assume the transistor to be of silicon.

b) Explain the classification of amplifiers on the basis of frequency response.

c) Explain the working principle of transformer. Give different types of transformers.

d) Give the statements for the following:

   i) Maximum power transfer theorem

   ii) Nortan's theorem

Q.5 Attempt any **FOUR** of the following: (12)

a) Define the following terms for resistor

   i) Tolerance   ii) Power rating   iii) Temperature coefficient

b) For a bipolar junction transistor if base current is 35 µA and collector current is 10 mA, find α, β and current flowing through the emitter of the transistor.

c) Define the following parameters of JFET:

   i) Drain resistance   ii)Transconductance   iii) Amplification factor

d) Draw equivalent circuit for SCR and also its symbol.

e) Draw well – labelled diagram for RC coupled CE amplifier.

f) State three points of difference between JFET and MOSFET.

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