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

Day : Wednesday
Time : 10:00 AM-01:00 PM

Date : 14-12-2022
W-20070-2022
Max. Marks : 60

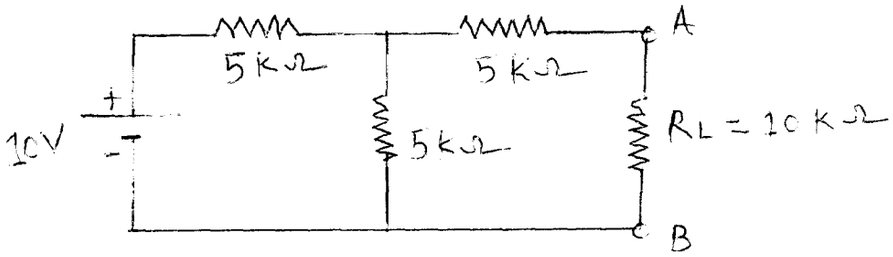
N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Draw neat labeled diagram **WHEREVER** necessary.
4) Use of **CALCULATOR** is allowed.

Q.1 Answer **ANY TWO** of the following: **[12]**

a) With necessary diagram explain the construction and working of n-channel JFET.

b) i) Give the statement for Thevenin's Theorem.
ii) Find the current through load using Thevenin's theorem.



c) Explain the working principle of UJT with necessary diagram.

Q.2 Answer **ANY TWO** of the following: **[12]**

a) Explain the working of npn transistor with neat diagram.

b) Derive the equation for growth and decay of current in R-C circuit.

c) Explain the construction of n-channel MOSFET with necessary diagram. Also draw symbol for it.

Q.3 Answer **ANY TWO** of the following: **[12]**

a) With necessary diagram explain the output characteristic curve for transistor in CE-mode.

b) Explain the colour code theory for fixed resistors. Also explain one example of it.

c) Draw well labelled diagram for single stage R-C coupled amplifier. Explain it.

Q.4 Answer **ANY THREE** of the following: **[12]**

a) Define capacitance. Explain the action of electrolytic capacitor with necessary diagram.

b) Give the statement for: Nortan's theorem and maximum power transfer theorem.

c) Find the value of α, I_B and I_E of a transistor if I_C = 10 mA and β = 200.

d) With necessary diagram explain class A and B amplifiers.

Q.5 Answer **ANY FOUR** of the following: **[12]**

a) State three points of difference between BJT and FET.

b) Explain the following terms of JFET:
i) Drain resistance ii) Transconductance iii) Amplification factor

c) Draw symbols for:
i) PNP transistor ii) SCR iii) Step-down transformer

d) Define α and β. Derive the expression for α in terms of β.

e) State and explain types of thermistors.

f) Give the classification of amplifiers on the basis of frequency.

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