F.Y. B. SC. (Computer Science) SEM – I (2014 COURSE) : SUMMER - 2019

SUBJECT: LINEAR ELECTRONICS – I

Day: Tuesday   Time: 12.00 NOON TO 02.00 PM
Date: 07/05/2019   Max. Marks: 40
S-2019-1126

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

Q.1 Answer any **TWO** of the following: **(10)**

a) With neat diagram explain the output characteristics of transistors in CE- mode.
b) Draw Thevenin's equivalent for the circuit. Also calculate I_L.
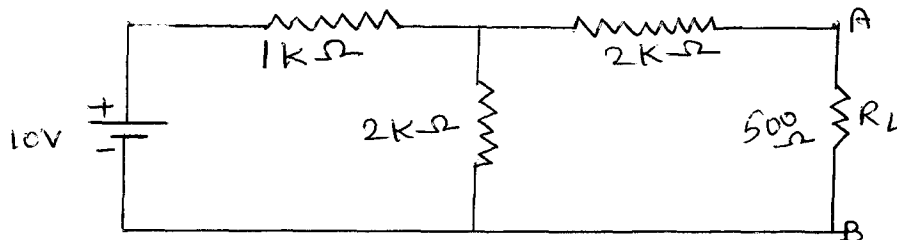
c) Define capacitance. Explain the action of electrolytic capacitor with necessary diagram.

Q.2 Answer any **TWO** of the following: **(10)**

a) Write in detail classification of resistors.
b) Explain the following terms for JFET:
   i) Dynamic drain resistance   ii) Transconductance
   iii) Amplification factor and derive the relation between them. Also draw symbol for n- channel JFET.
c) State the biasing methods for transistor. Explain any one method with necessary diagram.

Q.3 Answer any **TWO** of the following: **(10)**

a) Explain the working of UJT with neat diagram.
b) Draw circuit of single stage RC coupled CE- amplifier.
c) Explain the working of n-channel MOSFET in depletion mode. Explain the role of coupling and emitter bypass capacitor. Also give the expression for voltage gain of this amplifier.

Q.4 Answer any **FIVE** of the following: **(10)**

a) Define α and β for transistor. Derive the expression for α in terms of β.
b) Define time constant for charging of capacitors.
c) State Nortan's theorem.
d) Draw the circuit symbols for pnp and npn transistors.
e) State types of amplifier based on Q- point position.
f) Draw symbols for step-up and step-down transformer.
g) State two points of difference between BJT and FET.

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