F.Y. B. SC. (Computer Science) SEM – I (2014 COURSE) : WINTER 2018

SUBJECT: LINEAR ELECTRONICS – I

Day: - Saturday
Date: 20/10/2018

W-2018-0942

Time: 12.00 NOON TO 02.00 PM
Max. Marks: 40

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) Explain the working of n – channel enhancement MOSFET with neat diagram.

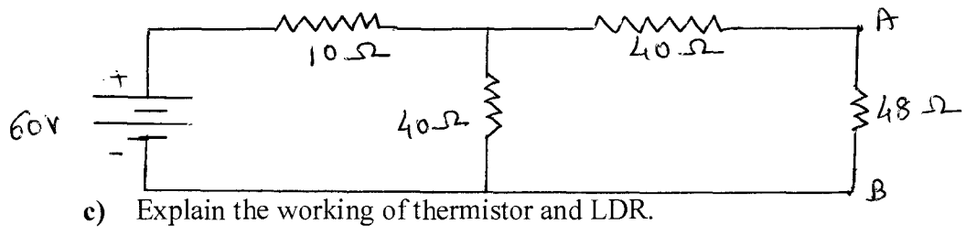
b) i) Give the colour code theory to calculate the values of fixed resistors.
ii) Find the colour bands of resistors if its value is : 100 K Ω ± 10% and 4.7K Ω ± 5%.

c) Classify the amplifiers on the basis of operating point with necessary diagram for each.

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

a) Draw a neat labeled circuit diagram of single stage RC coupled CE- amplifier. Explain the role of coupling and emitter bypass capacitor. Also give the expression for voltage gain of this amplifier.

b) Find the current through the load using Nortan's theorem.

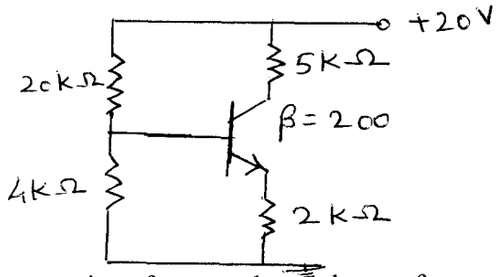


c) Explain the working of thermistor and LDR.

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

a) With necessary diagram explain the working principle of SCR.

b) Draw dc load line for the following circuit.



c) Obtain equations for growth and decay of current in LR circuit.

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

a) In a transformer number of turns in primary Np=100, number of turns in secondary Ns = 200. If voltage applied to primary Vp = 200V. Find the secondary voltage Vs.

b) Draw symbols for the following:
i) UJT ii) LDR

c) Define the following terms for resistor :power rating and tolerance.

d) Give two points of difference between FET and MOSFET.

e) State maximum power transfer theorem.

f) Define inductance. State its types.

g) Draw well-labeled diagram for CB- configuration of transistor.

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