

SUMMER-2018
FY.BSC (Computer Science) Sem-I (CBCS-2016 Course)

SUBJECT : PRINCIPLES OF ANALOG ELECTRONICS - I

Day : Monday

Date : 23/04/2018

S-2018-0796

Time : 11.00 A.M. TO 02.00 PM

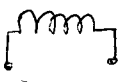
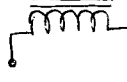
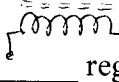
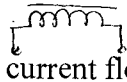
Max. Marks : 60

N.B.:

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

Q.1 A) Select the correct option and rewrite the complete sentence:

[06]

- a) The symbol for iron core inductor is _____.
- i)  ii) 
- iii)  iv) 
- b) In _____ region of transistor characteristic the current flow is maximum.
- i) Cut-off ii) Saturation iii) Active iv) Forbidden
- c) Full form of SCR is _____.
- i) Silicon Central Rectifier ii) Silicon controlled Router
iii) Silicon Controlled Rectifier iv) Silicon Central Router
- d) The value of resistance for the resistor having colour codes brown, black, red, silver is _____.
- i) $1000 \Omega \pm 5\%$ ii) $1000 \Omega \pm 10\%$ iii) $10 \Omega \pm 5\%$ iv) $10 \Omega \pm 10\%$
- e) Norton's resistance is denoted by _____.
- i) R_N ii) R_S iii) N_R iv) R_P
- f) Full form of LDR is _____.
- i) Light Dependent Region ii) Linear Dependent Resistor
iii) Light Dependent Resistor iv) Linear Dependent Region

B) Answer all the questions in one sentence:

[06]

- a) Define turns ratio for transformers.
- b) "In transistor circuit $I_C = I_E$ ". Comment.
- c) What does Q-point indicate?
- d) Explain negative resistance in UJT characteristics.
- e) State non-linear types of resistors.
- f) For a certain transistor in CE - mode $\alpha = 0.98$. If $I_E = 25\text{mA}$, determine I_C .

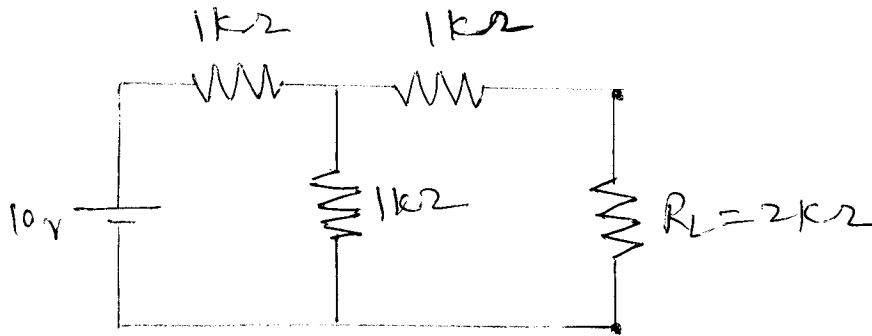
Q.2 Answer **ANY THREE** of the following:

[12]

- a) Explain the working of PNP transistor with necessary diagram.
- b) Define α and β for transistor. Also obtain relation between them.
- c) Define the following parameters of FET: drain resistance, transconductance and amplification factor. Also obtain relation between them.

P.T.O.

- d) Draw the Thevenin's equivalent circuit for the following and calculate I_L .

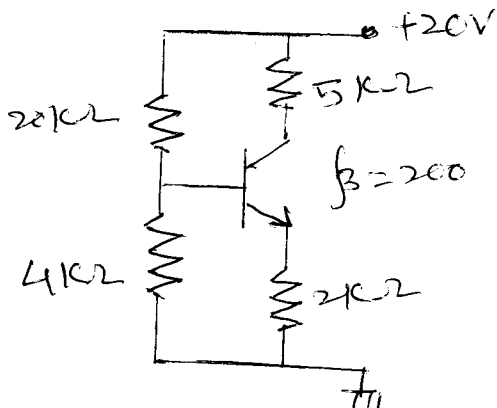


Q.3 Answer **ANY FOUR** of the following: [12]

- Explain the construction of electrolytic capacitor.
- Explain working of SCR with necessary diagram.
- Give the colour code theory to find the value of fixed resistors.
- Draw well labelled diagram of RC – coupled amplifier.
- State three points of difference between JFET and MOSFET.

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

- Explain classification of amplifier based on operating point.
- With neat diagram explain the working principle of n-channel enhancement MOSFET.
- Draw the d.c. load line for the following circuit and locate the Q-point. Assume the transistor to be a silicon.



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

- Draw and explain the output characteristic curve for transistor in CE-mode.
- Explain working of transistor as switch with necessary diagram.
- With neat diagram explain working of UJT relaxation oscillator.

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