B. TECH. SEM - III (ELECTRONICS) 2014 COURSE) (CBCS) :
SUMMER - 2018
SUBJECT: ANALOG ELECTRONICS

Day: **Tuesday** **S-2018-2245** Time: **02.30 PM TO 05.30 PM**
Date: **22/05/2018** Max. Marks: 60

N.B.:

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

Q.1 Define the concept of D.C. load line. Discuss the shifting of operating point near the cut-off region, near to saturation region and at the center of Active Region with diagram. **(10)**

OR

Q.1 a) Draw and discuss the operation of voltage divider biasing circuit. **(06)**
b) Discuss in detail any one application of Transistor. **(04)**

Q.2 Draw and discuss Hybrid Model of a Transistor in C.E. configuration, C.B configuration and C.C. configuration. Write the equations of Input voltage and output current. **(10)**

OR

Q.2 Consider a single stage C.E. amplifier with $R_S = 1K\Omega$, $R_L = 1.2K\Omega$. Calculate current gain, Input impedance voltage gain, source voltage gain, source current gain, output admittance and power gain. **(10)**

Q.3 a) Differentiate between BJT and FET. **(06)**
b) Describe the construction of p- channel JFET. **(04)**

OR

Q.3 a) In a self bias n-channel JFET, the operating point is to be set at $I_D = 1.5mA$ and $V_{DS} = 10V$. The JFET parameters are $I_{DSS} = 5mA$ and V_{GS} (off) = -2V. Find values of R_D and R_S . Given $V_{DD} = 20V$. **(06)**
b) 'FET is called voltage control Device' Justify the statement. **(04)**

Q.4 Discuss the construction of Depletion type MOSFET (n-channel and p-channel) in detail. **(10)**

OR

Q.4 Describe operation of n-channel Enhancement MOSFET in detail with output characteristics. **(10)**

Q.5 Draw and describe positive and negative clamper circuits with waveforms. **(10)**

OR

Q.5 a) Discuss the operation of voltage Tripler circuit. **(06)**
b) Describe any one multivibrator circuit. **(04)**

Q.6 a) Discuss the construction and features of light emitting diode with applications. **(06)**
b) Draw V-I characteristics of phototransistor. **(04)**

OR

Q.6 Discuss in detail the types of PCB with advantages. **(10)**

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