A-3003
Second Year B. Sc. (Sem. III) Examination
March/April – 2015
Electronics (E for CS) Paper - III
(Electronic Devices & Circuits)

Time : 2 Hours] [Total Marks : 50

Instructions :
(1)
(2) Figures on the right indicate full marks.
(3) All symbols and abbreviations have their usual meaning.
(4) Non-programmable calculators are allowed.
(5) Q.1 is compulsory.
(6) Assume data if necessary.

1 Answer in brief
(a) What is Gain w.r.t amplifier? Give its unit.
(b) What are criteria for Oscillation?
(c) Draw a basic ac amplifier circuit using BJT
(d) Draw the FEEDBACK PAIR circuit and its application.
(e) Give full form of BJT & JFET.
(f) Give full form of MOSFET and CMOS
(g) Draw the Darlington Pair circuit and its application.

2 (a) In a simple tuned amplifier, the circuit bandwidth is 4 kHz and the voltage gain is a maximum value at 200kHz, when the tuning, capacitor is adjusted to 470pF. Find quality factor of the circuit and inductance of the coil.

OR

(a) Explain LC Oscillator in detail.
(b) Explain h-parameter model detail

OR

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(b) Draw an elementary JFET amplifier, which has $g_m = 2000$ siemen, $r_i = 80k\Omega$ and $R_L = 8k\Omega$. Calculate Voltage Gain.

3  (a) Difference between positive feedback and Negative feedback amplifier. Mention also their advantages.

OR

(a) Explain Thermal –Run away. What is to be done to avoid Thermal run-away in BJT amplifier?
(b) What is Piezoelectric effect? What are the advantages of Crystal Oscillator than other available oscillator.

OR

(b) What is a by-pass capacitor in BJT biasing circuit design and how it Stabilizes the Bias condition?

4  Write short Notes on any Two :  
(a) Hybrid model for small signal transistor
(b) Voltage Negative feedback
(c) Single Stage RC Coupled amplifier
(d) UJT oscillator.