✓   — NIL—

(OLD COURSE)   26/11/14

QP Code :12234

Duration: 3 hours   Max marks: 100

N.B.:

1. **Q 1 is compulsory**
2. Answer **any four** out of remaining **six** questions
3. Assumptions made should be clearly stated
4. Assume any suitable data wherever required but justify the same
5. Figures to the right indicate marks

Q.1   (A) Describe the construction, principle of operation and applications of varactor diode.   (06)

(B) Describe the voltage-shunt type of negative feedback with the help block diagrams and state the impact on voltage gain, current gain, input impedance and output impedance.   (05)

(C) Compare the following   (09)
    (i) MOSFET and BJT
    (ii) CB and CC amplifier
    (iii) h-parameter model and r_e model of BJT

Q.2   (A) Draw a full-wave bridge rectifier circuit with LC filter and describe the circuit operation with the help of waveforms. Compare the performance of C, L and LC filters.   (10)

(B) Draw any one circuit each of single ended clipper and double ended clipper and explain their working with the help of waveforms.   (10)

Q.3   (A) For the common emitter amplifier circuit shown in Fig-1, calculate the voltages V_{CE}, V_{BC} and currents I_C, I_B and I_E at the operating point. Assume any additional data if needed with suitable justification.   (10)

(B) Draw the h-parameter equivalent model for the circuit given below in Fig-1. Calculate the input impedance, output impedance, voltage gain and the current gain of the given amplifier. Assume any additional data if needed with suitable justification.   (10)
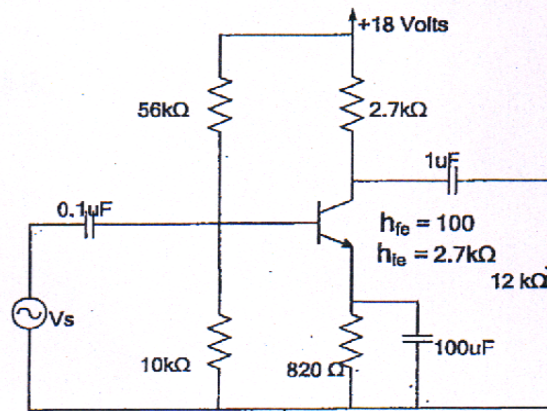

Fig-1

Q.4   (A) Determine the operating point parameters V_{GSQ}, I_{DQ} and V_{DSQ} for the circuit shown below in Fig-2.   (10)
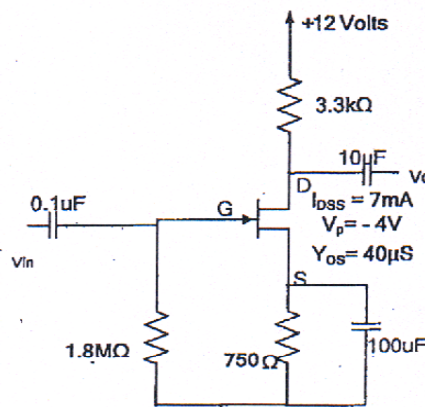

Fig-2

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