

B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2013**Electronics and Communication Engineering Branch****EC 272 – ELECTRONIC CIRCUITS - I****(REGULATIONS 2004)****29****Time: 3 Hours****Max. Marks: 100****Answer All Questions****Part-A****(10 x 2 = 20 Marks)**

- 1) Draw the small signal equivalent circuit of FET.
- 2) Two amplifiers having gain 20 dB and 40 dB are cascaded. Find the overall gain in dB.
- 3) Give a comment on "MOSFET as an amplifier".
- 4) Define the noise margin.
- 5) What are the high frequency effects?
- 6) Give the significance of coupling and bypass capacitor on BW of amplifiers?
- 7) Define class C operation of power amplifier?
- 8) Compare the efficiencies of all the power amplifiers.
- 9) Why is a simple capacitor filter not suitable for heavy load?
- 10) What is meant by ripple factor?

Part-B**(5 x 16 = 80 Marks)**

- 11) (a) Describe the design of NMOS inverter using resistive load with neat diagram. (16)
- 12) (a) Explain the operation of emitter coupled differential amplifier and discuss about the transfer characteristics of the differential amplifier. (16)
(or)
(b) Discuss about the CMOS inverter, transient analysis and response in detail. (16)
- 13) (a) Draw the high frequency equivalent circuit for a FET amplifier and derive the values of all the parameters. (16)
(or)
(b) Derive the expression for CE short circuit current gain of a transistor at high frequency. (16)

14) (a) What is thermal runaway? What are design aspects that have to be taken care of designing a power amplifier to have thermal stability? (16)

(or)

(b) Explain the operation of class-D amplifier and explain about the cross over distortion. (16)

15)

(a) Explain in detail about the power controlled using SCR. (16)

(or)

(b) How regulation of output voltage is obtained against line and load variation in SMPS. (16)