Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Electronics & Communication Engineering) (2018 Batch)
(Sem.–4)

ANALOG CIRCUITS

Subject Code : BTEC-401-18
M.Code : 77565

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Write briefly :

Q1. Define trans-conductance and drain resistance with respect to JFET.

Q2. Derive the relation between α and β with respect to BJT.

Q3. Draw hybrid small signal model for a transistor in CE configuration.

Q4. Draw the block diagram of Voltage Series feedback and Current Series feedback diagram.

Q5. The voltage gain of an amplifier without feedback is 3000. Calculate the voltage gain of the amplifier if negative voltage feedback is introduced in the circuit. Given that feedback fraction $m_v = 0.01$.

Q6. What is the difference between amplifier and oscillator?

Q7. Write Barkhausen criterion for oscillators.

Q8. Why power amplifiers are called large signal amplifiers?

Q9. Explain the loading effect in amplifiers.

Q10. What are the different coupling schemes used in multistage amplifiers?

SECTION-B

Q11. Draw the high frequency model of a CE transistor and explain each component of it.

Q12. Why does gain of amplifier falls off at low and high frequencies? Explain with an appropriate diagram.

Q13. Describe the effect of feedback on gain and bandwidth.

Q14. Explain the working of RC phase shift oscillator and derive for its frequency of Oscillation.

Q15. What is harmonics distortion in power amplifier? Discuss the operation of a class B power amplifier and derive its maximum power conversion efficiency.

SECTION-C

Q16. Draw and explain input and output characteristics of CB amplifier. Write any practical application of CB amplifier.

Q17. Draw the circuit for Voltage shunt amplifier and justify the type of feedback. Derive the expressions for Av, β, Ri and Ro for the circuit.

Q18. Write short notes on the following :

a) Clapp Oscillators

b) Cascade Amplifiers

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.