

Reg. No.

Question Paper Code

12025

18 JUL 2023

B.E./B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Third Semester

Electrical and Electronics Engineering
20EEPC301 - ANALOG ELECTRONICS

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. What is meant by biasing? | 2,K1,CO1 |
| 2. Define CMRR. | 2,K1,CO1 |
| 3. How do you classify the power amplifiers? | 2,K1,CO2 |
| 4. What is meant by feed back? | 2,K1,CO2 |
| 5. List some characteristics of ideal operational amplifier. | 2,K1,CO3 |
| 6. Write down the output of the integrator op-amp. | 2,K2,CO3 |
| 7. List the applications of multivibrator. | 2,K1,CO4 |
| 8. What is the difference between dual slope and successive approximation A/D converters? | 2,K2,CO4 |
| 9. Enumerate the applications of 555 timers. | 2,K2,CO5 |
| 10. Draw any one IC diagram of voltage regulator. | 2,K2,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) What are the three biasing used in the transistor? Explain with neat diagram. 13,K2,CO1

OR

- b) Explain the operation of IGBT with biasing and characteristic curves. 13,K2,CO1

12. a) Describe the working of class-B push pull amplifier and complementary push pull amplifier with neat diagram. 13,K2,CO2

OR

- b) (i) Explain the role of RC network in RC phase shift oscillator and Derive the expression for frequency of oscillation. 7,K2,CO2
(ii) Explain the crystal oscillator with the diagram. 6,K2,CO2

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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13. a) Discuss the DC characteristics of OP-AMP with necessary diagram and expression. 13,K2,CO3

OR

- b) Illustrate with neat diagram the working of integrator and differentiator by using OP-AMPs and Develop the expressions for the output voltages. 13,K2,CO3

14. a) Elaborate with neat diagram the working of instrumentation amplifier. 13,K2,CO4

OR

- b) Explain with the neat sketch, the working of successive approximation type analog to digital converter using OP-AMP. 13,K2,CO4

15. a) Demonstrate with the neat functional diagram the working of IC 555, and develop the expression for square wave pulse. 13,K2,CO5

OR

- b) Elaborate with the neat diagram the working of IC 723, as low voltage and high voltage regulators. 13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) For a non-inverting amplifier $R_1=1K\Omega$, $R_f=10K\Omega$, calculate the
(i) Maximum output offset voltage due to input offset voltage $V_{os}=10mV$, bias current $I_B=300nA$, and offset current $I_{os}=50nA$. 8,K3,CO3

- (ii) Calculate the value of R_{comp} need to reduce the effect of I_B . 7,K3,CO3

OR

- b) Explain the operation of weighted resistor R-2R ladder and inverted R-2R ladder DAC. 15,K3,CO3