2304E340

Candidate's Seat No :_____

B.Sc. (NEP) Sem.-4 Examination

DSC-C-241

Electronics

Time : 2-00 Hours] **April-2025** **[Max. Marks : 50**

Instructions: (1) Symbols used here have their usual meanings.
(2) Figures to the right indicate marks.

Q-1 (a) Write a short note on establishment of ISRO. (5)
(b) Describe in brief the space research in independent India. (5)

OR

(a) Write a short-note on evolution of the Indian nuclear progam (5)
(b) Explain INTELSAT's indigenous services in telecommunications. (5)

Q-2 (a) Explain general theory of feedback and derive the equations for positive and negative feedbacks. (5)
(b) In a negative feedback amplifier, A=100, β=0.04 and Vs=50mV. Find (a) gain with feedback (b) output voltage (c) feedback factor (d) feedback voltage. (5)

OR

(a) Explain any five advantages of negative feedback. (5)
(b) What is negative feedback? Explain briefly all the four categories of the negative feedbacks. (5)

Q-3 (a) Classify different type of Oscillators. Explain Damped and Undamped Oscillations. (5)
(b) Explain working of an oscillatory tank circuit. (5)

OR

(a) Explain Hartley oscillator using BJT. (5)
(b) Explain Phase-shift oscillator using three RC sections. (5)

Q-4 (a) Explain inverting amplifier circuit using op-amp. Derive the equation for close loop gain. (5)
(b) Write a short – note on non-inverting amplifier using op-amp. (5)

OR

(a) Explain basic concept of differential amplifier. (5)
(b) Write a short-note on slew rate. (5)

Q-5 Attempt <u>any Ten out of Twelve.</u> (10)

(1) Write full form of INSAT.
(2) Mention any two radiation technology applications.
(3) Write the full-form of BARC.
(4) What is an oscillator?
(5) Which type of oscillator has high degree of frequency stability?
(6) Mention different types of multivibrators.
(7) Calculate the gain of a negative feedback amplifier with an internal gain A = 200 and feedback factor β=1/20.
(8) What is emitter follower?
(9) Why an emitter follower is used as a buffer for impedance matching in two stage amplification?
(10) Draw the circuit schematic symbol of an op-amp
(11) Write the full-form of CMRR.
(12) Mention any two types of packages in which op-amp ICs are available.