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21BSC3C3ELL

B.Sc. III Semester Degree Examination, April/May - 2024

ELECTRONICS

OSC 3 : Oscillations and OP-Amps

(NEP)

Time : 2 Hours Maximum Marks : 60

Note : *Answer* ***all*** *sections.*

SECTION - A

1. Answer **all** Sub-questions. **10x1=10**

(a) What are the types of clippers ?
(b) What is Oscillator ?
(c) Define Duty cycle of pulse.
(d) What is OP-Amp ?
(e) Define slow rate in OP-Amp.
(f) What is CMRR in OP-Amp ?
(g) What is Scale Charger ?
(h) What is Active filter ?
(i) What is Time Scaling ?
(j) Give examples of RC Oscillators.

SECTION - B

Answer **four** questions. **4x5=20**

2. Explain with circuit diagram.
(i) Positive Clamper
(ii) Negative biased clamper and sketch I/p and O/p waveforms.

3. Deduce the condition for good oscillation using Barkhausen Criterion in Oscillator.

4. What are ideal characteristics of OP-Amp ?

5. Explain the working of Astable multivibrator using OP-Amp.

6. Construct Astable multivibrator using IC 555 and explain with waveforms.

7. Explain the following.
(i) Unity gain OP-Amp
(ii) Subtracter

P.T.O.

SECTION - C

Answer **three** questions. **3x10=30**

8. Explain the RC integrating circuit and sketch I/p and output waveforms for Square and Triangular waveforms.

9. Draw the Colpitts Oscillator using transistor and obtain the condition for frequency and explain it.

10. With neat circuit diagram explain Bistable multivibrator using transistor.

11. Describe the OP-Amp in inverting OP-Amp configuration and obtain closed loop gain.

12. Explain Active high pass filter using OP-Amp and draw the frequency response curve.

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