

AU-321

First Year M.Sc. (Semester—II) (CBCS Scheme) Examination

ELECTRONICS

(Analog Circuit Design and Analysis)

Paper—2-ELE-1

Time : Three Hours]

[Maximum Marks : 80

- Note :—**(1) All questions carry equal marks.
(2) Draw neat diagram wherever necessary.
(3) Due credit will be given to neatness.

1. (A) Explain the operation of difference amplifier with neat diagram. 8
(B) Draw the block diagram of Op-Amp and explain the function of various stages. 8

OR

(P) Explain the following characteristics of Op-Amp :

- (i) Input bias current
- (ii) Input impedance
- (iii) Output impedance
- (iv) Slow Rate. 8

(Q) Discuss the various parameters of ideal Op-Amp. 8

2. (A) Draw the block diagram of voltage series feed back amplifier and calculate its equation for voltage gain. 8
(B) Draw the block diagram of various feed back configuration. 8

OR

(P) Describe voltage shunt feed back amplifier with block diagram and derive the equation for voltage gain. 8

(Q) Explain the following terms of differential amplifier :

- (i) Output resistance
- (ii) Bandwidth. 8

3. (A) Explain the use of Op-Amp as :
- (i) Adder
 - (ii) Subtractor. 8
- (B) Derive the equation for open loop voltage gain and closed loop voltage gain of Op-Amp and explain how these voltage gains are a function of frequency. 8

OR

- (P) Explain the use of Op-Amp as an :
- (i) Integrator
 - (ii) Differentiator. 8
- (Q) Explain the use of Op-Amp to convert voltage into current with floating load and grounded load. 8
4. (A) Explain the Schmitt trigger circuit using Op-Amp and draw the waveform. 8
- (B) Explain the operation of R-2R ladder circuit using Op-Amp to convert digital data into analog. 8

OR

- (P) What is active filter? Explain the operation of first order Low pass, high pass filter using Op-Amp. 8
- (Q) Explain the operation of voltage to frequency and frequency to voltage converter using Op-Amp. 8
5. (A) Explain the operation of 555 timer IC as :
- (i) Monostable multivibrator
 - (ii) Astable multivibrator. 8
- (B) Explain the block diagram of 565 phase lock loop IC. 8

OR

- (P) Draw the Block diagram of 555 timer IC and explain the function of various blocks. 8
- (Q) Explain the operation of 565 PLL as :
- (i) Fixed Voltage Regulator
 - (ii) Switching Regulator. 8