AS–1414-Add

B.Sc. (Part–II) Semester—III Examination
3S : ELECTRONICS
(Electronic Devices and Circuits)

Time : Three Hours]   [Maximum Marks : 80

Note :— (1) Q.No. 1 is compulsory.

(2) Draw neat diagram wherever necessary.

1.   (A) Fill in the blanks with correct word :—   ½×4=2

(i) For a transistor number of h-parameters are _____.

(ii) The voltage gain of non inverting Op-Amp is _____.

(iii) In phase-shift oscillator each RC combination gives _____ degree phase shift.

(iv) The CMRR of an ideal difference amplifier is _____.

(B) Choose correct alternative and rewrite the answer :—   ½×4=2

(i) Cross over distortion occur in _____ amplifier :

(a) Push pull   (b) Class A

(c) Class B   (d) Class AB

(ii) The monostable multivibrator has one stable and another one as a _____ State.

(a) Stable   (b) Quasistable

(c) Unstable   (d) None

(iii) The D/A convertor converts digital signal into _____ signal.

(a) Square wave   (b) Sine

(c) Digital   (d) Analog

(iv) Op-Amp IC 741 has total _____ Pins.

(a) 2   (b) 6

(c) 14   (d) 8

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(C) Answer the following questions each in one sentence only :— 1×4=4

    (1) State Barkhausen criteria for oscillator.

    (2) State any one ideal parameter of Op-Amp.

    (3) Give any one advantage of negative feedback.

    (4) Define Band Width in case of RC-coupled amplifier.

EITHER

2. (A) Explain working of RC-coupled amplifier with circuit diagram and frequency response. 8

  (B) Explain the terms :—

    (i) Lower cut off frequency

    (ii) Upper cut off frequency. 4

OR

(P) Give the advantages and disadvantages of direct coupled amplifier. 4

(Q) Draw circuit diagram of CE amplifier and obtain its hybrid equivalent circuit. Also derive expression for — (i) Output Impedance, (ii) Input Impedance. 8

EITHER

3. (A) Explain construction and working of Complementary Symmetry Class-B push-pull amplifier. 8

  (B) Explain cross over distortion. How it is eliminated ? 4

OR

(P) Draw and explain a circuit diagram of transformer coupled Class-A amplifier and derive expression for its efficiency. 8

(Q) Explain classification of amplifier based on biasing condition. 4

EITHER

4. (A) State the difference between amplifier and oscillator. 2

  (B) Explain construction and working of colpitts oscillator. 6

  (C) Explain the effect of negative feedback on bandwidth. 4

OR

(P) Explain construction and working of Wein bridge oscillator. 6

(Q) Draw a circuit diagram of RC-phase shift oscillator and explain its working. 6

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EITHER

5. (A) Explain the concept of Virtual ground.   4

   (B) Explain the working of Op-Amp as an integrator.   4

   (C) Explain working of Op-Amp as inverting amplifier.   4

OR

   (P) Explain working of a difference amplifier.   6

   (Q) Draw block diagram of IC Op-Amp and explain function of each block.   6

EITHER

6. (A) Explain the working of Op-Amp as an astable multivibrator.   6

   (B) Explain Op-Amp as a regenerative comparator with circuit diagram and waveforms.   6

OR

   (P) Explain working of Op-Amp as logarithmic amplifier.   6

   (Q) Explain how Op-Amp is used as damped harmonic oscillator, write necessary steps.   6

EITHER

7. (A) Describe the successive-approximation type A/D converter.   6

   (B) Explain the terms :—

      (i) Accuracy

      (ii) Resolution

      (iii) Linearity in D/A converter.   6

OR

   (P) Explain the action of weighted ladder type D/A converter.   6

   (Q) Explain need of A/D and D/A converter.   6