



GUG/W/15/3336

B. Sc. (Part-II) (With Credits)-

Regular-Semester 2012 Sem. - III

B.Sc.23131 Electronics - I Paper- I :
(Amplifiers)

P. Pages : 3

Time : Three Hours

Max. Marks : 50

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- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw neat and well labelled diagrams wherever necessary.
 3. Use of calculators and log tables are allowed.

1. Either

- a) What is biasing of transistor? Explain the need of dc bias and its stabilization in transistor circuit. Explain potential divider biasing method with the help of circuit diagram. **10**

OR

- b) Draw the hybrid equivalent circuit for CE amplifier. Derive the expression for voltage gain, current gain and output impedance using h-parameters.

2. Either

- a) What are the different classes of amplifiers? **10**
Explain each in brief with graphical representation. Explain the working of direct coupled amplifier with the help of circuit diagram. Also state its disadvantages.

OR

- b) Explain the working of RC coupled amplifier and obtain an equation for voltage gain at mid frequency range using h-parameters.

3. Either

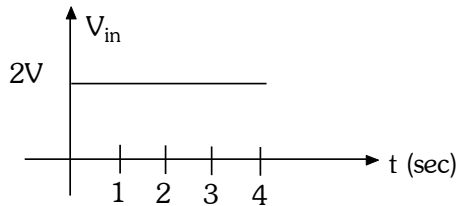
- a) Explain the working of difference amplifier with suitable circuit diagram. Explain the need of dual power supply in difference amplifier. **10**

OR

- b) What is op-Amp ? Explain the following parameters of op-Amp :
- i) Input bias current.
 - ii) Input offset current.
 - iii) Input offset voltage.
 - iv) Slew rate.

4. Either

- a) Explain the concept of virtual ground with **10** respect to op-Amp. Explain op-Amp as an integrator and obtain the expression for output voltage. For op-Amp as an integrator given that $RC = 1$ second and input is step dc voltage as shown. Draw the output of integrator circuit.



OR

- b) Explain the working of Schmitt trigger using op-Amp with suitable circuit diagram. Draw input and output waveforms of Schmitt trigger.
5. a) Explain CE transistor as an amplifier. **2½**
- b) Explain non linear and frequency distortion **2½** in amplifiers.
- c) State ideal characteristics of op-Amp. **2½**
- d) Explain op-Amp as non inverting closed **2½** loop amplifier.
