

S.Y.B.Sc.(Part-II)(With Credits)-Regular-Semester 2012 Sem IV
B.Sc.24131 - Electronics Paper-I
(Power Amplifiers, Oscillators and Power Supplies)

P. Pages : 2

Time : Three Hours



GUG/W/17/5602

Max. Marks : 50

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- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw neat and well labelled diagram wherever necessary.
 3. Use of log table / calculator is allowed.

Either

1. a) What is a power amplifier ? **1+9**
Define and explain the following terms related to power amplifier,
i) Collector efficiency.
ii) Distortion, and
iii) Power dissipation capacity.

OR

- b) Explain the working of transformer coupled class - A power amplifier. **5+5**
Show that maximum collector efficiency of it is 50%.

Either

2. a) Draw the circuit diagram of Wien bridge oscillator and explain its working. **6+4**
State its advantages and disadvantages.

OR

- b) Explain the working of tank circuit used in LC oscillator. **6+4**
Explain the following terms :
i) Resonance frequency, and
ii) Damped oscillations.

Either

3. a) Define the following terms regarding power supplies, **8+2**
i) Voltage regulation, and
ii) Minimum load resistance
Two power supplies A and B are available in the market. Power supply A has no-load and full-load voltages of 30V and 25V, respectively whereas these values are 30V and 29V for power supply B. Which is better power supply and why ?

OR

- b) Explain the construction and working of transistor series pass regulator. **7+3**
How is short circuit protection provided in it ? Explain with suitable circuit.

Either

4. a) What is three terminal IC regulator ? 2+5+3
Draw functional block diagram and explain its working.
State advantages of three terminal voltage regulator.

OR

- b) Draw functional block diagram of IC LM317 three terminal voltage regulator and explain state salient features of IC LM317. 7+3
5. a) Compare voltage and power amplifiers. 2½
- b) Find the operating frequency of transistor callpitt oscillator if $C_1 = 0.001 \mu\text{F}$, $C_2 = 0.01 \mu\text{F}$ and $L = 15 \mu\text{H}$. 2½
- c) Compare series and shunt type regulators. 2½
- d) State advantages of IC voltage regulators. 2½
