

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

P. Pages : 2

Time : Three Hours



**GUG/S/17/5602**

Max. Marks : 50

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

**1.** Either

- a) Draw the circuit diagram of class B push pull power amplifier and explain its working. Derive the expression for its efficiency. What are the advantages of class B push pull amplifier over class A amplifier. **10**

**OR**

- b) Differentiate between class A amplifier with resistive load and transformer coupled power amplifier. Explain the working of class A power amplifier and derive the expression for its efficiency. **10**

**2.** Either

- a) Draw the circuit diagram of phase shift oscillator and explain its working. State its advantages and disadvantages. In phase shift oscillator,  $R_1 = R_2 = R_3 = 100 \text{ K}\Omega$  and  $C_1 = C_2 = C_3 = 1\mu\text{F}$ . At what freq. Does the circuit oscillate. **10**

**OR**

- b) State the difference between amplifier and oscillator. Explain the working of Hartley oscillator with suitable diagram. **10**  
Find the operating frequency of a transistor Hartley oscillator if  $L_1 = 100 \mu\text{H}$ ,  $L_2 = 1\text{mH}$ , mutual inductance between the coils,  $M = 20 \mu\text{H}$  and  $C = 20\text{pF}$ .

**3.** Either

- a) What is regulated power supply? **10**  
Define:
- i) Load Regulation.
  - ii) Line Regulation.

Explain the working of Zener diode as a voltage regulator.

**OR**

- b) Draw the circuit diagram of transistor series pass regulator and explain its working. **10**  
What is the advantages of transistor series pass regulator over Zener diode as a voltage regulator.

**4.** Either

- a) Write the advantages of three terminal voltage regulator. Explain the working of LM 317 as a variable voltage regulator. State feature of IC LM 317 voltage regulator. **10**

**OR**

- b) Draw the circuit of voltage regulator using IC 7805 and explain its working. Write the feature of 78 xx & 79 xx voltage regulator. **10**

- 5.** a) What is power transistor? State its advantages. **2½x4**  
b) Explain L-C oscillator circuit.  
c) Draw the block diagram of unregulated power supply. State its disadvantages.  
d) Draw the circuit diagram of dual power supply using voltage regulator IC 7809 and 7909.

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