

Mid-West University
Examinations Management Office
End Semester Examinations-2080

Bachelor level/ B.Sc /6th Semester
Time: 3 hours
Subject: Electronics (PHY461)

Full Marks: 100
Pass Marks: 50

Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks.

Group-A

[8x2=16]

- 1) Answer in short any **EIGHT** questions
- State the T-Network with name of components of a neat diagram.
 - What is zener diode? Draw an electric circuit diagram as a voltage regulator.
 - What are α and β in electronic transistor circuits. Express their relation.
 - What do you mean by inverting and non-inverting operational amplifier?
 - Distinguishes between UJT and BJT.
 - What are multi vibrators?
 - What are essential components of an oscillator?
 - Define Boolean laws. Write the Boolean's laws with examples.
 - Why are both NOR and NAND called universal gates?
 - What is flip-flop? Write it uses.

Group-B

[6x6=36]

- 2) Answer in brief any **SIX** questions
- State and derive Thevenin's Theorem?
 - What do you mean by common emitter amplifier? Describe its construction, operation and different characteristics with the neat diagrams.
 - What do you mean by hybrid parameters? Derive the expressions for the different hybrid parameters.
 - What do you mean by load line? Distinguish between dc and ac load lines including with circuit diagrams.
 - State and derive principle of feedback. Distinguish between negative and positive feedbacks.
 - Write short note on digital comparator. What are its applications?
 - State and derive De - Morgan's Theorems.

Group-C

- 3) Describe with circuit diagrams and characteristics of both Reset-Set Flip-flop and Master-Slave JK Flip-flop. [9]

OR

What is Wein-Bridge oscillator? Derive its frequency and amplifier gain. Also discuss its uses, advantages and disadvantages. [9]

- 4) What is a two stage RC coupled transistor amplifier? Describe its construction with neat diagram. Also discuss its operation, frequency response, applications, advantages and disadvantages. [9]