



Total No. of Questions: 3 / 16

Total No. of Pages: 2

FIRST YEAR (COMPUTER SCIENCE)
24-CELE-11101: Smart Instrumentation System

Program: BScComp05
Program Specific: B.Sc (Comp.Sc.)
Course Type: Major
Paper: I

Credits: 2
Time: 2 Hours
Max. Marks: 30
SET: A

Instructions to the candidate:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labelled diagram wherever necessary.

Q1) Attempt ANY FIVE of the following:

[5 X 2 = 10]

- a) What is encoder?
- b) List different types of shift registers.
- c) State True or False- D flip flop is known as data flip flop.
- d) Define sensor.
- e) How many control lines are required for 4:1 multiplexer?
- f) Name any two actuators.
- g) How many bits can be added by half adder?

Q2) Attempt ANY THREE of the following:

[3 X 4 = 12]

- a) Explain the working of 1:2 de-multiplexer circuit.
- b) Explain the working of op-amp as an adder with neat diagram.
- c) Write a short note on ultrasonic sensor.
- d) Describe how JK flip flop works with logical diagram and truth table
- e) Explain the working of full adder with neat diagram.

Q3) Attempt ANY TWO of the following:

[2 X 4 = 08]

- a) Draw the block diagram of smart instrumentation system and explain the role of each block.
- b) Describe the working of Decimal to BCD encoder.
- c) Explain the working of 3 bit counter with timing diagram.
- d) Write a short note on shift registers.
