



DBX-2

Seat No. _____

M. Sc. (E.C.I.) (Sem. II) (CBCS) Examination

July - 2022

Advanced Digital Electronics : Paper - 06

(New Course)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :**
- (1) All questions carry equal marks.
 - (2) Figures on right hand side indicate marks.

1 Answer the following questions : (Any seven) 14

- (1) What is a sequential logic?
- (2) What is a combinational logic circuits?
- (3) Draw logic circuit diagram for given Boolean expression.
• $Y = \overline{A} \cdot B$
- (4) Define monostable multivibrator.
- (5) Draw logic circuit diagram of half adder.
- (6) What is a multiplexer?
- (7) What is an encoder?
- (8) Draw logic circuit diagram of bistable multivibrator.
- (9) Draw truth table of magnitude comparator.
- (10) Draw half subtractor using universal gates.

2 Answer the Following questions : (Any two) 14

- (1) Draw and explain R-S flip-flop with active high inputs.
- (2) Draw and describe full-subtractor logic circuit diagram.
- (3) Write a note on controlled inverter.

3 Answer the Following questions : 14

- (1) How does a programmable logic device differ from a fixed logic device? What are the primary advantages of using programmable logic devices?
- (2) Explain 4 to 1 and 8 to 1 multiplexer with its truth table.

OR

- 3** Answer the Following questions : **14**
- (1) Explain J-K flip-flop with preset and clear inputs.
 - (2) Differentiate encoder and priority encoder with its suitable diagram.
- 4** Answer the following questions : **14**
- (1) Briefly describe the concept of look-ahead carry generation with respect to its Use in adder circuits. What is its significance while implementing hardware for addition of binary numbers of longer lengths?
 - (2) Write a note on magnitude comparator.
- 5** Answer the following questions : (Any **two**) **14**
- (1) Draw and explain full-adder using universal gates.
 - (2) Draw and explain T flip-flop.
 - (3) Draw the logic diagram of a three-digit BCD adder and briefly describe its functional principle.
 - (4) Briefly explain programmable logic array devices.
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