Question Paper Code : 3027

B.Sc. (Part-I) Examination, 2017

(New Syllabus)

COMPUTER SCIENCE

[First Paper]

(Computer Fundamentals)

Time : Three Hours] **[Maximum Marks : 50**

Note : Answer **five** questions in all. Question **No. 1** is **compulsory**. Besides this, attempt **one** question from each of the four units.

1. (a) Differentiate analog signals from digital signals. [2]

   (b) Draw the logic symbol and truth table for Exclusive-NOR Gate. [2]

   (c) Differentiate internal command from external command in DOS. [2]

   (d) Define super computers. [2]

(e) Explain XCOPY and DELTREE command in detail. [2]

(f) $(0.1011)_2 = (\ldots\ldots)_{10}$ Convert. [2]

(g) Discuss the utility of demultiplexer in detail. [2]

(h) Prove $(x+y)(x+z) = x+yz$ [2]

(i) Differentiate High-Level Language from Machine Language in detail. [2]

(j) Differentiate Sequential Logic Circuit from Combinational Logic Circuit in detail. [2]

UNIT - I

2. Define computer. Draw the block diagram of computer and explain its various characteristics and limitations in detail. [7½]

3. (a) Explain the characteristics of second and third generation computers in detail. [3]

(b) Define operating system. Also explain its various types in detail. [4½]

UNIT - II

4. Convert the following : [7½]

(a) $(1728)_{10} = (\ldots\ldots)_{16}$

(b) $(426)_{10} = (\ldots\ldots)_{8}$

(c) $(374F)_{16} = (\ldots\ldots)_{2}$

(d) $(1A5D)_{16} = (\ldots\ldots)_{10}$

5. (a) Simplify the Boolean function

$F(A, B, C, D) = \sum(1, 3, 4, 5, 6, 7, 12, 14)$ using K-map. [5]

(b) Explain Inkjet printer in detail. [2½]

UNIT - III

6. What do you mean by universal gate ? Show the implementation of NOT, OR and AND gate with the help of NOR gate. [7½]

7. (a) Explain the working of J-K flip-flop in detail. [5]

(b) What do you mean by virus in computers ? List out various types of virus in detail. [2½]

UNIT - IV

8. Discuss the role of memory in computers. Draw the memory hierarchy diagram and explain each memory available in computer in detail. [7½]

9. Write short notes on : [7½]

   (a) Biastable multivibrators

   (b) D flip-flop

   (c) De-Morgan's theorems

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