

PGDCSA Sem-1 Examination

Fundamentals of Compu & Office Auto Tool

Time : 3-00 Hours]

March 2022

[Max. Marks : 50

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- Note :** (1) Write both the sections in the separate answer books
 (2) Figures to the right indicate full marks.
 (3) Make necessary assumptions wherever necessary.

SECTION-I

- Q.1 Attempt the following [9]
 (a) Describe Cache memory
 (b) Divide in binary number system : $(137)_{10}/(8)_{10}$
 (c) Subtraction using r's & (r-1) 's Complement
 $(1212.22)_4 - (221.1)_4$
- Q.2 Answer the following [8]
 (a) $(97.5)_{10} = ()_3, ()_4, ()_5, ()_8, ()_{12}$
 (b) Explain NAND, NOR and XOR gate with their respective truth tables.
 OR
 (a) Prepare a table of combinations and draw the gate diagram for the following Boolean algebra expressions : $X' Y' Z' + X Y' Z' + X' Y Z'$
 (b) What is Multiplexer? Explain in detail.
- Q3 Answer the following [8]
 (a) Perform Subtraction using 16's Complement : $(FA.A3)_{16} - (AB2.5)_{16}$
 (b) Explain memory hierarchy in detail.
 OR
 (a) Explain basic components of Digital Computer.
 (b) Define Operating System. What is the use of OS?

SECTION-II

- Q4 Write short note on the following [9]
 (a) Express 36.5625 base 10 as a 32-bit floating point number(in hexadecimal)
 (b) Perform the following subtractions of binary numbers, using both 1s and 2s complements i) 1010-1011 ii) 11011 - 11001
 Draw a memory map for a system with a capacity of 2 GB. Assume the system has three 32 MB memory modules residing consecutively at the bottom of memory. Illustrate the size of each block in MB and the starting and ending address of each block of memory in hexadecimal.
- Q.5 Answer the following [8]
 (a) Explain RS Flip Flop.
 (b) Define the term : Radix, ACC, PC , IR
 OR
 (a) How many bits of memory are contained in a memory unit with 2MB of memory?

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- Q.6
- (b) Prepare a table of combinations and draw the gate diagram for the following Boolean algebra expressions : $A' B' + A' B C'$
- Answer the following [8]
- (a) $(0234)_5 + (1234)_5$
- (b) Explain half adder and full adder in detail
- OR**
- (a) What is the use of Buses? Explain in detail
- (b) A system with a memory capacity of 128 GB has four 32 MB memory modules installed consecutively at the bottom of memory. The rest of the memory is unused. How much memory space is available for future expansion? (Give your answer in decimal in megabytes.)
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