2710

Code : 20CS11T

Register Number

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I Semester Diploma Examination, March/April-2022

FOC

Time : 3 Hours] **[Max. Marks : 100**

Instruction : Answer **one** full question from each section. **One** full question carries **20** marks.

SECTION – I

1. (a) Explain different types of number systems. **10**

   (b) Convert the following **5**

   (i) $(111011)_2 \rightarrow (\ )_{10}$

   (ii) $(246)_{10} \rightarrow (\ )_2$

   (iii) $(4BA)_{16} \rightarrow (\ )_{10}$

   (iv) $(101101101)_2 \rightarrow (\ )_{16}$

   (v) $(564)_8 \rightarrow (\ )_2$

   (c) Write the ASCII code for the following word 'Welcome'. **5**

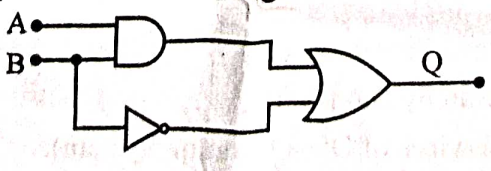
   (**Hint** : A = 65 & Z = 90)

2. (a) Which gate is used to implement the following concept & write the logic symbol & truth table.

   - If a person presses switch C, m/c should dispense coffee. If a person presses switch T, m/c should dispense Tea. If a person presses both switches it should dispense nothing, C1 = pressed, 0 – Not pressed. **7**

   (b) Design a suitable logic ckt that has 3 i/p's A. B & C and whose o/p will be high only when a majority of the i/p's are high. **8**

   (c) Analyse the o/p of the following logic ckt & write TT & boolean expn. **5**



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SECTION – II

3. (a) State and prove Demorgan's I theorem. 5

(b) Describe half-subtractor with logic diagram and truth table. 8

(c) Which combinational ckt is used to check whether the 2 binary nos. are equal ? Explain the act ? 7

4. (a) List the Boolean laws & rules. 5

(b) Describe 1 to 4 Demultiplexer. 8

(c) When 2 i/p's of an SR flip-flop is set to high, the o/p is invalid, explain how this problem is resolved. 7

SECTION - III

5. (a) Construct 4 – bit SISO shift register. 10

(b) Classify computers according to purpose. 7

(c) List different types of system Softwares. 3

6. (a) Construct 4-bit asynchronous counter with logic circuit and truth table. 10

(b) Explain application layer protocols. 7

(c) List different types of computer hardware components. 3

SECTION - IV

7. (a) In distribution data processing, how data is arranged & processed ? 5

(b) Explain functional units of computer with neat block diagram. 10

(c) Classify the following memory as Primary/Secondary : 5

(i) ROM

(ii) SRAM

(iii) DRAM

(iv) HDD

(v) CD-R

(vi) DVD

8. (a) Explain any 2 cyber securities threats. 5

(b) Draw the memory hierarchy and label it. 5

(c) List and explain the services of OS (Operating System). 10

SECTION – V

9. (a) Differentiate b/w Bios and UEFT. 5

(b) Explain high level language. 5

(c) Raj has to reach his college at 9.00 am. If he leaves his house before 8.00 am, he will go by walk, otherwise he takes a bus. Draw a flow chart for this given scenario, to output how to travel. 6

(d) Explain different types of constants. 4

10. (a) Discuss the characteristics algorithms. 6

(b) Write an algorithm to generate the following series : 9

1, 2, 4, 7, 11, 16, 12, 29.....

(c) Match the applications with following OS : 5

Application	Operating System
1. Air bag in car	A. Mobile OS
2. Weather forecasting	B. Hard real time
3. Banking	C. Soft real time
4. Android	D. Network OS
5. Peer to peer	E. Distribution OS
