Code: CSCC 14

Roll No 17 MCA 026

MCA (SEM-I) EXAMINATIONS - 2017

Mathematical Foundations of Computer Science, Matlab. and Mathematica

Time: 2 Hours **Max Marks: 75**

- *Write your Roll No. on the top immediately on receipt of the question paper.*
- *Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.*

1. Attempt any TWO of the following questions.

(a) Differentiate between any three of the following, with the help of example(s):

i) Set and multi set
ii) Set difference and symmetric difference of two sets
iii) Equal sets and equivalent sets
iv) Subset and proper subset of a set

(b) Let X = {1, 2, 3, 4}. If
R={<x, y>| x and y belong to X and ((x-y) is an integral nonzero multiple of 2)}
S={<x, y>| x and y belong to X and ((x-y) is an integral nonzero multiple of 3)}
Determine R ∪ S and R ∩ S.

(c) Define the relations and functions. Also describe the various operations which can be performed on them, with the help of example.

2. Attempt any TWO of the following questions.

(a) Define and explain the equivalence classes and partitions of a set. Give at least one example of each.

(b) Let A = {2, 7, 14, 28, 56, 84} and a ≤ b if and only if a divides b, then determine the Hasse diagram, maximal element, and minimal element.

(c) Define precisely, the closure of a relation. Explain how a specific kind of closure is determined.

3. Attempt any TWO of the following questions.

(a) Write the following statements in symbolic form:

i) Mark is poor but happy
ii) Mark is rich or unhappy
iii) Mark is neither poor nor happy
iv) Mark is poor or he is rich and unhappy

(b) Define the normal forms and duals and
i) Obtain the duals of ¬P(P∨Q)∧(P∨¬(Q∧S))
ii) Obtain the principal disjunctive and conjunctive normal forms of (Q→P)∧(¬P∧Q)

(c) Consider the following statements:
All men are selfish

All kings are men
Prove by the inference theory of logic that all kings are selfish.

4. Attempt any TWO of the following questions.

(a) Find the minimum number of students needed to guarantee that five of them belong to the same class (Freshman, Sophomore, Junior, Senior, Martin).

(b) What are the properties of a binomial expansion and binomial coefficients? Write the formula for generating the Pascal triangle.

(c) Attempt any two the following:

i) Find the number of ways to seat 5 boys in a row of 12 chairs.
ii) In a test paper there are 12 true false questions. In how many different ways can a student mark the test paper with one answer to each question?
iii) Inclusion and exclusion principle.

5. Attempt any TWO of the following questions.

(a) What do you mean by the graphs? Discuss the graph applications in real life.

(b) Define the spanning trees? Which algorithms are used to convert a graph into a spanning tree? Obtain all the spanning trees of the following graph:

(c) Write short notes on any two of the following:
i) Euler and Hamiltonian paths along with applications
ii) Isomorphism of the graphs.
iii) Shortest and longest paths

CSCC15 Roll No. 17MCA26

MCA (SEM-I) EXAMINATIONS 2017

Professional and Business Communication

Time: 2 Hours **Max Marks: 75**

- *Write your Roll No. On the top immediately on receipt of the question paper.*
- *Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.*

1.
   a. What do you understand by 'Business Communication'? Discuss various elements of business communication process.
   b. Discuss how various kinds of barriers hinder effective business communication. Give examples.
   c. Explain basic types of business communication. How informal communication network supports formal communication network in an organization?

2.
   a. Discuss various kinds of business letters explaining importance of each.
   b. Classify report on basis of functions, size and style. Outline a format of a detailed report.
   c. What major parts of presentation you need to consider while preparing for a business presentation? Provide description of various types of visual aids that support effective presentation.

3.
   a. What do you mean by 'Non Verbal Communication'? How various components of voice are used while communicating through paralanguage?
   b. Explain Kinesics. Discuss how and what kind of messages one communicates with kinesics using various parts of body. Support your answer with examples.
   c. Provide a list of Do's and Don'ts which you will consider while preparing for an employment interview.

4.
   a. Explain the term 'Integrated Marketing Communication'. Give reasons for its growing importance.
   b. What is 'Corporate Communication'? Discuss various tools of effective corporate communication.
   c. Examine how various components of Integrated Marketing Communication build and manage brands.

5.
   a. Explain International Communication. Which skills you need to adapt while handling cross cultural negotiation?
   b. What do you mean by collective bargaining? Explain the process of collective bargaining.
   c. Write a note on Crisis Communication.

Code: CSCC16 Roll No. 17-MCA-026

MCA (SEM I) EXAMINATIONS - 2016

CSCC16: Principles of Management and Organizational Behaviour

Time: 2 Hours **Max Marks: 75**

- *Write your Roll No. on the top immediately on receipt of the question paper.*
- *Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.*

1. (a) Discuss the Meaning, nature and characteristics of management using examples.
   (b) Explain briefly Scientific management principles. What ways they are different with Henry Fayol's principles of management
   (c) Which theory of management is the most appropriate to apply in today's organization? Justify your answer.
2. (a) What is total quality management? Give its principles.
   (b) What is organizational effectiveness, what is McKinsey 7 model to achieve organizational effectiveness?
   (c) How the concept of Time Management as discussed by Stephen Covey can be useful for technology student. Rationalize your answer.
3. (a) What is organizational Behavior? Why it is necessary to have knowledge about organizational behavior for a manager.
   (b) Discuss different concepts of organizational behavior stating their advantages and disadvantages.
   (c) Discuss the concept of Learning. Write a note on learning reinforcement.
4. (a) "Professional are those who do not mix professionalism with emotion"- Do emotions have any role in the workplace- Discuss the issue.
   (b) What is attitude? Discuss the functions and importance of attitude in an organization?
   (c) What is Motivation? Critically examine the Maslow's need hierarchy theory of motivation.
5. (a) What are the different aspects of business environment which is important to study from an IT company?
   (b) What is SWOT analysis? Which type of environment is analyzed through PEST analysis?
   (c) What is corporate strategy? What is the component of corporate Strategy?

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Code: CSCC16

Roll No. 17MCA026

MCA (SEM I) EXAMINATIONS - 2016

CSCC16: Principles of Management and Organizational Behaviour

Time: 2 Hours **Max Marks: 75**

- *Write your Roll No. on the top immediately on receipt of the question paper.*
- *Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.*

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Code CBSE12 Roll No...17MCA026

MCA (SEM-1) Examinations, 2017

Problem Solving and Programming in C

Time: 2 Hours Max Marks: 75

- *Write your Roll No. on the top immediately on receipt of the question paper.*
- *Attempt ALL questions by selecting any TWO parts. All questions carry equal marks.*

1. (a) What do you mean by algorithm? What should be the characteristics mof a good alogorithm? Write an algorithm to generate the Fibonacci Series upto N terms.

   (b) What do you mean by precedence and associativity of operators? Discuss the associativity of arithmetic and logical operators through examples.

   (c) What is the range of various data types? Discuss the primary data types in detail.

2. (a) What are the different types of looping statements available in C? Distinguish between while and do while loops with a suitable example.

   (b) Find and explain output of the following piece of codes:

   i) void main ( ) { int fun (int); int i = fun(10); printf("%d\n", – –i); } int fun(int i) { return(i ++); }

   ii)void main( ) { int i = 4, j = – 1, k = 0, w, x, y, z; w = i || j || k; x = i && j && k; y = i || j && k; z = i && j || k; printf("%d %d %d %d\n", w, x, y, z); }

   (c) Explain the role of *break* and *continue* statements in a loop through suitable examples.

3. (a) Distinguish between Call-by value and Call-by-reference with an example. Can a function in C return multiple values of different types? Explain.

   (b) Explain the *auto, static* and *external* storage classes of C language with suitable examples.

   (c) Write a Program in C using functions to carry out the following tasks:

   i. To find the sum of two given matrices
   ii. To find the product of two given matrces

4. (a) What are the advantages of pointers over arrays? Write a function in C to concatenate two given strings being passed as parameters using pointers.

   (b) Explain and give the output for the following piece of codes.

   (i)
   ```
   int main()  { char *str= "MALYALAM";
   for (int i= strlen(str)-2; i>2; i--) printf("%c". *(str+i)); return 0;}
   ```

   (ii)
   ```
   int power(int **ptr) { int b;
   b = **ptr * **ptr; return b;}
   int main() { int a=5,*aa; aa = &a;
   a = power(&aa); printf("%d\n",a); return 0; }
   ```

   (c) How is memory allocated dynamically? Write a program to create an array of integers of size N at run-time and find the largest and smallest values stored in it.

5. (a) Define s structure data type *TimeStruct* containing 3 members (fields) called hour, minute and second. Write a program that would assign values to the individual members (fields) and display the time in the form 16:40:30.

   (b) Distinguish between Structure and Union through a suitable example. Write a program to accept 100 records of employees. The structure contains name, age and basic salary as fields. Also calculate total salary of each employee as total salary = Basic + D.A. + HRA where DA is 10% of Basic and HRA is 5% of Basic. Display name, age and total salary of employees in descending order on the basis of their total salary.

   (c) Distinguish between Text and Binary Files? Write a program to count and display total number of alphabets, numeric characters, special characters, number of words and number of lines in a file.

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Code: CSCC13 Roll No 17MCA026

MCA (SEM-I) EXAMINATIONS - 2017
Digital Logic and Computer Design

Time: 2 Hours Max Marks: 75

- *Write your Roll No. on the top immediately on receipt of the question paper.*
- *Attempt all questions. Choices are given in each question set. Marks are indicated against each question.*

1. Attempt any TWO of the following questions. 2x7.5=15

(a) (i) if $(85)_{10}=(221)_x$ then find the value of x.
(ii) Convert $(23)_6$ to base 8, base 9, and base 12.

(b) Represent -2.35 in 16 bit binary floating-point representation. Perform the subtraction with the following binary numbers using (1) 2's complement and (2) 1's complement. Check the answer by straight subtraction.
(i) $(A32)_{16}-(12)_8$ (ii) 21+ (-18)

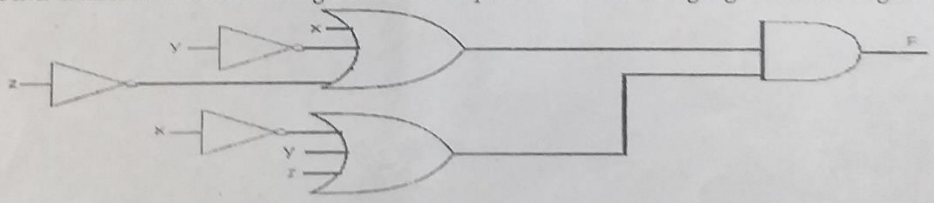
(c) Find the error position as well as correct it in the receiving message 10101101, the odd parity method is used

2. Attempt any TWO of the following questions. 2x7.5=15

(a) Why Boolean algebra is used in circuit design? Find Boolean function for F1 and F2 from the given truth table.

x	y	z	F1	F2
0	0	0	1	0
0	0	1	0	1
1	0	0	1	1
1	0	1	0	1
1	1	0	1	0
1	1	1	1	1

(b) Prove x+x=x and x.x=x without using truth table. Implement the following logic circuit using NAND gates.



(c) Simplify the following Boolean functions to a minimum numbers of literals.
(i) xy+xy'+x'y'
(ii) (x+y)(x+y')(x'+y')

3. Attempt any TWO of the following questions. 2x7.5=15

(a) Simplify the following Boolean function using K-map:
$F(x, y z, w)=\sum(0, 1, 4,5, 7,8,9) + \sum^d (6,10,11)$

(b) Simplify the following Boolean function using K-map:
$F(a,b,c,d)=\prod(0,2,3,5,6,7,8) + \prod^d (1,4,9)$

(c) Simplify the following Boolean function using K-Map
(i) $F(x,y,x)=(x'+y+z)(x+y+z)(x'+y)$
(ii) $F(x, y,z)=(x+y+z')(x'+y+z)(x+z')$

4. Attempt any TWO of the following questions 2x7.5=15

(a) What is full Subtractor? Implement the following Boolean function with 8 x 1 multiplexer
$f(x, y, z, w) =\sum(1, 2,3,5,7,8,11)$

(b) What is decoder? A BCD-to seven segment decoder is a combinational circuit that converts a decimal digit in BCD to an appropriate code for the selection of segments in a display indicator used for displaying the decimal digit in a familiar form. The seven outputs of the decoder (a, b, c, d, e, f, g) select the corresponding segments in the display, as shown in Figure 3a. The numeric display chosen to represent the decimal digit is shown Figure 3b. Design this decoder using a minimum number of gates. The six invalid combinations should result in a blank display.

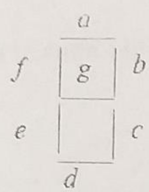


Figure 3 a

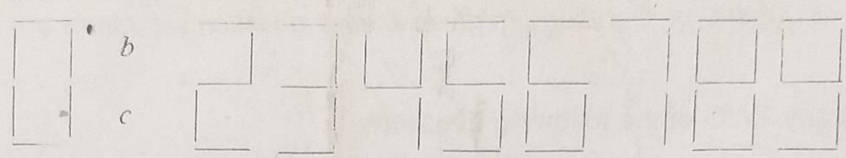


Figure 3 b

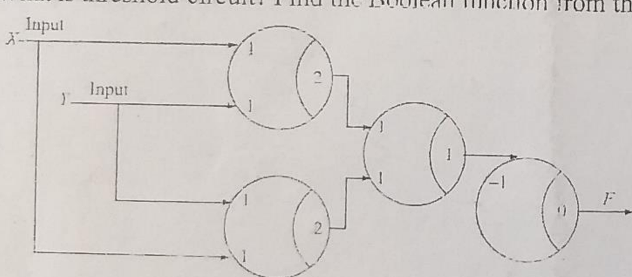
(c) Design a combinational circuit covert decimal digit in BCD to Excess-3 code.

5. Attempt any TWOI of the following questions **2x7.5=15**

(a) What is flip flop? Design a sequential circuit with four flip flops x,y,z and w. The next states of x and y re z+w and z.w, respectively, and the next states of z and w are y and y+x, respectively.

(b) What is counter? Design counter count the following sequence using T type flip flop.
1, 3, 5, 6, 8, 9

(c) What is threshold circuit? Find the Boolean function from the following threshold logic circuit.



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