Code: 55801 / Progarmming with C

Hours)   [Total Marks : 100]

N.B. :   1) Question No.1 is **compulsory.**
              2) Attempt any **four** from the remaining **six** questions.
              3) Figures to the right indicate full marks.
              4) If required, illustrate with the help of example

1. (a) What is Storage Class? Explain Types of Storage Class.   (10)

    (b) Explain flowchart with a suitable example.   (10)

2. (a) What are functions? Write a program in c to demonstrate passing   (10)
         of arrays to a function.
    (b) Differentiate between typedef and #define. Also explain typedef   (10)
         with the help of example.

3. (a) Explain preprocessor in C. List out any five preprocessor in detail   (10)
         with example.
    (b) Explain arrays and multidimensional arrays. Write a program to   (10)
         add two matrices.

4. (a) Explain break and continue statements with an example in c.   (10)
    (b) What is Recursion? Write a program using recursive function to   (10)
         print sum of digits of a given number.

5. (a) Write a program Reading and Writing to File using fprintf() and   (10)
         fscanf().

    (b) With the help of example program in c explain gets() & puts() .   (10)

6. (a) Explain pointer Arithmetic in detail.   (10)
    (b) Explain nested loops, while and do-while control statements.   (10)

7. Write Short Notes on *any four* :-   (20)
    a. Library function
    b. conditional operators
    c. Symbolic constants
    d. Function prototype
    e. Operations on string

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Subject Code: 55802 / System Analysis Design

(3 Hours) [Total Marks: 100]

N.B.: (1) Question **no. 1** is **compulsory**
    (2) Answer any **four** of the remaining **six** questions
    (3) **All** questions carry **equal** marks

1. (a) Draw DFD for the Student Evaluation System. Make your own assumption about the
    system   10
  (b) Explain different Fact finding techniques   10

2. (a) Explain SRS in detail with an example   10
  (b) Explain the different levels of Data Flow diagrams   10

3. (a) Describe the prototype model in details   10
  (b)Compare Top Down and Bottom Up approach in software testing   10

4. (a) Explain software development life cycle in brief   10
  (b) Draw ER diagram for car insurance company.   10

5. (a) State the role of system analyst   10
  (b) Explain extreme programming in detail.   10

6. (a)Compare black box and white box testing methods   10
  (b) Explain the role of System analyst   10

7. Write short notes on (any **four**):-   20
    (a) CASE tools
    (b) Transactional analysis
    (c) Structured walkthroughs
    (d)Data dictionary
    (e) Warnier Orr Diagram.

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**MCA (SEM-I)
COMPUTER ORGANISATION &
ARCHITECTURE
(DEC- 2019)**

(3 Hours)   [Total marks: 100]

Note (1) Q1. is compulsory, attempt **any four** out of remaining six.
(2) All question carry equal marks.
(3) Answer to sub-questions should be grouped together.

Q1.	(a)	What is flip-flop? Explain working of J-K flip –Flop.	5
	(b)	Using K- Map simplify the following Boolean function $F(A, B, C, D)= \sum(0,1,2,3,5,7,8,9,11,14)$	5
	(c)	Explain different states of instruction cycle using suitable diagram.	5
	(d)	Explain Programmed I/O.	5
Q2.	(a)	Compare Micro Programmed & Hardwired control units.	10
	(b)	Explain Multiplexer and Demultiplexer in detail and design 4:1 Multiplexer using basic logic gates and its truth table.	10
Q3.	(a)	Explain different addressing modes.	10
	(b)	Explain the structure and working of a Control Unit.	10
Q4.		Difference the following : (a) RISC vs CISC (b) Methods of bus arbitration (c) Sequential Circuit vs Combinational Circuit (d) SRAM vs DRAM	20
Q5.	(a)	Define Clusters? Explain different clustering methods in detail.	10
	(b)	Define cache memory. Also explain about associative and set associative mapping of cache in details.	10
Q6.	(a)	Explain the concept of symmetric multiprocessors.	10
	(b)	What is RAID? Explain any four RAID levels in detail.	10
Q7.		Write short note on **any four** of the following : (a) Virtual Memory (b) Instruction Pipeline (c) NAND and NOR Gates (d) Bus interconnection (e) Superscalar Instruction issue polices	20

MCA (SEM-I)
DISCRETE MATHEMATICS
(DEC- 2019)

(3 Hours) (Total Marks:100)

N.B (1) Question No1 is compulsory.
  (2) Attempt any four questions out of remaining six questions.
  (3) Assume necessary data but justify the same
  (4) Figures to the right in parenthesis indicate full marks
  (5) Use of scientific calculator is allowed

1. (a) Let A={3,5,9,15,24,45} and relation R be defined on B by $_xR_y$ if **(10)**
    and only if "x divides y". Show that R is a partial order relation
      1. Draw the diagraph and Hasse diagram of R.
      2. Determine all minimal & all maximal elements.
      3. find all least and greatest elements.
      4. Give upper bounds and LUB of A={3,5}
      5. Give all lower bounds and the GLB = {15,45}
  (b) (i) Establish the following result using truth tables. **(05)**
    $(P \rightarrow Q) \wedge (Q \rightarrow R) \rightarrow (P \rightarrow R)$
    (ii) Find Δa_n where $a_n = n^2 + n + 1$ where Δ denotes forward difference. **(05)**
2. (a) (i) Write converse , inverse and contrapositive of the following **(05)**
    statement.
    (ii) "If weather will not be good then I will not travel." **(05)**

    Obtain the disjunctive normal form of $(P \rightarrow Q) \wedge (\neg P \wedge Q)$
  (b) (i) What is the solution of the recurrence relation $a_n = a_{n-1} + 2a_{n-2},$ **(05)**
    with initial condition $a_0 = 2, a_1 = 7$
    (ii) **(05)**
    For the set A = {a,b,c} give all the permutations of A. Show that
    the set of all permutations of A is a group under the composition
    operation.
3. (a) State the "Tower of Hanoi" problem and obtain the corresponding **(10)**
    recurrence relation indicating the initial conditions . Solve the
    recurrence relation.
  (b) (i) Draw the transition state diagram of the finite state machine **(05)**
    M=(S,I,O,δ,λ,s_0) given in the table

	δ		λ	
	a	b	*a*	*b*
S_0	S_1	S_2	x	y
S_1	S_3	S_1	y	z
S_2	S_1	S_0	z	x
S_3	S_0	S_2	z	x

    (ii) Explain with suitable example: (1)Predicate (2)Proposition **(05)**

4. (a) Determine whether the relation R on a set A is reflective **(10)**
    ,irrreflective, asymmetric, antisymmetric or transitive.
        A = set of all positive integers, $_aR_b$iff a≤b+1

  (b) (i) Show by mathematical induction, that for all n ≥1, **(05)**
        1+5+9+---------------+(4n-3) =n(2n-1)

(ii) Let G be a group. Show that the function f:G→G defined by f(a) = a^2 is a homomorphism iff G is abelian. **(05)**

5. (a) (i) Let T be set of even integers. Show that the semigroups (Z,+) and (T,+) are Isomorphic, where Z is a set of integers. **(05)**

(ii) For the grammar specified below describe precisely the language,L(G),produced. Also give the corresponding syntax diagram for the productions of the grammar. G=(V,S,v_0,|→)
V = {v_0,a,b},S = {a,b}
v_0|→aav_0 , v_0|→ a, v_0|→b **(05)**

(b) Find the particular solution of $a_r+5a_{r-1}+6a_{r-2}=3r^2$. **(10)**

6. (a) (i) Let A={1,2,3,4}. For the relation R ={(1,1),(1,4),(2,2),(3,3),(2,1),(4,4)} find the matrix of transitive closure by using Warshall's algorithm. **(05)**

(ii) Let G be a group and let 'a' be a fixed element of G. show that the function f_a:G→G defined by $f_a(x)=axa^{-1}$ for x∈G is an isomorphism. **(05)**

(b) (i) Determine the validity of the following argument using deduction method:
" If I study then I will pass examination . If I do not go to picnic ,then I will study. But I failed examination. Therefore , I went to picnic" **(05)**

(ii) Let $H = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ be a parity check matrix. **(05)**

Determine the group code e_H: B^2-->B^5. How many errors will the above group code detect.

7. (a) Perform the following **(10)**
       i) 0111×1010= ?
      ii) $(413)_8 = (?)_{10}$
      iii) $10100 \div 100$= ?
      iv) $(1101)_2 - (1001)_2$ = ?
      v) $(49.25)_{10} = (?)_2$

(b) Show that (2,5) encoding function e:B^2--> B^5 defined by e(00)=00000,e(01)=01110,e(10)=10101, e(11)=11011 is a group code. **(10)**
Decode the following words with maximum likelihood technique:
i)11110   ii)10011

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ect Code: 55805 / Principles of Economics and Managerial

Q.P. Code : 19778

[Time : 3 hours]   [Marks : 100]

N.B. 1) Question No. 1 is compulsory
   2) Attempt any four from the remaining Questions No. 2 to No. 7.
   3) Illustrate answers with proper example wherever necessary.

Q 1. a) Define Managerial Economics.Explain its scope and use in detail.   **10**

   b) Explain the main contributions of Henry Fayol.   **10**

Q 2. a) Discuss the various economics of scale in detail.   **10**

   b) Explain Maslow's theory of Motivation with diagram and examples.   **10**

Q 3. a) State and explain the law of demand? What are its exceptions?   **10**

   b) Define Planning.Explain the steps involved in planning process.   **10**

Q 4. a) Explain the concept of break-even point and point out its assumptions.   **10**

   b) "Decision Making is the primary task of the Management".Explain the statement indicating the importance of decision making.   **10**

Q 5. a) Identify the main functions of Management.Describe each function with examples   **10**

   b) Explain Product Life Cycle in detail.   **10**

Q 6. a) Discuss the main features of Perfect Compeition and Monopolistic Competition.   **10**

   b) Define Performance Appraisal.Describe any 2 modern and any 2 traditional techniques of appraisal.   **10**

Q 7   Write short notes on: (any four)   **20**

   a) HRM
   b) Discounting Principle
   c) Marketing Mix
   d) Theory X and Theory Y
   e) Principle of Increment
   f) Decentralization and Delegation of Authority

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**MCA (SEM-I)
INTRODUCTION TO
WEB TECHNOLOGY
(DEC- 2019)**

[Total Marks :100]

N.B (1) Question **No.1** is **compulsory.**
(2) Answer any **four** questions from Question Nos. **2 to 7.**
(3) Figures to the right indicate full marks.

1. Attempt **any FOUR** questions **(20)**
   a) Frameset
   b) Math Object in JavaScript
   c) HTML forms
   d) HTML vs. DHTML
   e) <TABLE> tag

2. (a) Explain types of lists in HTML with a suitable example. **(10)**
   (b) Explain Date Object in JavaScript with at least five methods. **(10)**

3. (a) Using form controls create a course registration form. **(10)**
   (b) What are Cookies? Explain with an example, advantage of cookies. **(10)**

4. (a) Write a recursive function in JavaScript to print the Fibonacci series. **(10)**
   (b) Explain the differences between application object & session object in ASP. **(10)**

5. (a) What is CSS? Explain different types of CSS with example. **(10)**
   (b) Explain different types of website with suitable example. **(10)**

6. (a) Explain Request and Response object used in ASP. **(10)**
   (b) Explain Block level Tags and Text level Tags **(10)**

7. (a) Explain Array as Object in JavaScript with at least four methods. **(10)**
   (b) Differentiate between **(10)**
      i) GET and POST method
      ii) Client side scripting and server side scripting

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