MCA - I (Old) 17/12/12
Programming with C

Con. 10410-12. **AB–5986**

(3 Hours) **[Total Marks : 100**

N.B.: (1) Question No. **1** is **compulsory**.
(2) Illustrate with figures where **required**.
(3) Answer **four** from remaining **six** questions.
(4) **All** questions carry **equal** marks.

1. (a) Write a function that will scan a character string passed as an argument and convert all upper case characters to their lower case equivalent. 10
(b) Discuss the concept of scope and storage classes in C. Explain in detail the various storage classes available in C. 10

2. (a) Write a program to print the pattern 10

```
*
*  *
*  *  *
*  *  *  *
*  *  *  *  *
```

(b) Summarize the Bitwise operators available in C. Give appropriate examples to illustrate the use of each operator. 10

3. (a) What is a Union ? State the applications. Give two examples. 10
(b) Write a program to read a text file and print the number of words in that file. 10

4. (a) Write a program to convert a binary number into a decimal number. 10
(b) Explain the following with suitable examples : 10
(i) for Loop **(ii)** do-While Loop.

5. (a) Write a program to declare a void pointer. Assign addresses of int, float, char variables to the void pointer using type casting Display the contents of the various variables. 10
(b) Write short notes on :— 10
(i) Symbolic constants (ii) Function pointer.

6. (a) Explain the concept of a structure with a suitable example. 10
(b) Write a C program which accepts a string and converts it as below. 10

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AMAR DNA AITS

7. Differentiate between :— 20
(a) Break and continue
(b) Enumerations and typedef
(c) Iteration and Recursion
(d) Actual parameters and formal parameters.

MCA- I (Old) 19/12/12
SAD. (System Analysis & Design)

Con. 10414-12. (OLD COURSE) AB–5989

(3 Hours) [Total Marks : 100

N.B.: (1) Question No. **1 is compulsory**.
(2) Attempt any **four** questions from Question Nos.2 to 7.
(3) Illustrate answers with sketches wherever **required**.

1. (a) Build a Student Registration System. Draw CLD, DFD, ER diagram and data dictionary of 2 process, 2 flows and 2 data stores. **10**
(b) Explain RAD and Spiral model. **10**

2. (a) Why Normalization is used in database ? Explain it with example. **10**
(b) What is structured walkthrough ? How does the users involve in this activity ? **10**

3. (a) What are the various fact finding techniques ? What are the advantages and disadvantages of conducting an interview ? **10**
(b) Explain the concept of decision table and decision tree with example. **10**

4. (a) Explain the cost benefit analysis. How is it Categorised ? **10**
(b) Explain the concept of Input and Output design. **10**

5. (a) Explain the different activities of implementation. How does it differ from conversion ? **10**
(b) Compare and constrast the test strategies for conventional software and object oriented software. **10**

6. (a) What are CASE tools ? Also explain its classification and functionality of components. **10**
(b) What are the types of coupling and cohesion. **10**

7. Write short notes on any **four** :— **20**
(a) Role of System Analyst
(b) Questionnaire
(c) Structured English
(d) Warnier / orr diagram
(e) SDLC
(f) HIPO chart.

MCA - Sem - I (old) 21/12/12
Computer organization & Architecuters.

ws-Con-2012

Con. 10418–12. **(OLD COURSE)** **AB–5992**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from Question Nos. **2** to **7**.

Q.1.

(A) Explain full adder with circuit diagram and truth table. 5
(B) Differentiate between sequential and combinational circuits. 5
(C) Simplify the following expression using k-map and draw the circuit diagram using NAND gates for the reduced equation.
$F(W,X,Y,Z)=\sum m(0,2,4,8,9,10,11,12,13)$ 5
(D) What is multiplexer? Draw the block diagram of 8:1 MUX. 5

Q.2

(A) Discuss different mapping functions of cache memory with suitable diagrams. 10
(B) Explain system bus. Write the different methods of bus arbitration. 10

Q.3

(A) Explain data flow in fetch cycle, indirect cycle and interrupt cycle. 10
(B) Compare 10
(i) SRAM and DRAM
(ii) RISC and CISC

Q.4

(A) Explain different superscalar instruction issue policies. 10
(B) Explain Programmed I/O and Interrupt driven I/O. 10

Q.5

(A) List and explain different addressing modes with suitable diagrams. 10
(B) Write a note on six stages of instruction pipeline and the effect of branch statement on the same. 10

Q.6

(A) Explain Flynn's classification with suitable diagrams. 10
(B) Discuss the basic functionality of control unit. Explain the micro programmed control unit. 10

Q.7

(A) Discuss in detail the various levels of RAID. 10
(B) Explain the working of J-K flip flop with its working, truth table and circuit diagram. 10

MCA- I (Old) 24/12/12
Discrete mathematics.

Con. 8893-12. **AB–4317**

(3 Hours) **[Total Marks : 100**

N.B.: (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions from remaining **six** questions.
(3) Assume any **necessary** data but justify the **same**.
(4) **Figures to right** indicate marks.

1. (a) (i) Obtain the disjunctive normal form of : 5
$(P \rightarrow Q) \wedge (\neg P \wedge Q)$.

(ii) Let A = {1, 2, 3, 4} and let R = {(1, 1), (1, 2), (2, 1), (2, 2), (3, 4), (4, 3), (3, 3), (4, 4). Verify that R is an equivalence relation. Determine A/R. 5

(b) (i) Determine whether the set S = {1, 2, 3, 6, 12} with a * b = G.C.D. (a, b) is a semigroup, a monoid or neither. If it is a monoid, specify the density. If it is a semigroup or monoid determine whether it is commutative. 5

(ii) The solution of the recurrence relation $C_0 a_n + C_1 a_{n-1} + C_2 a_{n-2} = f(n)$ is $2^n + 3^n + 5$. Given that f(n) = 40, for all n. Determine C_0, C_1, C_2. 5

2. (a) (i) Determine whether the following statement is a tantology, contradiction or neither 5
$(P \rightarrow (Q \rightarrow R)) \wedge \neg ((P \rightarrow Q) \rightarrow (P \rightarrow R))$.

(ii) What are quantifiers. Explain with suitable examples.

(b) Let A = {1, 2, 3, 5, 6, 10, 15, 30}. Consider the relation R on A as aRb iff 'a divides b'. Show that R is partial order relation. Draw the Hasse diagram of the poset (A,R). 10

3. (a) (i) Using mathematical induction prove that $1 + 3 + 5 + \ldots + (2n - 1) = n^2$ for all $n \geq 1$. 5

(ii) Test the validity of the following arguments. If milk is black then every crow is white. If every crow is white then it has four legs. If every crow has four legs then every buffalo is white and brisk. The milk is black. So every buffalo is white. 5

(b) (i) Explain with suitable example :— 5
(1) Predicate
(2) Proposition.

(ii) Solve the solution of the recurrence relation $a_n = 6\, a_{n-1} - 9\, a_{n-2}$ with initial condition $a_0 = 1$, $a_1 = 6$. 5

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4. (a) (i) Find the particular solution of : $a_n - 2a_{n-1} = 3 \times 2^n$. 5

(ii) Show that $a_{n+2} = a_n + 2\,\Delta a_n + \Delta^2 a_n$, where Δ denotes forward difference. 5

(b) Give the recurrence relation for the following sequence $\{a_n\}$ indicating the suitable initial condition (s). 10

1, 1, 2, 3, 5, 8, ...

Solve the recurrence relation obtained.

5. (a) (i) Let a be a group of real numbers under addition, and let G' be the group of positive numbers under multiplication. Let f : G → G' be defined by $f(x) = e^x$. Show that f is an isomorphism from G to G'. 5

(ii) For the cyclic group of order 8 with generator a, find the quotient group corresponding to the subgroup generated by a^4. 5

(b) (i) Show that (2, 5) encoding function defined by 5

e (00) = 00000 e (01) = 01110

e (10) = 10101, e(11) = 11011 is a group code.

(ii) Consider the group code defined by e : $B^2 \rightarrow B^5$ 5

such that e (00) = 00000, e(01) = 01110, e (10) = 10101,

e (11) = 11011. decode the word 11110 relative to maximum likelihood decoding function.

6. (a) (i) Consider the (2, 4) encoding function e as follows. 5

e(00) = 0000 e(01) = 0110 e(10) = 1011 e(11) = 1100.

How many errors will e detect ?

(ii) Let $H = \begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ be a parity check matrix. 5

Determine the corresponding (3, 6) group code $e_H = B^3 \rightarrow B^6$.

(b) (i) For the grammar specified below describe precisely the language, L(G), produced. Also give the BNF and corresponding syntax diagram for the production of the grammer. **5**

$G = \{v, S, v_0 \mapsto)$

$V = \{v_0, v_1, x, y, z\}$. $S = \{x, y, z\}$

$v_0 \mapsto X\, v_0$

$v_0 \mapsto y v_1$

$v_1 \mapsto y v_1$

$v_1 \mapsto z$

(ii) Let the transition table for a finite state machine be **5**

	0	1	
S_0	S_0	S_1	
S_1	S_1	S_2	
S_2	S_2	S_3	
S_3	S_3	S_0	

List values of the transition function f_w for w = 11100.

7. (a) (i) Determine whether the relation R on a set A is reflective, irreflective, symmetric, asymmetric, antisymmetric or transitive. Give necessary explanation to your answer : **10**

A = set of integer, aRb if and only if $|a - b| = 5$.

(b) Perform the following :— **10**

(i) $(52{\cdot}125)_{10} = (?)$

(ii) $(124)_8 = (?)_{10}$

(iii) $(5\ C9)_{16} = (?)_{10}$

(iv) $(11{\cdot}11)_2 \times (10{\cdot}10)_2 = (?)_2$

(v) $(11001)_2 \div (101)_2 = (?)_2$.

M.C.A Sem I (old)
Principal of Economics & Management 11chy

27/12/12

83 : 2nd half-12-(m) JP

Con. 10954-12. **(OLD COURSE)** **AB–5998**

(3 Hours) [**Total Marks : 100**

N.B.: (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions from questions No. **2** to **7**.
(3) **Figures** to the **right** indicate **full** marks, assigned to the question.

1. (a) Explain the law of demand and different elasticities of demand. **10**
(b) State and elaborate the main stages of product life cycle and the different promotional policies needed at it **10**

2. (a) Discuss the importance of delegation of authority and decentralisation in an organisation. **10**
(b) What do you mean by MBO's ? Explain its main advantages in modern day management. **10**

3. Critically evaluate Abraham Maslow's theory of hierarchy of needs and enlists the similarities if any with Herzberg's Hygein theory. **20**

4. Explain in detail :— **20**
(a) TQM
(b) Leadership theory
(c) Marketing mix
(d) Taylor's functional organisation.

5. (a) Distinguish between perfect and inperfect competition (market). **10**
(b) Explain the main features of oligopoly market. **10**

6 (a) Explain the different methods of demand forecastings. **10**
(b) Discuss the role and responsibilities in managerial economics. **10**

7. Write short notes :— **20**
(a) Production cost and selling cost
(b) Equilibrium price
(c) BEP
(d) Internal and external economics.

MCA - I (Old) 29/12/12

Introduction to web Technology

Con. 10445-12. (OLD COURSE) AB–6001

(3 Hours) [Total Marks : 100

N.B.: (1) Question No. **1 is compulsory.**
(2) Attempt any **four** out **of** remaining **six** questions.
(3) Answers **to** questions should **be gouped** and written **together**.

1. (a) Write a short note on Web Development Life Cycle. 10
   (b) Write a Javascript **to** find factorial of **a** Number. 10

2. (a) Explain advantages of CSS. Write a program to demonstrate internal and external CSS. 10
   (b) Differentiate between :— 10
      (i) HTML and DHTML
      (ii) Client side form validation and server side form validation.

3. (a) Explain <meta>, <wiv>, <form>, <style> and <table> tag. 10
   (b) Explain features of Javascript. **Write** a program to validate e-mail id and name field on GUI. 10

4. (a) Write a HTML code **to** generate following web page 10

Name :
Age :
State : v
Gender : ○ Male ◉ Female
Educational Details :

Sr. No.	Class	University	Percentage

   (b) Write a HTML code **to** demonstrate types of lists. 10

5. (a) **Write** short note on :— 10
      (i) History and Evolution of web
      (ii) HTML Browsers.
   (b) Explain disadvantages of frameset. Write a code to demonstrate frameset. 10

6. (a) What **is** ASP object Model ? Write a ASP code **to** demonstrate request object. 10
   (b) Explain Data types **in** Javascript. Write a Javascript to demonstrate **it**. 10

7. (a) What are built-in objects of ASP ? Write ASP code to demonstrate response object. **10**

(b) Write short note on :— **10**

(i) Web Publishing

(ii) XHTML.
