

6. (a) The following two data elements are given :

```
int x = 64;
```

```
int y = 36;
```

Write a program in C to apply bit wise AND, XOR, XOR and NOT operations on x , any y and tell what are expected outputs of each operation. **6**

- (b) Write a program in C to display the following output : **9**

```
1
2 2 2
3 3 3 3 3
4 4 4 4 4 4 4
3 3 3 3 3
2 2 2
1
```

Unit IV

7. (a) Write a program to add 2 matrices of size 3×3 . **6**

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M.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

MCA-401

PROBLEM SOLVING &
PROGRAMMING IN C

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

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P.T.O.

Unit I

1. (a) How do you classify various types memories, explain their features and drawback. **7**
- (b) Represent the following decimal numbers in Binary, Octal and hexa decimal system : **6**
 - (i) 512
 - (ii) 20148
- (c) What are application softwares ? **2**
2. (a) What are high and low level language ? How do we map a high level language into low level language ? What is a debugger and how does it work ? **2,2,6**
- (b) What do you mean by control, make a control flow diagram for finding greatest out of n numbers ? **5**

Unit II

3. (a) What is an operating system and what are functions of an operating system ? Also state how a process is created and executed by OS. **5,5**

- (b) What are the format and attributes of the following DOS commands : **5**
 - (i) dir
 - (ii) ren
 - (iii) copy
 - (iv) chkdsk
 - (v) del.
4. (a) What do you mean by Internet ? What is a Domain Name Server (DNS). Explain how this DNA is used while a particular URL is accessed through Internet. **8**
- (b) What is difference between LAN and WAN ? **7**

Unit III

5. (a) What do you mean storage data types ? Explain them by taking examples. **5**
- (b) Write a program in C to multiply two matrix A of size $m \times n$ and B of size $n \times p$. **10**

8. (a) Write a program to create structure to store the name, roll no. (integer), address, phone number, class name of a student and to enter the data of 2-3 students. **6**
- (b) A C program contains the following declaration : **2×3=6**
`int arr [3][2] = {{1, 2}, {3, 4}, {5, 6}};`
What is the meaning of the following :
- (i) `* (arr +2)`
 - (ii) `* (* (arr) + 2)`
 - (iii) `arr`
- (c) Write a program in C to check whether file does exist on a given path. **3**

- (b) Given below is a C program, what will be the output of it ? **6**

```
void main
{
int i=0;
fun (i);
}
void fun (int i)
{
i++;
printf ("\n %d", i);
if (i<10) fun ( );
else return;
}
```

- (c) What will be the value of r in the following code : **3**

```
inti x = 5, y = 10;
int r = ++x+y++;
```

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AA-682

M.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

MCA-403

INTERNET & WEB TECHNOLOGIES

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the concept of www.
(b) Write a short note on Plugins and helper applications.
2. Explain the following HTML tags with suitable examples.
 - (a) tag
 - (b) <TABLE>tag
 - (c) <FRAME>tag.

Unit II

3. What is CSS ? Explain External, Internal and Inline CSS with suitable examples.
4. (a) Discuss Javascript object model.
(b) Write short note on Cookies and hidden fields.

Unit III

5. Discuss various I/O operations on www.

6. How form processing take place using VB script ? Assume any example of form processing using VB Script.

Unit IV

7. Write notes on the following :
 - (a) Differentiate between ASP and JSP
 - (b) Delivering multimedia over the web.
8. What do you mean by Applets and Servelets ? Explain life-cycle of servelets.

Unit IV

7. (a) Solve the recurrence relation $a_r - 7a_{r-1} + 10a_{r+2} = 0$ with the initial conditions $a_0 = 3$ and $a_1 = 3$. **10**
- (b) Explain Isomorphism and Homomorphism with suitable example. **5**
8. Write notes on the following :
- (a) Permutations
- (b) Combination
- (c) AP series
- (d) GP series
- (e) AG series. **5×3=15**

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Roll No.

AA-684

M.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

MCA-405

DISCRETE MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Explain the following terms with suitable example :
 - (a) Power set
 - (b) Classes of set
 - (c) Types of Relations
 - (d) Partial Ordering Relation
 - (e) Finite and Infinite set. **5×3=15**
2. (a) What do you mean by Relation ? Explain the different properties of relation. **8**
(b) What do you mean by Lattices ? Explain in detail. **7**

Unit II

3. What is meant by Eulerian and Hamiltonian circuits ? Draw a graph :
 - (a) Which has an Euler circuit but not a Hamiltonian circuit ?
 - (b) That has an Euler circuit which is also a Hamiltonian circuit. **15**

4. Write notes on the following with suitable example :
 - (a) Homomorphic Graphs
 - (b) Cut points and Bridges
 - (c) Paths and Circuits. **3×5=15**

Unit III

5. Define propositions, tautologies and contradiction. From the following formulae find out tautology, contingency and contradiction :
 - (a) $\neg(A \rightarrow B) \vee (\neg A \vee (A \wedge B))$
 - (b) $(H \rightarrow (I \wedge J)) \rightarrow \neg(H \rightarrow I)$
 - (c) $(P \leftrightarrow Q) \cong (P \wedge Q) \vee (\neg P \wedge Q)$ **15**
6. Explain the following :
 - (a) Rings
 - (b) Cosets
 - (c) Cyclic Group
 - (d) Automorphism in Groups
 - (e) Groups. **5×3=15**

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AA-685

M.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

DIGITAL ELECTRONICS

MCA-407

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. (a) Prove that NOR gate is a universal gate.

7.5

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- (b) What is advantage of coding ? How the hamming distance is calculated ? Give the significance of Hamming distance.

7.5

2. (a) Solve the following Boolean expression with the help of KM method :

7.5

$$f(A, B, C, D) = \Pi(0, 1, 2, 3, 5, 7, 11, 13)$$

- (b) Solve the following Boolean expression with the help of KM method :

7.5

$$f(A, B, C, D) = \Pi(0, 1, 2, 3, 5, 7, 11, 13)$$

$$+ d(6, 9)$$

Unit II

3. Realize the given Boolean expression with the help of a 1 : 8 De-Multiplexer :

7.5,7.5

$$f(A, B, C, D) = \Sigma(0, 1, 2, 3, 5, 7, 11, 13)$$

$$+ d(9, 12)$$

4. (a) Design a modulo-10 Asynchronous counter.

7.5

- (b) Explain the need and working of master-slave flip-flop.

7.5

Unit III

5. (a) Explain the working of basic ECL gate.

7.5

- (b) Explain the advantages of CMOS over other competing logic families.

7.5

6. (a) How memory is organized ?

7.5

- (b) Give detailed classification of semiconductor memories.

7.5

Unit IV

7. (a) Give the specifications of DAC.

7.5

- (b) Explain the working of dual slop ADC.

7.5

8. (a) Give the difference between PLA and PAL with example.

7.5

- (b) Write a short note on CPLD.

7.5

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M.C.A. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

HUM-507-B

COMMUNICATION SKILLS

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt all questions.

Unit I

1. Write an e-Mail to the Director/General Manager of a multi-national company for fixing business meeting. **20**

Or

Write a letter to the Director/General Manager of a multi-national company of lab equipments for delivering low quality lab instrument.

Unit II

2. Prepare a effective resume for applying for the post of an engineer in a company. **20**

Or

What is Resume ? What points should be taken in the mind while preparing a good resume ?

Unit III

3. What is Technical Report ? What are the types of technical report ? **20**

Or

What are the dos and don'ts for preparing technical reports ?

Unit IV

4. Write short notes on any *three* of the following :
- (a) Skill of oral presentation
 - (b) Importance of tele-communication
 - (c) Role of oral presentation in public gathering
 - (d) Relationship between language and tele-communication. **5×3=15**