

Q. No. 1

Total Pages : 03

Roll No.

BCA/M-23 1864

ADVANCED PROGRAMMING IN C

BCA-121

[Maximum Marks : 80

Time : Three Hours]

Note : Q. No. 1 is compulsory. In addition Q. No. 1, attempt four more questions, selecting one question from each Unit. All questions carry equal marks.

1. Explain the following with example : 4×4=16

(a) Structure

(b) Union

(c) Preprocessor

(d) malloc() and calloc().

Unit I

2. Explain standard library functions to handle strings in C with suitable examples. 16

3. Explain the following with suitable example : 4×4=16

(a) Structure within structures

(b) Typedef

(c) Enumeration

(d) Union of Structures.

Unit II

4. What is pointer ? How would you declare and initialize a pointer variable ? Explain the concept of pointer to pointer with suitable example. 16
5. (a) Differentiate between pointer to an array and array of pointers with example. 8
- (b) What do you mean by static and dynamic memory allocation in C ? Explain with example. 8

Unit III

6. Explain the following functions in C using suitable examples : 4×4=16
- (a) FseekO
- (b) fgetsO
- (c) rewindO
- (d) ftellO
7. What are different file opening modes in C ? Write a program in C that merges the contents of two files and write result into a new file. 16

Unit IV

8. Explain the following using suitable example in C : 4×4=16
- (a) #error
- (b) #ifdef
- (c) #undef
- (d) #define
9. (a) Differentiate between macro and functions with example. 8
- (b) Explain command line arguments with example. 8

Roll No.

Total Pages : 02

BCA/M-23 1865

LOGICAL ORGANIZATION OF
COMPUTER-II
BCA-122

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory.
Attempt *four* more questions, selecting one question
from each Unit.

1. (a) What is Race-Around Condition ?
(b) Explain IOP.
(c) What is a Flash Memory ? How is it used ?
(d) Define Sequential Circuit and write its properties.

4×4=16

Unit I

2. Describe working of Master-Slave flip-flop in detail with
example. 16
3. (a) Write Excitation Table of JK and T-FF. 8
(b) What is JK flip-flop ? Write its disadvantage also. 8

Unit II

4. (a) Explain Serial In and Parallel Out 4-Bit Register. 8
- (b) Write down the design procedure of Synchronous Counter. Design Synchronous MOD-5 Counter. 8
5. What is Register ? State different types of Registers and also define various modes of operations performed on registers. 16

Unit III

6. (a) Write a note on Hard-Copy Output Devices. 8
- (b) Explain different types of Optical Scanners. 8
7. Define Memory and its types. Explain difference between ROM and RAM. Also write types of ROM and RAM. 16

Unit IV

8. (a) Describe Program Controlled and Interrupt Driven Data Transfer Techniques. 8
- (b) Explain basic structure of CPU. 8
9. (a) Write a note on DMA. 8
- (b) Explain I/O Channels. 8

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Total Pages : 03

BCA/M-23

1866

MATHEMATICAL FOUNDATIONS-II

BCA-123

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory.

(Compulsory Question)

1. (a) If p and q be any statement then construct the truth table $\sim (p \wedge q)$.
- (b) Define subgroup.
- (c) Define skew-symmetric matrix with example.
- (d) Define prime ideal of a ring.
- (e) State Cayley-Hamilton Theorem.
- (f) Define Singular matrix.
- (g) Define order of an element of a group.
- (h) Construct a 2×2 matrix whose elements are given by $a_{ij} = i.j$. 8×2=16

Unit I

2. (a) Prove that $[(p \Leftrightarrow q) \wedge (q \Rightarrow r) \wedge r] \Rightarrow r$ is a tautology. 8
- (b) Prove that $3^{2n+2} - 8n - 9$ is divisible by 64. 8

(3-52/6) L-1866

P.T.O.

3. (a) Prove that $3^n > 2^n$ by Principle of Mathematical Induction for all $n \in \mathbb{N}$. 8

(b) Show that : 8
 $\sim(p \leftrightarrow q) \equiv (\sim p) \leftrightarrow q \equiv p \leftrightarrow (\sim q)$.

Unit II

4. (a) Let $G = \{0, 1, 2, 3, 4\}$, find the order of the elements of the group G under the binary operation addition modulo 5. 8

(b) If every element of a group is its own inverse, then show that the group is abelian. 8

5. (a) Prove that intersection of the two subring is a ring. 8

(b) Let R be a ring of 2×2 matrices over integers. Let $S = \left\{ \begin{bmatrix} a & 0 \\ b & 0 \end{bmatrix} : a, b \text{ integers} \right\}$, then S is a left ideal but not right ideal. 8

Unit III

6. (a) Find rank of the Matrix $\begin{bmatrix} 9 & 0 & 2 & 3 \\ 0 & 1 & 5 & 6 \\ 4 & 5 & 3 & 0 \end{bmatrix}$ by reducing it to Normal Form. 8

(b) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$, show that :

$$A^3 - 23A - 40I = 0.$$

7. (a) Solve using rank method : 8
 $x + y + z = 0$
 $2x - 3y + z = 9$
 $x - y + z = 0.$

(b) Solve : 8
 $x - y + z = 0$
 $x + 2y - z = 0$
 $2x + y + 3z = 0.$

Unit IV

8. Find eigen values and eigen vectors of the Matrix $\begin{bmatrix} 1 & 2 & 2 \\ 0 & 2 & 1 \\ -1 & 2 & 2 \end{bmatrix}$. 16

9. Verify Cayley-Hamilton Theorem for the Matrix $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$, and hence find its inverse. 16

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Total Pages : 03

BCA/M-23 1867

OFFICE AUTOMATION TOOLS

BCA-124

Time : Three Hours]

[Maximum Marks : 80

Note : Q. No. 1 is compulsory. Attempt *Five* questions in all, selecting *one* question from each Unit in addition to compulsory Q. No. 1. All questions carry equal marks.

1. (a) What is the purpose of control palette in Page Maker ? 3
- (b) What do you understand by Orphan Control in Page Maker ? 3
- (c) What is Hanging Indents used in PageMaker ? Write down steps to set Hanging Indents in a publication ? 3
- (d) Distinguish between Save and SaveAs option in MS-Word. 3
- (e) Define Macro with a suitable example. 2
- (f) Write steps to insert a chart in a slide. 2

Unit I

2. (a) What is Desktop Publishing (DTP) ? Discuss various applications of DTP. 8

- (b) What is the use of preferences command in PageMaker ? Explain different options available in preferences dialog box. 8
- 3. (a) Write a short note on Adobe Photoshop. 8
- (b) What are the hardware and software requirements for DTP ? 8

Unit II

- 4. (a) What is paragraph formatting ? Explain various options available in Paragraph Specifications dialog box in Pagemaker. 8
- (b) What do you mean by Hyphenation ? Explain steps to control hyphenation. 8
- 5. (a) What is Story Editor ? What are the advantages of Story Editor ? Explain. 8
- (b) What is indent ? Discuss various steps to set indents in PageMaker. 8

Unit III

- 6. (a) What do you mean by Office Automation ? Discuss advantages of office automation. 8
- (b) Explain various steps to add header and footer in a MS-Word document. 8

7. Write short notes on the following :

- (a) Text alignment
- (b) Document Dictionary
- (c) Mail merge
- (d) Autotext.

Unit IV

- 8. (a) What do you understand by presentation ? Write steps to create a presentation in Powerpoint. 8
- (b) Explain briefly different views used in a PowerPoint presentation. 8
- 9. (a) Write down and explain various steps to insert a table in a slide. 8
- (b) What is Hyperlink ? How to insert a hyperlink in a slide ? 8

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Total Pages : 02

BCA/M-23

1869

PERSONALITY DEVELOPMENT

Paper-126

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No: 1 is compulsory.

Four more questions are to be attempted selecting *one* question from each Unit. All questions carry equal marks.

(Compulsory Question)

1. Write short notes on the following : 4×4=16

- (a) Determinants of personality
- (b) Conflict Management
- (c) Advantages of Mock Interviews
- (d) Essentials of an effective resume.

Unit I

- 2. What is effective listening ? Describe the advantages of effective listening.
- 3. Discuss the advantages of effective communication.

Unit II

4. Attempt a detailed note on the importance of interpersonal skills.
5. Discuss the aspects that have to be taken care of while dealing with colleagues.

Unit III

6. Give an account of the preparation and steps that are to be taken for effective group discussion.
7. Discuss the factors affecting presentations.

Unit IV

8. You are an MBA with specialization in Marketing. Write down the resume you, would send to the personnel officer of Gupta and Company, Delhi. Also write a covering letter.
9. Interviews are planned conversations with a predetermined purpose that involves asking and answering questions. Elaborate.

Roll No.

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BCA/M-23

1870

ADVANCED DATA STRUCTURE

BCA-241

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Explain the following in brief : 8×2=16

- (i) Binary Tree
- (ii) General Tree
- (iii) Graph
- (iv) Shortest Path in a Graph
- (v) Internal Sorting
- (vi) Complexity of an Algorithm
- (vii) File
- (viii) Hashing.

(3-25/1) L-1870

P.T.O.

Unit I

2. What is Binary Search Tree (BST) ? Write an algorithm to search an element in a BST. Explain in detail using suitable examples. 16
3. What is Huffman's Algorithm ? Explain using suitable examples and state its applications in detail. 16

Unit II

4. (a) Discuss the various ways to represent graphs in computer memory using suitable examples. 8
- (b) Write Warshall algorithm for finding the shortest path. 8
5. What are the various ways to traverse a graph ? Explain in detail by writing suitable algorithms and examples. 16

Unit III

6. What is Quick Sort ? Explain by writing its algorithm and using suitable examples. Also comment on its complexity. 16
7. What are the various Searching Algorithms ? Explain by writing algorithms and comparing them on the basis on complexity. 16

Unit IV

8. What are the various operations that are performed on a file ? Explain in brief. Explain any three-four functions in detail using suitable examples. 16
9. What are the various types of file organizations ? Explain in detail and compare them on the basis of various parameters. 16

Roll No.

Total Pages : 02

BCA/M-23
E-COMMERCE
BCA-243

1872

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Briefly define the following : 2×8=16
- (i) SHTP
 - (ii) Cybercash
 - (iii) B2G
 - (iv) EDI
 - (v) e-Auction
 - (vi) Online Stock Trading
 - (vii) Digital Certificate
 - (viii) Digital Signature.

Unit I

2. Explain various types of e-Commerce systems along with their pros and cons.

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P.T.O.

3. Explain various Indian Payment Models.

Unit II

4. Draw a comparison between traditional departmental stores and online shopping environment like Amazon, Flipkart etc.

5. Explain EDI in governance along with B2G and G2C.

Unit III

6. Discuss the impact of e-Commerce on tour and travel industry.

7. Explain B2C models along with examples.

Unit IV

8. Explain the applications of B2B. What issues are involved in these applications ?

9. Describe the legal and security issues related to e-Commerce.

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Total Pages : 05

BCA/M-23 1874

COMPUTER ORIENTED STATISTICAL
METHOD
BCA-245

[Maximum Marks : 80

Time : Three Hours]

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) Differentiate an ungrouped and a grouped frequency table. 4
- (b) Write normal distribution formula and calculate its mean. 4
- (c) Define a linear regression formula and derive its equations. 4
- (d) What is the significance of Chi-square Test ? Write its formula. 4

Unit I

2. Find Mean, Mode and Median for data given below : 16

Class	Frequency
0-3	20
3-6	12
6-9	17
9-12	16
12-15	3

3. (a) For the following distribution :

X	F
0-10	15
10-20	23
20-30	35
30-40	49
40-50	32
50-60	28
60-70	12
70-80	6

Calculate first four moments u_1, u_2, u_3 and u_4 about arithmetic mean X^- ? 8

(b) Find standard deviation and coefficient of variation for following data : 8

X	F
1	6
2	12
3	18

4	26
5	16
6	10
7	8

Unit III

4. (a) Calculate arithmetic mean and variance of Binomial Distribution. 8
- (b) Differentiate discrete random variable and continuous random variable. 8
5. (a) Calculate Karl Pearson's correlation coefficient between student Attendance and their score : 8

Average attendance (in %)	Score (in %)
60	39
65	34
70	52
75	57
80	56
85	67
90	69

(b) Ten students secured the following marks in statistics and maths :

Statistics	Mathematics
31	41
45	47

Unit IV

- 39
48
24
33
42
36
29
41
- 27
38
29
37
40
30
35
39
8. (a) The theory predicts the proportion of beans in the four groups A,B,C and D should be 9 : 3 : 3 : 1. In an experiment with 1600 beans the nos. in four groups were 892, 310, 290, 108. Does the experiment result support the theory ? (Value of Chi-square for 3 d.f. at 5% level of significance 7.81). 8
- (b) What is a Student's *t*-distribution ? Write its formula and uses. 8
9. Write notes on the following :
 (a) Sampling method and rule for sample size. 8
 (b) One-way classification of data with an example. 8

Compute their ranks in two subjects and coefficient of rank correlation. 8

Unit III

6. (a) Find the equation of lines of regressions : 8

X : 1 3 5 6 7 8.

Y : 14 9 7 10 13 6

- (b) Find the standard error of estimate of *y* on *x* : 8

x : 1 2 3 4 5

y : 10 9 11 13 12

7. Fit a second degree parabola $Y = a + bx + cx^2$ for the following data : 16

Y : 0 1 2 3 4

X : 0 1 4 9 12

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Total Pages : 03

BCA/M-23

1875

MANAGEMENT INFORMATION SYSTEM

BCA-246

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question each from Unit I to Unit IV. Question No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) Define system and sub-system.
 - (b) What is EDP ?
 - (c) Compare between formal and informal systems.
 - (d) List the common requirement of an MIS.
 - (e) How do you evaluate an information system ?
 - (f) Highlight the major problems for developing MIS.
 - (g) Differentiate between e-business and e-Commerce.
 - (h) Highlight the characteristics of decision support system.
- 8×2=16

Unit I

2. What are the different types of systems ? Explain the characteristics of information system. Differentiate between information system and management information system. 16
3. Explore the role of information system for decision making in various MIS management levels. Differentiate between EDP/MIS and DSS. 16

Unit II

4. What are the characteristics of MIS ? Outline the framework for understanding MIS. List and explain the essential components of MIS. 16
5. Write a detailed note on structured and un-structured decisions. Explain Simon's model of decision making. 16

Unit III

6. What is the purpose of information system analysis and design ? Elaborate the steps involved in analysing and designing of an information system. 16
7. Elaborate the factors which influence the implementation of information system in an organization. Discuss implementation activities. 16

Unit IV

8. Write in detail the functional aspects of MIS in personnel and production. 16
9. Explain the innovative technologies of e-Commerce. How do these technologies support business applications ? 16

[Maximum Marks : 80

Time : Three Hours]

Note : Question No. 1 is compulsory. In addition to that, attempt *Four* more questions selecting *one* question from each Unit. All questions carry equal marks.

(Compulsory Question)

1. (a) What are the problems in initial implementation of a semaphore ? 4
- (b) Discuss the disk structure. 4
- (c) How can the processes be connected with pipes ? Discuss about the output of the command : 4
`ls | tee list.txt`
- (d) What do you understand by a process in Linux/Unix ? How is it created ? 4

Unit I

2. What is critical section problem ? Explain the algorithms for solving critical section problem for two processes and multiple processes. 16

3. (a) Differentiate between a tree and an acyclic graph directory structure. **8**
- (b) Discuss the Readers-Writers problem along with its solution. **8**

Unit II

4. Discuss the disk scheduling criteria and various disk scheduling algorithms using suitable examples. **16**
5. Discuss the following : **16**
 - (a) Remote Login
 - (b) Remote File Transfer.

Unit III

6. (a) Discuss the features of Linux. How is Linux different from UNIX ? **8**
- (b) Discuss various communication oriented commands using examples. **8**
7. Differentiate between internal and external commands. Also explain the following in Linux : **16**

- (a) chmod
- (b) find
- (c) mkdir
- (d) chgrp
- (e) dd
- (f) head
- (g) expand.

Unit IV

8. What do you understand by a file in Linux/Unix ? Explain various categories of file. Also explain the structure and components of file system along with various types of file systems. **16**
9. Explain various iterative statements available in bash shell using examples. Also write a menu driven shell script to copy, rename and delete a file. **16**

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Total Pages : 03

BCA/M-23

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COMPUTER GRAPHICS

BCA-363

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. (a) What is the meaning and purpose of refresh rate ?
- (b) State the purpose of a lookup table.
- (c) State the various side effects of scan conversion ?
- (d) Enlist the various methods to draw a line in computer graphics.
- (e) What is meant by inverse transformations ?
- (f) Enlist the various pointing techniques used in computer graphics.
- (g) What do you mean by viewing transformation ?
- (h) - Enlist the various three-dimensional display methods.

8×2=16

Unit I

2. Explain working of (i) Colour CRT monitors and (ii) LCD monitors, in detail along with advantages and disadvantage of both in detail.

16

3. Write short notes on the following :

- (i) Interlacing
- (ii) General purpose graphics software. 16

Unit II

- 4. Write down the algorithm for drawing a line using DDA line algorithm and explain its steps using suitable example. 16
- 5. (a) Write down the steps to plot a line using the slope method. 8
- (b) Write and explain the flood fill algorithm. 8

Unit III

- 6. How can you perform ? 16
 - (i) Scaling
 - (ii) Translation
 - (iii) Rotation
 - (iv) Reflection, in two-dimensional transformation ?

- 7. Write short notes on the following : 16
 - (i) Gravity field technique
 - (ii) Rubber band technique
 - (iii) Inking and painting
 - (iv) Dragging.

Unit IV

- 8. Write and explain the Sutherland-Hodgeman algorithm for polygon clipping. 16
- 9. Define window and viewport. Derive window to viewport transformation. 16

Roll No.

Total Pages : 03

BCA/M-23 1880

ADVANCED PROGRAMMING WITH
VISUAL BASIC

BCA-365

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. (a) What is a form in Visual Basic.? 3
- (b) Write the steps for adding a menu separator. 4
- (c) Define ADO. 3
- (d) What is the purpose of tool bar control in VB ? 3
- (e) Explain fill style property of graphics in VB. 3

Unit I

2. Define collection. Explain the methods to access or manipulate items to collection. 16

3. Explain the following form methods : **4×4=16**
- (i) show
 - (ii) hide
 - (iii) refresh
 - (iv) move.

Unit II

4. How can we create static and dynamic menu in VB ?
Explain with the help of suitable example. **16**
5. Define tree view control, list view control and image view control. How can we show the relationship of these controls ? Explain with the help of an appropriate project. **16**

Unit III

6. (a) Explain various steps to create a sequential file. **10**
(b) Explain EOFQ functions. **6**
7. (a) Explain various statements used for reading and writing random file. **8**
(b) Explain the following in graphics of VB : **4×2=8**
- (i) Loadpicture function
 - (ii) Picture box control.

L-1880

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(3-24/10)L-1880

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Unit IV

8. How can we use DAO data control ? Explain the various methods to access Database. **16**
9. Explain various database access mechanisms in VB. **16**

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Total Pages : 03

BCA/M-23 1881

PROGRAMMING IN CORE JAVA
BCA-366

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory.
Attempt *four* more questions, selecting exactly *one*
question from each Unit.

Compulsory Question

1. (a) State the purpose of JVM.
(b) Name the various data types in Java.
(c) How can you create an object from a class in Java ?
(d) What is meant by an abstract class ?
(e) State the purpose of super keyword.
(f) What is CLASSPATH setting for packages ?
(g) What are the differences between checked and unchecked exceptions ?
(h) Enlist the various layout managers in Java.

8×2=16

Unit I

2. Explain various control structures in Java using suitable examples.

16

(2-06/12)L-1881

P.T.O.

3. (a) How is Java different from procedural and other object-oriented languages ? Explain. 8
- (b) Explain the following terms w.r.t. Java : 8
 - (i) Keywords
 - (ii) Literals
 - (iii) Command line arguments.

Unit II

4. Write a program in Java to create a class named as matrix. This program should be able to multiply and add two matrices. 16
5. Write a program in Java to perform the following operations on strings : 16
 - (i) finding string length
 - (ii) compare two strings
 - (iii) concatenate two strings
 - (iv) copy a string.

Unit III

6. What do you understand by inheritance ? Explain various types of inheritances using suitable examples in Java in detail. 16
7. Explain any four pre-defined packages along with their classes and methods in detail using suitable examples. 16

Unit IV

8. Explain the following keywords :
 - (i) try
 - (ii) catch
 - (iii) throw
 - (iv) throws
 - (v) finally.

Also write a program using all of the above keywords. 16
9. What is an applet life-cycle ? Create an applet that receives a number as input from a text box and find the sum of the digits of the input number and displays it. 16

Roll No.

Total Pages : 3

BCA/M-23

20584

OBJECT ORIENTED PROGRAMMING USING C++

Paper-BCA-301

Time : Three Hours]

[Maximum Marks : 80


Note : Question No. 1 is compulsory. Attempt any *four* questions out of Units I, II, in & IV by selecting at least *one* question from each Unit. All questions carry equal marks.

Compulsory Question

1. (a) Why 'New' operator is more advantageous than using malloc function in C++ language?
- (b) Explain namespace feature of C++.
- (c) What are the benefits of inline functions over macros?
- (d) What is the difference between pointers to constant and constant to pointers?
- (e) How does the compiler resolve a call to a virtual function?
- (f) What is the difference between Opening a file with a constructor function and Opening a file with open() function?
- (g) What is a virtual base class?
- (h) How can you catch all exceptions in C++?

(2x8=16)

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 P.T.O.
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UNIT-I

2. What is object-oriented programming? Explain different characteristics/features of procedure-oriented programming and object-oriented programming. Also list few areas of application of OOP technology. (16)
3. Explain concept of constructors and destructor in C++. What are their characteristics and how do they differ from each other? Discuss with the help of any suitable example. (16)

UNIT-II

4. (a) What is friend class? Can you make a member function of a class as a friend function of another class? If yes then give an example. (8)
(b) What is 'this' pointer? Explain its use with example. (8)

5. (a) What is operator overloading in C++? Write a program to overload prefix increment operator using operator overloading in C++. (8)
(b) What do you mean by Precedence of operator? Discuss the precedence order of arithmetic operators of C++. (8)

UNIT-III

6. (a) What are the applications of Virtual function? Also describe the limitations of virtual function. (8)
(b) Write short note on the following :
(i) Abstract Class, (8)
(ii) Function Overriding. (8)

7. What do you mean by type conversion? What are different forms of type conversion? Explain conversion between objects of different classes in detail. (16)

UNIT-IV

8. What is inheritance? Develop an object oriented program using inheritance in C++ to create a library information system containing the following information for book in library.
(i) Accession Number.
(ii) Name of author.
(iii) Title of book.
(iv) Publisher name.
(v) Year of publication.
(vi) Cost of the book. (16)

9. (a) What is a template in C++ and why do we need it? (8)
(b) Describe how you would determine number of objects in a file. When do you need such information? (8)

BCAM-23

20586

COMPUTER NETWORKS
Paper-BCA-303

Time : Three Hours]

[Maximum Marks : 80

Note : A candidate will be required to answer *five* questions in all, selecting *one* question from each Unit in addition to Compulsory Question No. 1. All questions carry equal marks.

Compulsory Question

1. (a) Write short note on switches and routers. (4)
- (b) Discuss analog and digital transmission of data. (4)
- (c) Write short note on wireless LAN, Bluetooth and VLANs. (4)
- (d) Describe congestion control and load shedding. (4)

UNIT-I

2. Explain Computer Networks and its Types. Discuss different types of Network Topologies. Which network topologies are most suitable for wireless transmission? (16)
3. Explain OSI reference model and networking models in detail. (16)

UNIT-II

4. What is switching and multiplexing? Explain different kinds of switching and multiplexing techniques. (16)
5. Elaborate on the following :
 - (a) Bandwidth, data rate and baud rate.
 - (b) Guided transmission media.
 - (c) Wireless transmission.
 - (d) Modems. (16)

UNIT-III

6. How do sliding window protocols work? Explain different types of sliding window protocols with diagrams and suitable examples. (16)
7. Elaborate on data link layer design issues and various kinds of LAN technologies. (16)

UNIT-IV

8. What is the significance of routing? Explain routing algorithms in detail. Give suitable examples. (16)
9. Define network security and its objectives. Explain the concept of security attacks, encryption methods and digital signature. (16)

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BCAM-23

20587

MANAGEMENT INFORMATION SYSTEM

Paper-BCA-304

Time : Three Hours]

[Maximum Marks : 80

Note : Question No. 1 is compulsory. In addition to compulsory question, attempt *four* more questions selecting one question from each unit.

Compulsory Question

1. Write short notes on :

- (a) Closed systems.
- (b) B2B.
- (c) Record inspection fact finding technique.
- (d) Intangible cost.
- (e) Black box.
- (f) DSS.
- (g) Case flow analysis.
- (h) Unstructured decisions. (2×8=16)

UNIT-I

2. (a) What do you mean by system ? Discuss various types of systems. 8
- (b) What is role of information in decision-making ? Discuss in detail. 8

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3. (a) Distinguish between DSS and EDP. 8
- (b) Briefly discuss characteristics of information system. 8
- UNIT-II**
4. What is importance of MIS ? Discuss its characteristics and components. 16
5. (a) Discuss Simon's model of decision-making. 8
- (b) Distinguish between formal and informal systems. 8
- UNIT-III**
6. (a) What do you mean by changeover ? Discuss various types of changeovers. 10
- (b) Briefly discuss form design. 6
7. (a) What do you mean by maintenance ? Discuss various types of maintenances. 8
- (b) Distinguish between following methods of cost-benefit evaluation :
- (i) Break-even and Net-present.
- (ii) Pay back and Net-present. (4×2=8)
- UNIT-IV**
8. (a) Briefly discuss the following:
- (i) Manufacturing information system.
- (ii) Human Resource Information system. (5×2=10)
- (b) Distinguish between MIS and DSS. 6
9. (a) Write short note on following E-commerce systems : (2×5=10)
- (i) B2C.
- (ii) B2G.
- (iii) G2C.
- (iv) B2B.
- (v) C2B.
- (b) How E-commerce differs from traditional business practices ? Discuss. 6

20588

BCA/M-23

COMPUTER GRAPHICS

Paper-BCA-305

[Maximum Marks : 80

Time : Three Hours]

Note : Question No. 1 is compulsory. Attempt any *four* more questions selecting *one* question from each Unit I to IV.
All questions carry equal marks.

Compulsory Question

1. (a) What is importance of refresh rate?
(b) How passive computer graphics work?
(c) Write basic working principle of simple dda.
(d) Compare polar coordinates with simple coordinates.
(e) Write and explain shearing operation's matrix.
(f) What do you mean by inverse transformation?
(g) Differentiate between translation and scaling.
(h) Write formula for window to viewport transformation.

UNIT-I

2. Draw and explain the working of color CRT.
3. Draw and explain the working of LCD.

UNIT-II

4. Write steps and find set of intermediate coordinates for drawing a line between (7, 7) and (13, 15) using Bresenham's line drawing algorithm.
5. Write scan fill algorithm.

UNIT-III

6. Find the resultant coordinates after performing translation transformation operation on triangle with ends points (7, 7), (3, 3), (10, 10) by $t_x = 4$, $t_y = 5$.
7. Explain working of any *three* positioning devices.

UNIT-IV

8. Write and explain Sutherland-Hodgman polygon clipping algorithm.
9. Apply composite operation on a point (7, 7). Composite operation must contain translation by (3, 3) and translation by (-2, -2).

Roll No.

Total Pages : 3

BCAM-23

20589

E-COMMERCE

Paper-BCA-306

Time : Three Hours]

[Maximum Marks : 80

Note : Students will be required to attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.


Compulsory Question

1. (a) What do you mean by the customer to customer types of e-commerce?
(b) What is meant by smart cards?
(c) Write a short note on the concept of government to business.
(d) Briefly explain disinter mediation.
(e) How e-auction is conducted?
(f) What includes in online stock trading?
(g) What just in time delivery state in b2b?
(h) What is the purpose of media model? (8×2=16)

UNIT-I

2. (a) Discuss historic evolution of e-commerce. Distinguish between e-commerce and traditional business practices.

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- (b) What are the elements of e-commerce? Explore the benefits and limitations of e-commerce. (8+8=16)
3. (a) What is Secure Hypertext Transfer Protocol (SHTP)? Explain.
- (b) What are e-commerce operations? Discuss management issues related to e-commerce. (8+8=16)

UNIT-II

4. What is Electronic Data Interchange (EDI) in governance and e-government? Write a detailed note on e-governance models along with e-governance applications of internet. (16)
5. (a) What is global market? Write the steps to perform consumer shopping on the internet.
- (b) How do you look on private sector interface in e-governance? Discuss. (8+8=16)

UNIT-III

6. (a) List the different online financial service. Highlight the future of such online services.
- (b) How does electronic brokerage facilitate search and retrieval of information? Explain success factors of e-brokers. (8+8=16)
7. (a) What are the benefits and impact of e-commerce on travel and tourism industry?
- (b) How do you perform online banking? Discuss the benefits and security issues related to online banking. (8+8=16)

UNIT-IV

8. (a) Outline and discuss the components of b2b architectural model and explain its key technologies.
- (b) Write the characteristics of buyer-oriented marketplace. (8+8=16)
9. (a) What are emerging business models? How do-it-yourself model works?
- (b) Explain legal aspects and security issues of e-commerce in India. (8+8=16)

Roll No.

Total Pages : 03

BVSD/M-23 12239
OPERATING SYSTEMS-II
BVSD-21

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory.

(Compulsory Question)

1. (a) What is a file system ? 4
- (b) What are concurrent processes ? What are the problems associated with them ? 4
- (c) What is the effect of deadlock in a system ? 4
- (d) Discuss a brief history of UNIX. 4

Unit I

2. (a) What do you understand by directory system ?
Explain various directory structures in detail. 8
- (b) Differentiate between contiguous, linked and indexed allocation methods. 8

3. (a) Explain various file protection mechanisms. 8
 - (b) Discuss direct file access and indexed file access and differentiate between them. 8
- Unit II**
4. (a) What is the difference between symmetric and asymmetric solution of dining-philosopher problem using semaphore ? 10
 - (b) What is inter-process communication ? Discuss. 6
 5. (a) What is a semaphore ? What are the problems in initial implementation of a semaphore ? How do you modify it ? 10
 - (b) What is mutual exclusion ? Discuss using example. 6

Unit III

6. What are the necessary conditions for occurrence of a deadlock ? How can the deadlocks be prevented ? 16
7. What is the difference between deadlock avoidance and detection ? Discuss deadlock detection algorithm for single instance and multiple instances of resource type. 16

Unit IV

8. (a) Discuss process management in Unix 8
- (b) How is memory management done in Unix operating system ? 8
9. Discuss the following : 16
 - (a) MS-DOS System Calls
 - (b) Implementation of MS-DOS.

Roll No.

Total Pages : 03

BVSDE/M-23

12240

WEB DESIGNING

BVSD-22

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

- 1.** Attempt the following : 8×2=16
- (a) Explain the purpose of web browser.
 - (b) Differentiate between IP address and URL address.
 - (c) Explain the basic structure of HTML document.
 - (d) Discuss <p> tag and <HR> tags.
 - (e) Write a short note on JavaScript style sheets.
 - (f) Discuss various properties of CSS Fonts with help of an example.
 - (g) How a homepage can be created in Dreamweaver ?
 - (h) What is the process to crop an image in Photoshop ?

Unit I

2. Define Website. Explain the process of planning, designing and hosting of website. What are the various types of hosting services ? 16
3. Write steps to create a table. Explain various attributes that can be used with <table> tag. Also, discuss the concept of nesting the tables. 16

Unit II

4. Explain various methods to add style sheet to HTML document. Also discuss various advantages and disadvantages of internal and external style sheet. 16
5. What is CSS ? Discuss the features of CSS. Also explain various kinds of selectors with examples. 16

Unit III

6. What is the use of layers animation in JavaScript ? How animation effects can be developed by using JavaScript ? 16
7. Explain the operators used in JavaScript. What parameters are used for opening and closing windows in JavaScript? Explain with detail. 16

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Unit IV

8. What is Photoshop work area ? Explain various tools in Photoshop. How to apply transformations in Photoshop ? 16
9. What is Adobe Dreamweaver ? Explain its various features. Discuss tags available in Dreamweaver. 16

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Roll No.

Total Pages : 03

BDDDE/M-23 12241

**NETWORKING AND INTERNET
BVSD-23**

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

प्रत्येक इकाई से एक प्रश्न चुनते हुए, कुल पाँच प्रश्नों के उत्तर दीजिए। प्रश्न संख्या 1 अनिवार्य है। सभी प्रश्नों के अंक समान हैं।

1. Explain the following :

4×4=16

- (a) X.25
- (b) Analog Modem
- (c) Wireless LANs
- (d) World Wide Web.

निम्नलिखित की व्याख्या कीजिए :

- (अ) X.25
- (ब) एनालॉग मोडेम
- (स) वायरलेस लैन
- (द) वर्ल्ड वाइड वेब।

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P.T.O.

Unit I (इकाई I)

2. (a) Define Computer Networks. Explain the various Network Topologies. 8
कम्प्यूटर नेटवर्क को परिभाषित कीजिए । विभिन्न नेटवर्क टोपोलॉजी को समझाइए ।
- (b) Explain the following : 8
(i) Connection-oriented and Connectionless Services
(ii) Decentralized and Centralized Systems.
- निम्नलिखित की व्याख्या कीजिए :
- (i) कनेक्शन-उन्मुख और कनेक्शन रहित सेवाएँ
(ii) विकेंद्रीकृत और केंद्रीकृत प्रणाली ।

3. What is the OSI Reference Model ? Explain the working of its various layers in detail. 16
ओ.एस.आई. संदर्भ मॉडल क्या है ? इसकी विभिन्न परतों की कार्यप्रणाली को विस्तार से समझाइए ।

Unit II (इकाई II)

4. Explain the various Guided and Wireless Transmission Media. 16
विभिन्न निर्देशित और वायरलेस ट्रांसमिशन मीडिया की व्याख्या कीजिए ।

5. Explain the following : 16
(i) Switching
(ii) Multiplexing

निम्नलिखित की व्याख्या कीजिए :

- (i) स्विचिंग
(ii) बहुसंकेतन

Unit III (इकाई III)

6. Describe error detection and correction in Computer Networks. 16
कम्प्यूटर नेटवर्क में एरर डिटेक्शन और करेक्शन का वर्णन कीजिए ।
7. (a) Explain the Routers, Hubs, Switches and Bridges. 8
राउटर, हब, स्विच और ब्रिज की व्याख्या कीजिए ।
(b) What is data encryption in Computer Networks ? 8
कम्प्यूटर नेटवर्क में डेटा एनक्रिप्शन क्या है ?

Unit IV (इकाई IV)

8. (a) What is Internet ? How does it work ? 8
इंटरनेट क्या है ? यह कैसे काम करता है ?
(b) Discuss the impact of Internet on Society. 8
समाज पर इंटरनेट के प्रभाव की चर्चा कीजिए ।
9. (a) What is WAIS and how does it work ? 8
डब्ल्यू.ए.आई.एस. क्या है और यह कैसे काम करता है ?
(b) What is Net Etiquette and why is it important ? 8
नेट शिष्टाचार क्या है और यह क्यों महत्वपूर्ण है ?

Roll No.

Total Pages : 03

BVSD/M-23 12242

WEB PROGRAMMING-PHP

BVSD-24

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. Write short notes on the following :

- (a) Apache Server
- (b) XAMPP and LAMP
- (c) Include() function
- (d) Connect() function.

Unit I

2. What is client-server architecture ? Why we need a Server side scripting language in web ? Explain.
3. What are the datatypes available in PHP ? Also write in detail the control structures using suitable examples used in PHP.

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Unit II

4. Explain the following w.r.t. PHP:
Enumerated Array, Associated Array, Multidimensional Array
5. What do you mean by functions in PHP ? Explain the call by value and call by reference methods using suitable example.

Unit III

6. Differentiate between the following :
 - (a) PHP GET and PHP POST methods
 - (b) Cookies and Session Variable at Server
7. What do you mean by HTML Forms ? What is the need of form validation in web ? Explain the concept of Server side validation using PHP with suitable examples.

Unit IV

8. What do you mean by indexes in Database ? Explain PHP MyAdmin installation and applications.

9. Design a web application for College Library Management System. Discuss the schema for the database and show the operations in SQL like insert, update, delete, issue book, return book.

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Total Pages : 03

BVSDM/M-23

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RDBMS-II

BVSD-41

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) How is persistence handled in typical object oriented database system ?
- (b) Write a note on allocation techniques in DDBMS.
- (c) Differentiate between OLAP and OLTP.
- (d) What are web databases ? Discuss the structure of XML data.
- (e) Define ACID properties of Transaction management.
- (f) What is Deadlock ? Describe Wound/Wait deadlock protocol.
- (g) What is failure analysis ?
- (h) Write a note on scalability of replication. 8×2=16

Unit I

2. (a) Differentiate between object persistence, object identity and type inheritance.
- (b) What do you mean by object structure and type constructor ? Explore the different variety of type constructor with examples. **8+8=16**
3. (a) What do you mean by parallel processing and parallel database ? Discuss the benefits and limitation of shared-nothing architecture of parallel databases.
- (b) What do you mean by fragmentation ? Differentiate between horizontal and vertical fragmentation. **8+8=16**

Unit II

4. (a) Define data mining. What are the motivations behind data mining ? Draw and explain knowledge discovery process.
- (b) What are the characteristics of data warehouse ? How data mining and data warehouse system is integrated ? **8+8=16**

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5. (a) How a query is processed in multimedia databases ? Discuss multimedia sources identified in multimedia databases.

- (b) What are active databases ? Discuss syntax and purpose of triggers in active databases. **8+8=16**

Unit III

6. (a) What is Serializability ? Discuss serializable and non-serializable transactions.
- (b) What is Concurrency ? Write a detailed note on multi-phases locking protocols of concurrency control. **8+8=16**

7. What is deadlock detection ? Explain deadlock avoidance process using Resource- Allocation-Graph. **16**

Unit IV

8. What is meant by database recovery ? Discuss the role of check point in log base. Explain different recovery techniques. **16**

9. Explain the following :

- (a) Presumed abort and Commit
- (b) Replication and Voting. **8+8=16**

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100

Roll No.

Total Pages : 03

BVSDM/M-23 12244
MANAGEMENT INFORMATION SYSTEM
BVSD-42

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory.

(Compulsory Question)

1. (a) Discuss a cybernetic system. Do you think MIS is an example of cybernetic system ? Illustrate. 4
- (b) Discuss Moore's law and law of mass digital storage. 4
- (c) Explain, how encryption protects information. 4
- (d) What are different stages in knowledge management value chain ? Discuss. 4

Unit I

2. What is an information system ? Discuss various types of information systems. 16
3. (a) Discuss the major trends in information systems 8
- (b) What are various information system resources ? Discuss. 8

Unit II

4. Discuss the following : 16
- (i) Network/Telecommunication platforms
 - (ii) Grid computing
 - (iii) Green computing
 - (iv) Cloud based software services and tools.
5. Discuss the principal tools and technologies for accessing information from databases for improving business performance and decision-making. 16

Unit III

6. Discuss the following : 16
- (i) Spoofing and Sniffing
 - (ii) Denial of Service Attacks
 - (iii) Phishing
 - (iv) Click Fraud.
7. (a) Discuss the challenges posed by enterprise applications. How can these challenges be addressed ? 8
- (b) Explain, how supply chain management systems help to reduce the bullwhip effect and how they provide value for a business. 8

Unit IV

8. Discuss various intelligent techniques for knowledge management. 16
9. (a) Explain the group decision-support systems and describe, how it differs from DSS. 8
- (b) Identify the specific managerial roles that can be supported by information systems. 8

Roll No.

Total Pages : 03

BVSDM/M-23 12245

JAVA PROGRAMMING
BVSD-43

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory.
Attempt *four* more questions, selecting exactly *one*
question from each Unit.

(Compulsory Question)

1. (a) Why is Java termed as Internet language ?
- (b) Whether goto statement is a valid statement in Java ?
- (c) How references to objects are created in Java ?
- (d) What is a wrapper class ?
- (e) What is meant by inheritance ?
- (f) Name any four built-in exceptions in Java.
- (g) Comment on the purpose of start() method in multithreading.
- (h) What is synchronization ? 8×2=16

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P.T.O.

Unit I

2. (a) Write a program in Java to find sum of the digits of the input number. 8
- (b) Explain various features and limitations of Java programming language. 8
3. (a) Explain various data types in Java. 8
- (b) How can Java applications and applets be executed ? Also explain JDK in detail. 8

Unit II

4. (a) What are the various access specifiers in Java ? Explain in detail using suitable examples. 8
- (b) How can you create and use arrays in java ? Explain by writing a program to find sum of the elements of a matrix. 8
5. Differentiate between String and StringBuffer classes. Write and explain major functions of each class using suitable examples. 16

Unit III

6. What do you understand by the concept of Packages in Java ? Discuss various built-in packages in Java. Also explain the procedure to create a user-defined package with the help of examples. 16

7. (a) How can you create a user-defined exception in java ? Explain with appropriate example. 8
- (b) How can you implement multiple inheritance using interface ? Explain using suitable example. 8

Unit IV

8. (a) Explain the inter-thread communication takes place in Java with the help of suitable example. 8
- (b) Explain various ways to implement multithreading in Java using suitable examples. 8
9. Explain the following w.r.t. multithreading : $8 \times 2 = 16$
 - (i) Thread priority
 - (ii) Thread exceptions
 - (iii) Stopping and blocking a thread
 - (iv) Thread class.

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Total Pages : 03

BVSDM/M-23 12246

VISUAL PROGRAMMING
BVSD-44

Time : Three Hours]

[Maximum Marks : 80

Note : Q. No. 1 is compulsory. In addition to that attempt *four* more questions, selecting *one* question from each Unit.
All questions carry equal marks.

(Compulsory Question)

1. (a) Describe the purpose of form designer window in VB IDE.
(b) Differentiate between array and collection.
(c) What is meant by drag and drop operation ?
(d) What are custom controls ? Explain. 4×4=16

Unit I

2. Explain major controls in the menu bar of VB-IDE in detail. 16

3. Explain the purpose of : 16
- (i) Immediate window
 - (ii) Project explorer
 - (iii) Properties window
 - (iv) Form layout.
8. What are the various web-enabled services in VB ?
Explain each in detail. 16
9. Explain the following : 16

- (i) ActiveX DLL
- (ii) ActiveX EXE
- (iii) ActiveX Client
- (iv) ActiveX Server.

Unit II

4. How variables and constants are declared and used in VB ? Comment on the scope and lifetime of variable in VB. 16

5. Explain various control structures in VB in detail using suitable examples. 16

Unit III

6. Create a menu driven project in VB showing the basic properties of a text editor. 16

7. (a) What is a MDI form ? How is it different from SDI form ? Explain in detail. 8

- (b) Differentiate between : 8
- (i) Loading and showing a form
 - (ii) Event, methods and properties.

Unit IV

Roll No.

Total Pages : 02

BVSDQ/M-23 12247

MOBILE COMPUTING

BVSD-61

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. Write short notes on the following :

- (a) Mobile Services
- (b) Snooping TCP
- (c) Database Issues in Mobile Computing
- (d) Mobile Adhoc Network.

Unit I

2. What do you mean by Mobile Communications ? Explain different types of application areas in real world using suitable examples.
3. (a) Write a note on Wireless Medium Access Control.
(b) Differentiate between SDMA and FDMA.

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P.T.O.

Unit II

4. Explain the following :
 - (a) IP Packet Delivery
 - (b) Tunneling
 - (c) Encapsulation.
5. What do you mean by Dynamic Host Control Protocol ?
How is it used in Mobile Computing ? Explain using suitable examples.

Unit III

6. Explain the following :
 - (a) Power-aware and Context-aware Computing
 - (b) Query Processing and Recovery
7. Describe Pull-based and Push-based mechanisms in detail.

Unit IV

8. Write a detailed note on properties and spectrum of MANET applications.
9. (a) Write in detail the user scenarios in Bluetooth. Explain.
(b) Explain the layering system in Bluetooth communication.

Roll No.

Total Pages : 03

BVSDO/M-23 12248

**INFORMATION SECURITY
BVSD-62**

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory.

Attempt *four* more questions selecting *one* question from each Unit.

1. Answer the following questions in brief : 4×4=16
 - (a) Discuss the design principles of block cipher technique.
 - (b) What do you mean by information security ? Explain any three goals of information security.
 - (c) What is e-Mail security ? Explain the technique for e-Mail security..
 - (d) Differentiate between tunnel mode and transport mode of IPsec.

Unit I

2. (a) Explain encryption and decryption process in AES algorithm with suitable diagram. 8

- (b) What is stream cipher ? Explain A5/1 stream cipher with an example. 8
- 3. (a) What is crypto-signature ? Explain properties of crypto signature. 8
- (b) What is hash function ? Explain secure hash function (SHA1) in detail. 8

Unit II

- 4. (a) What is authentication ? Explain SSO and biometric based authentication method. 8
- (b) Explain access control matrix authentication method. 8
- 5. Write short notes on the following : 8,8
 - (a) Convert channel
 - (b) Multilateral security.

Unit III

- 6. (a) What are software flaws ? Explain buffer overflow and incomplete mediation. 8
- (b) Explain security issues in operating system. 8
- 7. Write short notes on the following : 8,8
 - (a) Trusting Software
 - (b) Digital Rights Management.

Unit IV

- 8. (a) Discuss vulnerabilities in website and webserver. 8
- (b) What is IDS ? Explain the profile based IDS. 8
- 9. (a) What protocols comprise SSL ? What is the difference between an SSL connection and an SSL session ? 8
- (b) What is the need for security services at transport layer of Internet Protocol ? 8

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Total Pages : 03

BVSDQ/M-23 12249

SOFTWARE TESTING

BVSD-63

Time : Three Hours]

[Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory.

(Compulsory Question)

1. (a) Differentiate between testing and debugging. 4
- (b) What is gray box testing ? Discuss the tool support of gray box testing. 4
- (c) Discuss the factors that a test manager should take into account when estimating the cost of testing. 4
- (d) Describe the principle of data-driven testing. 4

Unit I

2. What is software quality ? Discuss the individual quality characteristics of ISO 9126. 16
3. (a) Discuss, how the psychological problems occurring in connection with testing can be dealt with. 6

(10): What is acceptance testing ? Discuss the objectives and types of acceptance testing. 10

Unit II

4. What is review process ? Discuss different kinds of reviews. What are the crucial factors for success of a review process ? 16
5. (a) What is cyclomatic complexity ? What is its significance ? Write an algorithm to perform binary search. Draw the corresponding Control Flow Graph (CFG) and compute its cyclomatic complexity. 12
- (b) What are the advanced Black box techniques ? Discuss. 4

Unit III

6. (a) What is security testing ? Why is it important ? Also discuss various types of security testing. 8
- (b) What is configuration management ? Discuss the components of configuration management. 8
7. (a) Discuss the following : 10
- (i) Test Cycle Planning
- (ii) Test Cycle Control.

(b) How can the users/clients help in preparing the test plans ? 6

Unit IV

8. (a) Discuss the tools for Static Testing. 8
- (b) What main functions do test management tools offer ? 8
9. What is the difference between conventional testing and object-oriented testing ? What are the issues in object-oriented testing ? Discuss unit testing, integration testing and validation testing in the object-oriented context. 16

Roll No.

Total Pages : 03

BVSDQ/M-23 12250

LINUX AND SHELL PROGRAMMING
BVSD-64

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all selecting exactly *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Differentiate between the following : 4×4=16
- (i) Unix and Linux
 - (ii) File and Process
 - (iii) Background and Foreground Process
 - (iv) File System Mounting and Linux Installation.

Unit I

2. (a) Explain various types of shells in Linux along with purpose of each. 8
- (b) Explain major features of Unix. 8

3. Explain Inode table in detail along with boot block, super block and data blocks using suitable examples. 16

Unit II

4. Write and explain four commands in each category :16

(i) File Commands

(ii) Directory Commands

(iii) Disk Commands

(iv) Filter Commands.

5. (a) What is a process ? How a process can be created, removed and executed in Linux ? Explain. 8

(b) Explain the purpose and use of the following commands in linux : 8

(i) bc

(ii) expr

(iii) factor

(iv) units.

Unit III

6. (a) What are the various working modes in vi editor ? Explain in detail. 8

(b) Explain various operators in vi editor using suitable examples. 8

7. Explain syntax and purpose of the following commands using suitable examples : 16

(i) pine

(ii) vacation

(iii) finger

(iv) elm.

Unit IV

8. (a) What are the common administration task ? Explain. 8

(b) Write a script to add and delete multiple user simultaneously. 8

9. How can you perform the following in linux ? 16

(i) Installing a software in linux

(ii) File system mounting

(iii) Partitioning the hard disk.