

Seat No.	
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Total No. of Questions : 7]

[Total No. of Printed Pages : 2

[4273]-101

B. C. A. (Semester - I) Examination - 2012

BUSINESS COMMUNICATION

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Answers **any five** questions.
- (2) Figures to the right indicate full marks.
- (3) Draw figures wherever necessary.

-
-
- Q.1)** Define Communication. State the importance and process of Communication. **[16]**
- Q.2)** What is Business Letters ? Explain the Essentials of Effective Correspondence for Business Letters. **[16]**
- Q.3)** (A) Write an Order Letter to M/s. Super Furniture Mart, M.G. Road, Fort Mumbai, on behalf of King Furniture, Peth Naka, Jalgaon, for office furniture. **[08]**
- (B) Write a Complaint Letter for Mohan Limited, Moledina Road, Pune, on behalf of M/s. Parekh and Sons, Queen Garden Pune, for shortage of goods. **[08]**
- Q.4)** What is Oral Communication ? Explain Principles of Effective Oral Communication. **[16]**

Q.5) What is Written Communication ? State and explain merits and limitation of Written Communication. [16]

Q.6) What is Effective Speech ? Explain Techniques of Effective Speech. [16]

Q.7) Write short notes : **(Any Four)** [16]

- (a) Communication Barriers
 - (b) Layout of Business Letters
 - (c) Circular Letters
 - (d) Tele Conference
 - (e) E-mail
 - (f) Internet
 - (g) Video Conferencing
-

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4273]-102

B. C. A. (Semester - I) Examination - 2012

PRINCIPLES OF MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.

Q.1) Define the term Management. Explain various functions of Management.

OR

Q.1) Describe Henry Fayol's Principles of Management.

Q.2) What is Planning ? Explain its process.

OR

Q.2) Write short notes :

- (a) Types of Communication
- (b) Delegation of Authority

Q.3) What is Organising ? Explain steps involved in Organising Process.

OR

Q.3) What is Co-ordination ? Explain the need and importance of Co-ordination.

Q.4) What is Strategy ? Explain Levels of Decision Strategy and state benefits of Strategic Management.

OR

[4273]-102

1

P.T.O.

Q.4) Write short notes :

- (a) Stress Management
- (b) Types of Decision

Q.5) Write short notes : **(Any Four)**

- (a) Total Quality Management
 - (b) Management of Crisis
 - (c) Indian Management Thought
 - (d) Social Responsibility of Business
 - (e) Importance of Staffing
 - (f) Management as Profession
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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-103

B. C. A. (Semester - I) Examination - 2012

PRINCIPLES OF PROGRAMMING AND ALGORITHM

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
- (2) *Neat diagram must be drawn wherever necessary.*
- (3) *Use ANSI C Method.*

Q.1) Answer the following : (All)

[2x8=16]

- (a) Define Constant.
- (b) What is Big-oh Notation ?
- (c) 'C' is a Middle Level Language. Comment.
- (d) Write Syntax and Usage of getchar().
- (e) What is Precedence of Operator ?
- (f) What is Formal Parameter ?
- (g) List all Relational Operators in 'C'.
- (h) What is Escape Sequence ?

Q.2) Answer the following : (Any Four)

[4x4=16]

- (a) Explain the features of 'C' Language.
- (b) Differentiate between Break and Continue Statement.
- (c) Explain different Preprocessor Directives.
- (d) Write a 'C' program to reverse the number.
- (e) Write a 'C' program to check the input year is leap year or not.

Q.3) Answer the following : (Any Four)

[4x4=16]

- (a) What is Identifier ? Explain various rules for Identifier.
- (b) Explain various steps involved in Problem Solving.
- (c) Discuss various forms of Increment and Decrement Operators.
- (d) Write a 'C' program to check whether the number is prime or not.
- (e) Write a 'C' program to Print Fibonacci Series.

Q.4) Answer the following : (Any Four)

[4x4=16]

- (a) What is meant by Recursion ? Explain with suitable example.
- (b) Discuss the different Storage Classes.
- (c) What is difference between if-else and Nested if-else Statements ?
- (d) Trace the following output and explain :

```
main( )
{
    int a = 4;
    switch (a)
    {
        default : printf("In default");
        case 1 : printf("In 1");
        break;
        case 2 : printf("In 2");
        break;
    }
}
```

(e) Trace the following output and explain :

```
main()
{
    int i = 0, x = 0;
    for (i = 1; i < 10; i ++ )
    {
        if (i %2 == 1)
            x = x + 1;
        else
            x --;
        printf("%d", x);
    }
}
```

Q.5) Answer the following : (Any Four)

[4x4=16]

- (a) Differentiate between Local and Global Variables.
- (b) Explain various data types in 'C'.
- (c) Explain goto statement with example.
- (d) Write an algorithm to check number is palindrome or not.
- (e) Draw a flowchart to calculate roots of a quadratic equation.

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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-104

B. C. A. (Semester - I) Examination - 2012

COMPUTER FUNDAMENTALS AND OFFICE AUTOMATION

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) Figures to the right indicate full marks.
- (3) Draw neat diagram wherever necessary.

Q.1) Answer the following : (Any Eight)

[16]

- (a) List different characteristics of Computers.
- (b) Write full form of :
 - (i) EPROM
 - (ii) ROM
- (c) What is Flowchart ? Draw any two Flowchart Symbols.
- (d) List any four characteristics of Algorithm.
- (e) Which files make up the DOS Operating System ?
- (f) Define Time Sharing.
- (g) Write full form of :
 - (i) WYSTWYG
 - (ii) GUI
- (h) Write any two features of DTP.
- (i) Write any two features of MS-Excel.
- (j) What is the purpose of / bin and / home directory in Linux File System ?

[4273]-104

1

P.T.O.

Q.2) Attempt **any four** of the following : **[16]**

- (a) Explain difference between Compiler and Interpreter.
- (b) Draw block diagram of Computer and explain.
- (c) Draw a flowchart to find the sum of first 50 natural numbers.
- (d) Write a note on Microsoft Access.
- (e) Explain in detail Vi Editor in Linux O.S.

Q.3) Attempt **any four** of the following : **[16]**

- (a) What is Batch File ? State its usefulness.
- (b) Explain difference between DOS and Windows.
- (c) Write a note on Mail Merge.
- (d) Write a note on Power Point.
- (e) Write a note on Mouse.

Q.4) Attempt **any four** of the following : **[16]**

- (a) Write an algorithm to check whether a given number is prime number or not.
- (b) Write the purpose and syntax of following commands :
 - (i) Attrib
 - (ii) Deltree
 - (iii) Format
 - (iv) diskcopy
- (c) Write a note on Pipes.
- (d) Write a note on Word Processor.
- (e) Explain difference between Impact and Non-impact Printer.

Q.5) Attempt **any four** of the following :

[16]

(a) Perform the following :

(i) $(62)_{10} = (?)_2$

(ii) $(596)_{10} = (?)_8$

(iii) $(CA)_{16} = (?)_{10}$

(iv) Multiply Binary Number 110 by 101.

(b) Explain in detail Advantages of Flowcharts.

(c) Explain different charts available in MS-Excel.

(d) Write a note on Components of the Window Operating System.

(e) Explain in details the features of Linux O.S.

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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4273]-105

B. C. A. (Semester - I) Examination - 2012

BUSINESS ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
 - (2) Figures to the right indicate full marks.
 - (3) Use of calculators is allowed.
-
-

Q.1) (A) Fill in the blanks :

[05]

- (a) _____ is an art of recording and classifying business transactions.
- (b) A statement of assets and liabilities prepared at the end of the accounting period is called _____.
- (c) The amount of money invested in business by a businessman is called _____.
- (d) Principle of Personal Account is _____.
- (e) In every Business Transaction at least _____ parties are involved.

(B) State whether the following statements are true or false : [05]

- (a) All the Accounting Standards are Mandetory.
- (b) Accounting is the Language of Business.
- (c) Personal Accounts are the Accounts of Assets.
- (d) Accounting Standards I deals with valuations of Inventory.
- (e) Decrease in the value of fixed assets is termed as appreciation.

[4273]-105

1

P.T.O.

(C) Match the following : [05]

‘A’

‘B’

- | | |
|--------------------------|---|
| (a) Accounting Standards | (i) Irrecoverable Amount |
| (b) Real Account | (ii) Recording of Transactions |
| (c) Bad Debts | (iii) Withdrawal of Money by the Proprietor |
| (d) Book-keeping | (iv) Building |
| (e) Drawing | (v) Approved Guidelines |

(D) Classify the following Accounts into Personal Account, Real Account and Nominal Account : [05]

- (a) Machinery Account
- (b) Commission Received Account
- (c) Mr. Abhishek Bachan Account
- (d) Travelling Expenses Account
- (e) Capital Account

Q.2) What is Financial Accounting ? What are the advantages and limitations of Financial Accounting ? [12]

OR

Q.2) What is Double Entry Book-keeping System ? Explain the advantages and disadvantages of Double Entry Book-keeping System. [12]

Q.3) (A) Journalize the following transactions in the book of Mr. Abhaykumar for the month of December, 2011 : [08]

December, 2011

- 1 Mr. Abhaykumar started business with cash Rs. 32,000, Machinery Rs. 21,000 and Furniture Rs. 7,000.
- 3 Purchased Goods from Mr. Jayant Rs. 11,000 at 10% Trade Discount.
- 5 Sold goods to Mr. Rajesh Rs. 9,000 at 5% Trade Discount.
- 9 Sold goods to Mr. Ajay Rs. 3,000 at 5% Trade Discount.
- 12 Purchased Machinery of Rs. 8,000 for cash and spent Rs. 100 for Transport of Machinery in cash.
- 16 Paid Rs. 1,000 as Office Rent.
- 25 Received Commission from Mr. Ravikant Rs. 450.
- 30 Withdraw Rs. 300 for personal use.

(B) The Plant and Machinery purchased on 1st April, 2007 for Rs. 2,20,000. Rate of Depreciation to be charged was fixed at 12% as per Straight Line Method. The Machinery was sold for Rs. 1,30,000 on 31st March, 2012.

Prepare Machinery Account assuming year ending 31st March every year. [08]

Q.4) Enter the following transactions in the Books of Rahul Kumar's Cash Book for the Month of January, 2012 : [16]

January, 2012

- 1 Rahul Kumar started business with cash of Rs. 1,50,000.
- 3 Opened Bank Account with Bank of Maharashtra and deposited Rs. 1,35,000.
- 5 Purchased goods from Jaiswal Brothers and paid by cheque Rs. 20,000.
- 9 Received Cash from Sales of Rs. 4,000.
- 15 Withdrawn Cash Rs. 1,800 from Bank.
- 17 Purchased Stationery for cash of Rs. 700.
- 19 Received cheque from M/s. Advani and Co. for Rs. 2,500 and deposited in the Bank on the same date.
- 20 Received from Ravi and Co. in cash Rs. 2,700 net after allowing Rs. 150 as discount.
- 22 Paid M/s. Gupta and Co. by cheque of Rs. 4,200.
- 24 Drawn from Bank for office use Rs. 5,300.
- 26 Drawn for personal use Rs. 1,500.
- 30 Paid Salary for the month of January, 2012 Rs. 21,000 by cheque.

Q.5) The following is the Trial Balance of Mr. Sudarshan and Co. as on 31st, December, 2012 :

Trial Balance

Particulars	Debit Balance	Credit Balance
Premises	90,000	—
Plant and Machinery	1,50,000	—
Opening Stock	40,700	—
Fixtures	10,000	—

Particulars	Debit Balance	Credit Balance
Furniture	12,000	–
Debtors	21,000	–
Cash in Hand	4,100	–
Purchases	70,000	–
Salaries	10,000	–
Wages	30,600	–
Carriage Inwards	4,300	–
General Expenses	2,700	–
Director's Fees	3,000	–
Bad Debts	200	–
Debenture Interest paid	1,000	–
Preliminary Expenses	2,000	–
Vehicles	8,200	–
Unsecured Loans	–	8,000
Bills Payable	–	12,000
Share Capital	–	2,20,000
Sales	–	1,65,000
6% Debentures	–	40,000
Creditors	–	14,800
	4,59,800	4,59,800

Prepare Trading, Profit and Loss Account for the year ended 31st March, 2012 and the Balance Sheet as on that date after considering the following adjustments :

Adjustments :

- (1) Depreciate Plant and Machinery at 10%, Fixtures at 15%, Furniture at 10% and Vehicles at 12% per annum.
- (2) Out of the Debtors Rs. 2,000 are Bad, Provide 5% Reserve for Doubtful Debts.
- (3) Outstanding Expenses were as follows : Wages Rs. 1,800, Salaries Rs. 2,100 and General Expenses Rs. 300.
- (4) Closing Stock on 31st March, 2012 is valued at Rs. 41,000.
- (5) Write off Rs. 500 from Preliminary Expenses.

[16]

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Total No. of Questions : 8]

[Total No. of Printed Pages : 1

[4273]-201

B. C. A. (Semester - II) Examination - 2012

ORGANISATIONAL BEHAVIOUR

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Solve **any five** questions.
- (2) All questions carry equal marks.

-
-
- Q.1)** Define and explain the nature, scope and objectives of Organisational Behaviour. **[16]**
- Q.2)** Define Motivation. Explain various Theories of Motivation. **[16]**
- Q.3)** What is Personality ? Explain the two Theories of Personality. **[16]**
- Q.4)** Define Group Dynamics. Explain various types of Groups formed in an Organisation. **[16]**
- Q.5)** What is Stress Management ? Which strategies are to be used in an organisation to Minimise Organisational Stress ? **[16]**
- Q.6)** Define Leadership. Explain various qualities and functions of Effective Leaders. **[16]**
- Q.7)** Explain in detail various Strategies to Overcome Conflicts. **[16]**
- Q.8)** Write short notes : **(Any Two)** **[8x2=-16]**
- (a) Perception
 - (b) Total Quality Management
 - (c) Collegial Model of Organisational Behaviour

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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4273]-202

B. C. A. (Semester - II) Examination - 2012

ELEMENTS OF STATISTICS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.
- (3) Figures to the right indicate full marks.
- (4) Use of statistical table and calculator is allowed.
- (5) Symbols and abbreviations have their usual meanings.

Q.1) Attempt any four of the following :

[4x4=16]

- (a) Explain the following terms with illustrations :
 - (i) Attribute
 - (ii) Variable
- (b) What do you mean by Central Tendency ? State requisites of a good measure of Central Tendency.
- (c) Explain Construction of Mean and Range Chart in Statistical Quality Control.
- (d) Define the following terms :
 - (i) Mutually Exclusive Events
 - (ii) Exhaustive Events
 - (ii) Sample Space
 - (iv) Intersection of two Events
- (e) Monthly consumption of electricity in units of a certain family in a year is given below :
250, 240, 210, 315, 290, 300, 215, 232, 216, 208, 209, 250.
Obtain Mean, Median and Mode.

[4273]-202

1

P.T.O.

- (f) Arithmetic Mean and Standard Deviation of 12 items are 22 and 3 respectively. Later on it was observed that the one item 32 was wrongly taken as 23. Compute correct Arithmetic Mean and correct Standard Deviation.

Q.2) Attempt **any four** of the following : **[4x4=16]**

- (a) Explain the different methods of Classification.
- (b) Define the following terms :
- (i) Permutations
- (ii) Combinations
- (c) A card is drawn from a pack of 52 cards. What is the probability that
- (i) Card is either red or black ?
- (ii) Card is either red or face card ?
- (d) The daily expenditure of 100 families is given below :

Expenditure	320-329	330-339	340-349	350-359	360-369
No. of Families	14	21	27	22	16

Obtain Mode for the above data.

- (e) Obtain Geometric Mean for the following data :
2, 8, 20, 62, 54
- (f) What are Measures of Relative Dispersion ? In what respect are they different than that of absolute Dispersion ?

Q.3) Attempt **any four** of the following : **[4x4=16]**

- (a) Explain the term Population and Sample with illustration.
- (b) Obtain Median for the following frequency distribution :

Daily Income (in'00)	Below 30	30-60	60-90	90-120	120-150	150-180
No. of Persons	22	198	110	95	42	33

- (c) The price of tea of first grade is 10 grams per rupee, whereas that of second grade is 12.5 grams per rupee. If equal quantity of both types of tea are mixed together, determine the price of mixture in gram per Rs.

- (d) The number of lectures attended by students in a class are distributed as follows :

No. of Lectures attended	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No. of Students	6	8	16	28	32	25	5

Obtain Standard Deviation.

- (e) Distinguish between Deterministic and Non-deterministic Experiments with one illustration each.
- (f) Find n if :
- (i) ${}^7P_3 = n \cdot {}^7C_3$
- (ii) ${}^nC_{n-3} = 84$

Q.4) Attempt **any four** of the following :

[4x4=16]

- (a) Define the following terms :
- (i) Independence of two events
- (ii) Conditional Probability
- (b) Write a short note on Process Control and Product Control.
- (c) Ten pieces of cloth selected at random contain following number of defects :
- 4, 3, 9, 4, 0, 1, 0, 3, 5, 6.
- Construct a suitable control chart.
- (d) In a group of 10 men, 6 are graduates. If 3 men are selected at random, what is the probability that consists of –
- (i) all graduate ?
- (ii) at least one graduate ?
- (e) How many four digit number can be formed out of the digits 1, 2, 3, 4, 5, 6, 7, if no digit is repeated ? How many of these numbers are divisible by two ?
- (f) The frequency distribution of Intelligence Quotient (I.Q.) of 196 students is given below :

I.Q.	60-69	70-79	80-89	90-99	100-109	110-119	120-129
No. of Students	21	37	51	49	21	13	4

Answer the following :

- (i) State type of Classification.
- (ii) State class boundaries of fourth class.
- (iii) Obtain the class width of second class.
- (iv) Obtain the class mark of sixth class.

Q.5) Attempt **any two** of the following :

[8x2=16]

- (a) Prices of shares 'A' and 'B' are given below :

Price of Share 'A'	55	54	52	53	56	58
Price of Share 'B'	108	107	105	106	107	104

Which share has more stable price ? Justify.

- (b) The following data relating to 10 samples, each of 500 items. Construct a suitable control chart and state your conclusion :

Sample No.	1	2	3	4	5	6	7	8	9	10
No. of Defectives	30	18	24	38	8	18	52	28	30	34

- (c) Let A, B, C be three events defined on sample space Ω . If

$$P(A) = P(B) = P(C) = \frac{1}{4}, P(A \cap B) = 0, P(B \cap C) = 0,$$

$$P(A \cap C) = \frac{1}{8},$$

Calculate :

- (i) $P(A \cup B \cup C)$
- (ii) $P(A \cap C')$
- (iii) $P(A' \cap B' \cap C')$
- (iv) $P(A/C)$

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Total No. of Questions : 4]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - II) Examination - 2012

‘C’ PROGRAMMING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Answer the following : (Any Ten)

[10x2=20]

- (1) What is Row Major Representation of an Array ?
- (2) Define Pointer to Pointer.
- (3) List any four Standard String Library Functions.
- (4) How is a Union Declared and Initialized ?
- (5) Give the syntax of fopen().
- (6) Give the syntax of File Inclusion Directive.
- (7) What are Bit Fields ?
- (8) What is the significance of argv[0] ?
- (9) What is the use of fputc() ?
- (10) Give the syntax of malloc().
- (11) What is the difference between Array and Ordinary Variable ?
- (12) What is the use of strrev and strcmpi ?

Q.2) Answer the following : (Any Four) [5x4=20]

- (a) Define Array. How 2D arrays are represented in memory ?
- (b) Define Dynamic Memory Allocation. What are the advantages of Dynamic Memory Allocation over Static Allocation ?
- (c) What are the differences between Structure and Union ? Illustrate with example.
- (d) Write a note on 'C' Preprocessor.
- (e) Differentiate between Text and Binary File.

Q.3) Attempt any four of the following : [5x4=20]

- (a) Write a 'C' program to accept book details of n books as Book Title, Author, Publisher and Cost. Display details of Specific Author.
- (b) Write a 'C' program to accept 10 numbers from user, store these numbers in an array and find the smallest number from array.
- (c) Write a 'C' program to check whether a string is palindrome or not using pointers.
- (d) Write a 'C' program to copy contents of one file to another.
- (e) Write a 'C' program to calculate length of string without using Standard Library Function.

Q.4) Attempt the following : (Any Four) [5x4=20]

- (a) # define CUBE (x) (x * x * x)
main()
{
 int a, b;
 b = 3;
 a = CUBE (b++) / b++;
 printf("a = %d b = %d", a, b);
}

```

(b) main( )
    {
        int x[25];
        x[0] = 100;
        x[24] = 400;
        printf("\n %d %d", x, * x, * (x + 24) + * (x + 0));
    }

(c) main( )
    {
        static char str[]= "Limericks";
        char *s;
        s = & str[6] - 6;
        while(*s)
            printf("%c", *s++);
    }

(d) main( )
    {
        static int b[] = {10, 20, 30, 40, 50};
        int i;
        for (i = 0, i < = 4; i++)
            printf("%d", i[b]);
    }

(e) main( )
    {
        char str1[ ] = "Hello";
        char str2[ ] = "Hello";
        if (str1 == str2)
            printf("Equal");
        else
            printf("Unequal");
    }

```

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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-204

B. C. A. (Semester - II) Examination - 2012

FILE STRUCTURE AND DATABASE CONCEPTS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
- (2) *Figures to the right indicate full marks.*

Q.1) Attempt any four :

[4x4=16]

- (a) Explain any four File Operations.
- (b) Describe Heap File Organisation.
- (c) Explain Insert Operation of B+ Tree Index Structure.
- (d) State any four functions of DBA.
- (e) What is Data Model ? Explain Relational Model.

Q.2) Attempt any four :

[4x4=16]

- (a) Differentiate between Fixed Length and Variable Length Record.
- (b) Write a short note on extended features of ERD.
- (c) Describe the Capabilities of DBMS.
- (d) Define :
 - (i) Relation
 - (ii) Cardinality
- (e) Explain SQL Aggregate Functions with example.

Q.3) Attempt any four :

[4x4=16]

- (a) Define Index. Explain Sparse Index.
- (b) Write a short note on ISAM.
- (c) Explain Normalisation with example.
- (d) What are the drawbacks of File Processing System ?
- (e) Define :
 - (i) Primary Key
 - (ii) Super Key

Q.4) Attempt the following :

[16]

Consider the following entities and their relationship :

Student (sno, sname, city, class)

Subject (sub_no, sub_name)

Student and subject are related with many to many relationship with a descriptive attribute 'Marks'.

Create a RDB in 3NF and solve the following queries by using SQL :
(Any Five)

- (a) Insert a row in student table.
- (b) Display student no. with highest marks.
- (c) Add 'PRN' Column to student table.
- (d) Display details of student from 'Pune' city having marks > 70.
- (e) Change subject name from 'DBMS' to 'RDBMS'.
- (f) Display the total number of students from 'F.Y.B.C.A'.

Q.5) Attempt the following :

- (a) Daulatnagar Electric Supply Company is a distributor of electricity in a small town having about 20,000 consumers. The consumers are divided into three categories. Agricultural, Commercial, Domestic for whom different rates are charged. The bills are made according to the meter readings which are paid by the consumers.
 - (i) Identify all entities.
 - (ii) Identify all relations.
 - (iii) Draw ERD.

(b) Consider relational database :

Machine (mno, mname, mtype, mcost)

Part (pno, pname, pdesc, mno)

Machine and Part are related with one-many relationship.

Write relational algebraic expression for the following :

- (i) List all machines having cost $> 5,000$.
- (ii) Display the names of all machines having parts 'wheel'.
- (iii) List all the parts of 'Television' machine.
- (iv) Display the machine names whose cost is between 50,000 to 70,000.

[08]

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4273]-205

B. C. A. (Semester - II) Examination - 2012

COST ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
- (2) *Figures to the right indicate full marks.*
- (3) *Use of calculator is allowed.*

Q.1) (A) Indicate whether the following statements are **true** or **false** :
(Any Five) **[05]**

- (a) Cost Accounting can replace Financial Accounting.
- (b) Leather used in shoe-making business is an example of Indirect Material.
- (c) All Overheads are the Cost but all Cost may not be Overheads.
- (d) Scope of Budgetary Control is wider than that of Standard Cost.
- (e) Marginal Costing involves segregation of Fixed Cost and Variable Cost.
- (f) Importance of Standard Costing arises due to limitations of Historical Costing.

(B) Fill in the blanks : (Any Five) [05]

- (a) _____ is the amount of expenditure incurred on a given thing.
- (b) _____ Cost remain constant.
- (c) _____ Method is applicable to foundries and general engineering workshop.
- (d) The Budget is an aid to _____.
- (e) Marginal Cost does not include _____ Cost.
- (f) Standard Costs are always _____.

Q.2) Differentiate between Cost Accounting and Financial Accounting. [15]

OR

Q.2) What is Cost ? How would you classify the Cost ? Give suitable examples. [15]

Q.3) Write short notes : (Any Three) [15]

- (a) Advantages of Job Costing
- (b) Features of Process Costing
- (c) Cost Unit
- (d) Labour Variances
- (e) Objectives of Budgetary Control

Q.4) You are required to calculate : [16]

- (a) Prime Cost
- (b) Works Cost
- (c) Total Cost of Production
- (d) Cost of Sales, from the following particulars :

	Rs.
Raw Materials	30,000
Wages paid	12,000
Chargeable Expenses (Dirert)	1,000
Wages of Foreman	2,000

Wages of Store-keeper	1,000
Electricity – Factory	2,500
– Office	500
Rent – Factory	1,500
– Office	500
Depreciation – Plant and Machinery	600
– Office Furniture	200
Consumable Stores	1,000
Manager’s Salary	3,000
Printing and Stationery	500
Telephone Expenses	500
Salesmen’s Salary	1,500
Travelling Expenses	300
Carriage Outward	100
Advertising	300
Warehouse Charges	200
Interest on Capital	500
Donation	700

Q.5) (A) The Sales and Profits during the last two years of Poona Ltd. were as follows :

Year	Sales (Rs.)	Profit (Rs.)
2009	15,00,000	2,00,000
2010	17,00,000	2,50,000

Annual Fixed Cost is Rs. 1,75,000.

You are required to calculate :

- P/V Ratio
- BEP (Sales)
- The profits made when sales are Rs. 25,00,000.
- The sales required to earn a profit of Rs. 4,00,000. **[12]**

- (B) The expenses budgeted for production at 100% capacity of Bombay Co. Ltd., are given :

Particulars	At 100% Capacity (Rs.)
Direct Materials	6,00,000
Variable Works Overhead	2,00,000
Basic Wages	2,00,000
Fixed Production Overhead	80,000
Productive Expenses - Marginal	40,000
Administrative Expenses - Rigid	40,000
Selling Overheads (10% fixed)	1,20,000
Distribution Overheads (80% variable)	60,000

Prepare a Flexible Budget for the production at 60% and 80% capacity, showing separately :

- (a) Prime Cost
- (b) Works Cost
- (c) Cost of Production
- (d) Cost of Sales

[12]

OR

- (B) From the following information, calculate :

- (a) Material Cost Variance
- (b) Material Price Variance
- (c) Material Usage Variance
- (d) Material Mix Variance

Material	Standard Mix	Actual Mix
X	70 kgs @ Rs. 2 per kg	60 kgs @ Rs. 2 per kg
Y	30 kgs @ Rs. 4 per kg	50 kgs @ Rs. 5 per kg

[12]

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4273]-301

B. C. A. (Semester - III) Examination - 2012

NUMERICAL METHODS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) Figures to the right indicate full marks.
- (3) Use of non-programmable scientific calculator is allowed.

Q.1) Attempt **any four** of the following :

[4x4=16]

- (a) If $f(x) = x^3 - 2x^2 + 5$ then find $f(0) + f(3)$.
- (b) Draw the graph of function $f(x) = |x|$.
- (c) If N is set of all natural numbers and I is set of all integers, then find :
 - (i) $N \cup I$
 - (ii) $N \cap I$
- (d) Evaluate :

$$\lim_{x \rightarrow 3} \frac{x^2 - 5x + 6}{x - 3}$$

- (e) If $y = \frac{4 + 4x - 2x^2}{5}$, then find $\frac{dy}{dx}$ at $x = 1$.

- (f) Evaluate : $\int_0^1 (4 - 2x) dx$

Q.2) Attempt any four of the following : **[4x4=16]**

(a) Find the root of the equation $x^2 - 9x + 1 = 0$ between $[2, 4]$ using Bisection Method. Perform 4 iterations.

(b) Find cube root of 13 corrected upto two decimal places by Newton Raphson Method.

(c) Fit the following data into its straight line $ax + by = c$:

x	0	1	2	3
y	5	3.5	2	1.5

(d) With usual notations show that

$$\nabla^2 f(a + 2h) = f(a + 2h) - 2f(a + h) + f(a).$$

(e) Δ and ∇ are forward and backward differences of the function respectively, prove that $(1 + \Delta)(1 - \nabla) = 1$.

(f) Represent the function :

$$f(x) = x^4 - 12x^3 + 24x^2 - 28x + 8, \text{ in to factorial notation.}$$

Q.3) Attempt any four of the following : **[4x4=16]**

(a) Find missing term of the following data :

x	-2	-1	0	1	2
y = f(x)	7	3	-	1	3

(b) From the following data, find $f(7.5)$:

x	0	2	4	6	8
y = f(x)	0	8	64	216	512

(c) Use Newton Forward Interpolation Formula to find $f(1)$ from following data :

x	0	2	4	6	8
y = f(x)	1	4	16	64	256

(d) If $f(1) = 2$, $f(2) = 4$, $f(4) = 16$, then find $f(5)$ by using Lagranges Interpolation.

- (e) Find the number of men getting wages between Rs. 100 and 250 from following data :

Wages in Rs.	0-100	100-200	200-300	300-400
No. of Men	9	30	35	42

- (f) Evaluate : $\left(\frac{\Delta^2}{E}\right) x^3$ take $h = 1$.

Q.4) Attempt any two of the following : [2x8=16]

- (a) Find the first and second derivatives of the function tabulated below at $x = 1.5$:

x	0	0.5	1.0	1.5	2.0
y = f(x)	0.3989	0.3521	0.2420	0.1295	0.0540

- (b) Evaluate : $\int_0^1 x^2 dx$ by using

- (i) Trapezoidal Rule
(ii) Simpson's $1/3$ Rule

and compare the results occurred by above methods with actual integration.

- (c) Solve the equation : $\frac{dy}{dx} = x + y$. Subject to the condition $y = 1$ when $x = 0$, by Picard's Method. Find the approximate value of y when $x = 0.1$ and at $x = 0.2$.

Q.5) Attempt any two of the following : [2x8=16]

- (a) Using Graphical Method find optimum solution of the following Linear Programming Problem :

Maximize $z = 7x + 3y$

Subjected to $x + 2y \geq 3$

$x + y \leq 4$

$x \leq 5/2$

$y \leq 3/2$

$x, y \geq 0$

- (b) Find Initial Basic Feasible Solution of following transportation problem by Vogel's Approximation Method, for profit maximization :

	A	B	C	D	
1	15	51	42	33	23
2	30	42	26	31	44
3	90	40	66	60	33
	23	31	16	30	

- (c) Six Wagons A, B, C, D, E and F are available at six Stations P, Q, R, S, T, U. The mileages between various stations are given below :

	S₁	S₂	S₃	S₄	S₅	S₆
A	30	33	28	20	26	30
B	60	30	27	26	25	21
C	70	40	50	65	18	17
D	16	17	20	30	110	19
E	28	29	38	27	70	80
F	19	20	30	40	50	65

Find Minimum Cost of Assignment.

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-302

B. C. A. (Semester - III) Examination - 2012

DATA STRUCTURE USING 'C'

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.
- (3) Assume suitable data, if necessary.

Q.1) Attempt **any eight** of the following :

[8x2=16]

- (a) What is Circular Queue ? How it is represented ?
- (b) What is Hashing ? State Hashing Techniques.
- (c) State different types of Traversal Technique of Tree.
- (d) What are the Application of Stack.
- (e) What is Algorithm ? State its properties.
- (f) "When Linear Search Method will more efficient." Comment.
- (g) What is Balance Factor ? How it is calculated ?
- (h) State different types of Sorting Technique. Which Sorting Technique is best ?
- (i) What is Graph ? State its types.
- (j) What is ADT for an Array ?

Q.2) Attempt **any four** of the following : **[4x4=16]**

- (a) Write an Algorithm to convert Infix Expression to Postfix Expression.
- (b) Explain selection sort technique with an example.
- (c) Write a 'C' Program for Dynamic Implementation of Queue.
- (d) Write a 'C' Program to search given element into the Singly Linked List.
- (e) Write a 'C' Program for evaluation of given polynomial.

Q.3) Attempt **any four** of the following : **[4x4=16]**

- (a) Explain BFS with an example.
- (b) Explain different types of Asymptotic Notation with an example.
- (c) Sort the following data using Merge Sort.
Show each step in detail :
25, 35, 18, 9, 46, 70, 48
- (d) Write the function to insert node at the beginning of the Circular Singly Linked List.
- (e) Convert the following Infix Expression into Prefix Expression :
 - (i) $(A + B)/C * D - E$
 - (ii) $A - (B + C/D) ^ E$

Q.4) Attempt **any four** of the following : **[4x4=16]**

- (a) Explain Dynamic Memory Allocation Functions with their Syntax.
- (b) Build an AVL Tree for the following data :
Mon, Sun, Thur, Fri, Sat, Wed, Tue.
- (c) Write a function to calculate Indegree and Outdegree of each Node in the Graph.
- (d) Write a function to Insert Node at the specified position in Doubly Linked List.
- (e) What are the different Methods of Overflow Handling ? Explain Overflow Handling by Chaining.

Q.5) Attempt **any four** of the following :

[4x4=16]

(a) Construct a Binary Search Tree for the following data : (show each step in detail)

90, 36, 58, 96, 32, 92, 12, 93, 24, 97, 38, 60, 98.

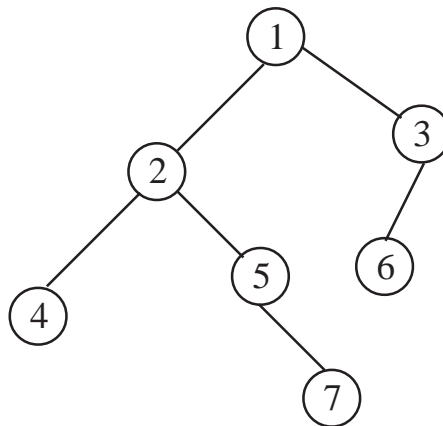
(b) Explain Minimum Spanning Tree with an example.

(c) Write a function to Search given Node in Circular Singly Linked List.

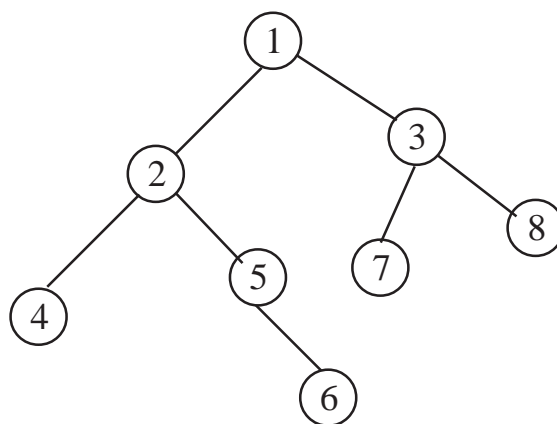
(d) Explain Quick Sort with an example.

(e) Give the Preorder, Inorder and Postorder Traversal of the following trees :

(i)



(ii)



Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4273]-303

B. C. A. (Semester - III) Examination - 2012

SOFTWARE ENGINEERING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.

Q.1) Attempt the following : (Any Eight)

[16]

- (a) What is Interface ? Explain with examples.
- (b) Explain System Analysis.
- (c) Justify Software does not wear out.
- (d) What is Economical Feasibility ?
- (e) What are advantages of Waterfall Model ?
- (f) Define Entity and Relationship with diagram.
- (g) Explain Co-ordinate Module with diagram.
- (h) Define Decision Tree and Decision Table.
- (i) Explain White Box Testing.
- (j) What is Data Dictionary ?

Q.2) Attempt the following : (Any Four)

[16]

- (a) Explain different types of Coupling.
- (b) What are Design Principles ?
- (c) Write a note on Prototyping Model.
- (d) Explain Questionnaires.
- (e) Explain Software Characteristics.
- (f) Explain Open and Closed System, Deterministic and Probabilistic.

Q.3) (A) Draw a Prototype of Input Screen for entering patients information in hospital, including Patient Information, Doctor Information and Treatment Information. **[08]**

(B) A STARFISH Company is offering certain discount on the total amount of purchase. If the purchasing amount is more than 5,000 and the customer is making the payment within 5 days then company offers 5% discount on invoice. If the Purchase Amount is between 3,000 to 5,000 and the customer is making the payment within 5 days then company offers 3% discount. If the amount is less than 3,000 and customer is making the payment within 5 days then no discount offered and customer has to pay full amount. If customer is not able to pay within 5 days then no discount is given.

Draw Decision Tree and Decision Table. **[08]**

Q.4) Write short notes : (Any Four) [16]

- (a) Peak Load Testing
- (b) Implementation and Maintenance
- (c) Pseudocode
- (d) Structured and Unstructured Interview
- (e) System Characteristics
- (f) Structured Chart

Q.5) Case Study : [16]

Consider a Student Exam Management System in which following procedures are followed validate student, exam conduction, paper checking, result display, assume student, teacher information is maintained.

- (a) Identify all entities
- (b) Draw Content Level Diagram.
- (c) Draw First Level DFD.
- (d) Draw Structure Chart.

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4273]-304

B. C. A. (Semester - III) Examination - 2012

MANAGEMENT ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) Figures to the right indicate full marks.

Q.1) Define 'Management Accounting'. Explain advantages and limitations of Management Accounting. [16]

OR

Q.1) What is Working Capital ? Explain various factors affecting the need of Working Capital. [16]

Q.2) The Board of Director of XYZ Ltd. request you to prepare a statement showing the working capital requirement for a level of activity of 1,56,000 units of production. The following information is available for year consideration :

	Per unit (Rs.)
Raw Material	90
Direct Labour	40
Overheads	75
	<hr/> 205
Profit	<hr/> 60
Selling Price per unit	<hr/> 265

[4273]-304

1

P.T.O.

- (i) Raw Materials in Stock on an average one month.
- (ii) Materials are in process 50% complete on an average 2 weeks.
- (iii) Finished goods are in stock on an average one month.
- (iv) Credit allowed by supplier is one month.
- (v) Time Lag in Payment of Wages is $1\frac{1}{2}$ weeks.
- (vi) Lag in Payment of Overhead is one month. 20% of output is sold against cash. Cash in hand and at bank expected Rs. 60,000.
- (vii) Time Lag in Payment from Debtors is 2 months.

Assume that production is carried on evenly through out the year, wages and overhead accrue similarly and a time period of 4 weeks is equivalent to a month and 48 weeks in a year. [16]

Q.3) The following information is obtained from 'Ajay Ltd.' in a certain year :

Particulars	Rs.
Sales (1,00,000 units)	1,00,000
Variable Cost	60,000
Fixed Cost	30,000

Calculate :

- (a) P/V Ratio
- (b) Break-even Point
- (c) Profit when sales amounted to Rs. 14,000. [16]

OR

Q.3) What is Fund Flow Statement ? Discuss the significance of Fund Flow Statement as a tool of Financial Statement Analysis. [16]

Q.4) The following are summarised Profit and Loss A/c. and Balance Sheet of ABC Ltd. :

Profit and Loss A/c. for the year ended 31st March, 2012

To Opening Stock	10,000	By Sales	1,00,000
To Purchases	55,000	By Closing Stock	15,000
To Gross Profit c/d	50,000		
	1,15,000		1,15,000
To Administration Expenses	15,000	By Gross Profit b/d	50,000
To Interest	3,000		
To Selling Expenses	12,000		
To Net Profit	20,000		
	50,000		50,000

Balance Sheet as at 31st March, 2012

Share Capital (Rs. 10 each)	1,00,000	Land and Building	50,000
Profit and Loss A/c.	20,000	Plant and Machinery	30,000
Creditors	25,000	Stock	15,000
Bills Payable	15,000	Debtors	15,000
		Bills Receivable	12,500
		Cash and Bank	17,500
		Furniture	20,000
	1,60,000		1,60,000

Additional Information :

- (1) Average Debtors Rs. 12,500
- (2) Credit Purchases Rs. 40,000
- (3) Credit Sales Rs. 80,000

Calculate :

- (a) Stock Turnover Ratio
- (b) Debtors Turnover Ratio
- (c) Creditors Turnover Ratio
- (d) Sales to Capital Employed
- (e) Return on Shareholders Fund
- (f) Gross Profit Ratio
- (g) Net Profit Ratio
- (h) Operating Ratio **[16]**

Q.5) Define the term 'Budget' and 'Budgetary Control'. Explain its objectives and advantages. **[16]**

OR

Q.5) Write short notes : **(Any Two)** **[16]**

- (a) Distinction between 'Fixed Budget and Flexible Budget'
 - (b) Break-even Analysis
 - (c) Limitations of Budgetary Control
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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 5

[4273]-305

B. C. A. (Semester - III) Examination - 2012

RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) Figures to the right indicate full marks.

Q.1) Attempt all :

[16]

- (a) Give any two differences between DBMS and RDBMS.
- (b) Give proper syntax of Trigger.
- (c) Which are different Attributes of Cursor ?
- (d) What is Cascadeless Schedule ?
- (e) What is Transaction ? List Properties of Transaction.
- (f) Define Growing Phase and Shrinking Phase.
- (g) List different types of Storage.
- (h) What is Checkpoint ?

Q.2) Attempt any four :

[16]

- (a) Explain any two Popular Products of RDBMS.
- (b) Explain following Per-defined Exceptions :
no_data_found, zero_divide, too_many_rows, dup_val_on_index.
- (c) Explain all possible sequences of states through which a transaction may pass.
- (d) What is Dead-lock ? How Dead-lock is recovered ?
- (e) Explain Log-based Recovery.

[4273]-305

1

P.T.O.

Q.3) Attempt any four : [16]

- (a) What is Parameterized Cursor ? Explain it with example.
- (b) Explain Conflict Serializability using Precedence Graph.
- (c) Explain Validation-based Protocol.
- (d) Explain various types of failure that may occur in a System.
- (e) Explain Remote Backup System with proper diagram.

Q.4) Attempt any four : [16]

- (a) Consider the following Relational Database :

Doctor (d_no, d_name, d_city)

Hospital (h_no, h_name, h_city)

Doc_Hosp (d_no, h_no)

Write a function, which will count number of doctors visiting to 'Poona' Hospital.

- (b) Consider the following Relational Database :

Book (b_no, b_name, pub_name, price)

Author (a_no, a_name)

Book-Auth (b_no, a_no)

Write a procedure to display details of all books written by 'Mr. Mohite.'

- (c) Consider the following Relational Database :

Customer (c_no, c_name, c_city)

Loan (l_no, l_amt, no_of_years, c_no)

Define a trigger that restricts updation of Loan Amount.

- (d) Consider the following Relational Database :

Employee (e_no, e_name, city, dept_name)

Project (p_no, p_name, status)

Emp_Proj (e_no, p_no, no_of_days)

Write a cursor to display details of all projects having status 'Completed'.

- (e) Write a package which consist of one procedure and one function. For this consider the following Relational Database :
- Customer (cust_no, cust_name, cust_city)
 Account (acc_no, acc_type, balance, cust_no)
- (i) Pass account number as a parameter to a procedure and display account details.
- (ii) Pass customer number as a parameter to a function and return total number of accounts of given customer.

Q.5) Attempt any four :

[16]

- (a) Consider the following Transaction. Give two Non-serial Schedules that are serializable :

T₁	T₂
Read (X)	Read (Y)
X = X - 1000	Y = Y + 5000
Write (X)	Write (Y)
Read (Y)	Read (Z)
Y = Y + 1000	Z = Z + 5000
Write (Y)	Write (Z)

- (b) Consider the following Transactions. Give two Non-serial schedules that are serializable :

T₁	T₂
Read (X)	Read (Y)
X = X + 10	Y = Y - 10
Write (X)	Write (Y)
Read (Y)	Read (Z)
Y = Y + 20	Z = Z - 20
Write (Y)	Write (Z)
Read (Z)	
Z = Z + 30	
Write (Z)	

- (c) Following is the list of events in an interleaved execution of set T_1, T_2, T_3 and T_4 assuming 2PL (Two Phase Lock). Is there a Deadlock ? If yes, which transactions are involved in Deadlock ?

Time	Transaction	Code
t_1	T_1	Lock (B, S)
t_2	T_2	Lock (A, X)
t_3	T_3	Lock (C, S)
t_4	T_4	Lock (B, S)
t_5	T_1	Lock (A, S)
t_6	T_2	Lock (C, X)
t_7	T_3	Lock (A, S)
t_8	T_4	Lock (C, X)

- (d) Following is the list of events in an interleaved execution of set $T_1, T_2,$ and T_3 assuming 2PL (Two Phase Lock). Is there a Deadlock ? If yes, which transactions are involved in Deadlock ?

Time	Transaction	Code
t_1	T_1	Lock (A, S)
t_2	T_2	Lock (B, S)
t_3	T_3	Lock (C, S)
t_4	T_1	Lock (C, S)
t_5	T_2	Lock (D, X)
t_6	T_1	Lock (D, S)
t_7	T_2	Lock (A, X)
t_8	T_3	Lock (B, X)

(e) Following are the log entries at the time of system crash :

[start_transaction, T₁]

[write_item, T₁, A, 30]

[commit T₁]

[checkpoint]

[start_transaction, T₃]

[write_item T₃, C, 50]

[commit T₃]

[start_transaction, T₂]

[write_item T₂, C, 40]

[start_transaction, T₄]

[write_item T₄, B, 30]

[write_item T₂, D, 60] ← System Crash

If deferred update technique with checkpoint is used, what will be the recovery procedure ?

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - III) Examination - 2012

PRINCIPLES OF PROGRAMMING AND ALGORITHM

(Old 2004 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory and carry equal marks.
- (2) Figures to the right indicate full marks.

Q.1) Attempt **any four** of the following : **[4x4=16]**

- (a) Differentiate between Actual Parameter and Formal Parameter.
- (b) Explain 'do-while' loop with example.
- (c) Explain structure of 'C' program.
- (d) Describe call by Value and Call by Reference with example.
- (e) Explain syntax and usage of 'scanf' with example.

Q.2) Attempt **any four** of the following : **[4x4=16]**

- (a) What are the features of 'C' Language ?
- (b) Explain the following terms with example :
 - (i) Local Variable
 - (ii) Global Variable
- (c) Explain any four Preprocessor Directives.
- (d) Why 'C' is called Middle Level Language ?
- (e) Write syntax and usage of for loop with example.

Q.3) Attempt **any four** of the following : **[4x4=16]**

- (a) Explain Logical and Relational Operators.
- (b) Define Function. Explain how to declare and define the function with example.
- (c) Explain Switch-case Statement with example.
- (d) Discuss various Data Types used in 'C' Language.
- (e) What is Recursion ? Explain its advantages.

Q.4) Attempt **any four** of the following : **[4x4=16]**

- (a) Write a 'C' program to check whether the given number is positive or negative.
- (b) Write a 'C' program to interchange the values of two variables without using this variable.
- (c) Write a 'C' program to find out largest of two numbers.
- (d) Write a 'C' program to find the sum of all digits in a number.
- (e) Write a 'C' program to check whether the given number is even or odd.

Q.5) Trace the output : (**Any Four**) **[4x4=16]**

(a) `main()`
{
 int a = 20, b = 3;
 if (a < 10)
 a = a - 5;
 b = b + 5;
 printf(“%d %d\n”, a, b);
}

```

(b) main( )
    {
        int i, j, x = 0;
        for (i = 0; i < 5 ; i++)
            for (j = i ; j > 0; j --)
                x = i + j + 1;
        printf("x = %d\n", x);
    }

(c) main( )
    {
        char s = 3;
        switch(s)
        {
            Case '1' : printf("Hello");
            Case '2' : printf("Hi");
            default :
                printf("C Programming");
        }
        printf("Language");
    }

(d) main( )
    {
        int a = 5, b = 10;
        printf("%d\n", a++ + b++);
        a = 5, b = 10;
        printf("%d\n", ++a * ++b);
    }

(e) main( )
    {
        int a = 500, b = 100;
        printf("%d", (a > b) ? a : b);
    }

```

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4273]-401

B. C. A. (Semester - IV) Examination - 2012

NETWORKING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
- (2) *Draw neat diagram wherever necessary.*

Q.1) Solve any three :

[3x5=15]

- (a) Define following :
 - (i) Repeaters
 - (ii) Topology
 - (iii) Broadcasting
 - (iv) Half Duplex
 - (v) Simplex
- (b) Write short note on Firewalls.
- (c) Explain Piconet and Scatternet in detail.
- (d) What are the function of each layers in ISO/OSI Reference Model ?

Q.2) Attempt any three :

[3x5=15]

- (a) Explain IEEE 802.3 (Ethernet) in detail.
- (b) Explain Protocols and Standards.
- (c) Explain the Architecture of IEEE802.11.
- (d) Write short note on Network Adapter.

[4273]-401

1

P.T.O.

Q.3) Attempt any three : **[3x5=15]**

- (a) What is Bridge ? What are its types ? Explain advantages and disadvantages of Bridges.
- (b) Write short note on Internet Information Server (IIS).
- (c) Define Network. Explain types of Network.
- (d) Explain Unguided Media.

Q.4) Attempt any three : **[3x5=15]**

- (a) Explain Star and Mesh Topology with its advantages and disadvantages.
- (b) Explain the architecture of www.
- (c) What is full form of NIC ? List its types. Explain any one in detail.
- (d) Write a short note on Wireless Fidelity.

Q.5) Write short notes : (Any Four) **[4x5=20]**

- (a) Asynchronous Communication
- (b) Line-of-Sight
- (c) Wireless Transmission
- (d) TCP/IP Model
- (e) Working of Proxy Server

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4273]-402

B. C. A. (Semester - IV) Examination - 2012

VISUAL BASIC

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
 - (2) *Figures to the right indicate full marks.*
 - (3) *Give illustrations wherever necessary.*
-
-

Q.1) Explain the following property settings : (Any Eight) [8x2=16]

- (a) Property used to make the background of the label transparent.
- (b) Property used to display information on the command button.
- (c) Property used to display information in text box control.
- (d) Property used to set the value of check boxes.
- (e) Property used to resize picture dynamically to fit the dimensions of the picture box control.
- (f) Property to sort the items in a combo box.
- (g) Property used to remove items from and list box.
- (h) Property used to draw circle from the shape control.
- (i) Property used to select *.doc files from a file list box control.
- (j) Property used to specify the high end range of the scroll bar control.

Q.2) Answer the following : (Any Four) [4x4=16]

- (a) Explain constants with an example.
- (b) Explain SELECT Case in VB with example.
- (c) How to create a Menu ? Explain with an example.
- (d) Explain DATE and TIME function with example.
- (e) Explain ADOO Data Control.

Q.3) Attempt the following : (Any Four) [16]

- (a) Write a VB program to accept a number from user and calculate sum of even digits of given number.
- (b) Write VB program to find the prime number.
- (c) Write VB program to find the roots of quadratic equation.
- (d) Write a menu driven program in VB to perform the following :
 - (i) Area of Square
 - (ii) Area of Rectangle
 - (iii) Area of Triangle
- (e) Write a VB program to check whether a number is positive or not.

Q.4) Attempt the following : (Any Two) [16]

- (a) Write a VB program to accept the details of doctor from user and store the details into the database. (Don't use Standard Controls)
Doctor having fields Did, Dname, Address, Phoneno.
- (b) Explain any two looping structures used in VB with syntax and example.
- (c) What is an Event ? Explain various Events of a Form.

Q.5) Short notes : (Any Four) [4x4=16]

- (a) MDI
- (b) List View Control
- (c) Input Box
- (d) Status Bar
- (e) Data Reports

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-403

B. C. A. (Semester - IV) Examination - 2012

INVENTORY MANAGEMENT (SAD)

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) What is Shortage Cost ?
- (b) Define Inventory.
- (c) State various types of Technological Emergencies.
- (d) What is Mass Theft ?
- (e) Define Barcode.
- (f) What is Test Counting ?
- (g) How CASE Tools can be classified ?
- (h) What is Business Process ?
- (i) State advantages of Weighted Average Cost Method.
- (j) What is Variance Report ?

Q.2) Attempt any four of the following :

[4x4=16]

- (a) With suitable diagram describe structure of a Barcode.
- (b) How to Monitor and Control Inventories ?
- (c) Discuss Valuation of Stock in brief.
- (d) How to improve Accuracy in Records ?
- (e) To protect inventory, what legal duties should be followed by Organisation ?

Q.3) Attempt **any two** of the following :

[2x8=16]

(a) Two components X and Y are used as follows :

Normal Usage : 600 units per week each

Maximum Usage : 900 units per week each

Minimum Usage : 300 units per week each

Re-order Quantity : X – 4,800 units

Y – 7,200 units

Re-order period : X – 4 to 6 weeks

Y – 2 to 4 weeks

Calculate :

(i) Re-order Level

(ii) Minimum Stock Level

(iii) Maximum Stock Level

(iv) Average Stock Level

(b) With suitable diagram describe Software Re-engineering Process Model.

(c) Explain Inventory Management Techniques in brief.

Q.4) Solve **any four** of the following :

[4x4=16]

(a) Explain BPR Model with the help of diagram.

(b) Compare continuous and discrete Bar Coding Symbologies.

(c) State drawback of CASE Tool.

(d) Why Inventory System fail ?

(e) Following information relating to a type of raw material is available :

Annual Demand 3,600 units

Ordering Cost per order Rs. 4

Cost per unit Rs. 2.40

Storage Cost 12% per annum

Calculate :

(i) EOQ

(ii) Number of Order per annum

Q.5) Write a short notes : (Any Four)

[4x4=16]

- (a) BCP Model
 - (b) Software Maintenance
 - (c) Integrated CASE Environment
 - (d) Objectives of Inventory Management
 - (e) Reverse Engineering to Understand Processing
-

Seat No.	
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Total No. of Questions : 6]

[Total No. of Printed Pages : 1

[4273]-404

B. C. A. (Semester - IV) Examination - 2012

HUMAN RESOURCE MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *Question No. 6 is compulsory.*
- (2) *Answer **any four** from the remaining.*
- (3) *Figures to the right indicate full marks.*
- (4) *Draw figures wherever necessary.*

-
-
- Q.1)** Explain in detail the challenges and limitations of HRM. **[15]**
- Q.2)** What is 'Promotion' and 'Transfer' ? Explain the different types and objectives of Transfer. **[15]**
- Q.3)** What is 'Training' ? Explain various methods of Training. **[15]**
- Q.4)** Explain the important methods of Wage Payments. **[15]**
- Q.5)** Define the term 'Performance Appraisal'. Explain in detail the process and uses of Performance Appraisal. **[15]**
- Q.6)** Write short notes : **(Any Four)** **[20]**
- (a) Approaches of Organisational Behaviour
 - (b) Sources of Recruitment
 - (c) Functions of HRM
 - (d) Management Development Programme
 - (e) Profit Sharing
 - (f) Disciplines Contributing to Organisational Behaviour

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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4273]-405

B. C. A. (Semester - IV) Examination - 2012
OBJECT ORIENTED PROGRAMMING USING C++
(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
 - (2) *Black figures to the right indicate full marks.*
 - (3) *All questions are carry equal marks.*
 - (4) *Neat diagrams must be draw wherever necessary.*
 - (5) *Assume suitable data, if necessary.*
-
-

Q.1) Attempt **any eight** of the following :

[8x2=16]

- (a) What is Inheritance ? List its any two types.
- (b) Give any four keywords introduced by language 'C++' which are not used in 'C' language.
- (c) Give structure of a C++ program.
- (d) Give two Memory Management Operator defined by C++.
- (e) Define the following terms :
 - (i) Object
 - (ii) Class
- (f) What is Constructor ? Is it compulsory to use constructors in a class ?
- (g) What is Inline Function ?
- (h) List four functions used for manipulation of the file pointers.
- (i) What is 'this' pointer ?
- (j) What is use of get() and put() function in C++ ?

[4273]-405

1

P.T.O.

Q.2) Attempt any four of the following : **[4x4=16]**

- (a) Explain use of default argument with the help of suitable example and write rules specified for default arguments.
- (b) Explain special characteristics of static member variable and also explain when do we declare a member of a class static with the help of suitable example.
- (c) What is Destructor ? Describe the importance of destructors with the help of suitable example.
- (d) Write a C++ program using class with function replace (char * str, char c1, char c2). Every occurrence of c1 in str should be replaced with c2 and return number of replacement it makes.
- (e) Write a C++ program to accept 'n' numbers from user through command line and store all positive numbers and negative numbers into the different array and display both the array.

Q.3) Attempt any four of the following : **[4x4=16]**

- (a) Write a note on Operator Overloading.
- (b) Explain Runtime Polymorphism with the help of suitable example.
- (c) Design two base classes personnel (name, addr, emailid, birthdate) and Academic (marks_in_tenth, marks_in_twelfth), Derive a class BioData from both these classes. Write a C++ program to prepare a BioData of a student having personnel and academic information.
- (d) Write a C++ program to display number of digits present in a given file.
- (e) Trace output of the following program and explain it. Assume there is no syntax error.

```
# include <iostream.h>
# include <string.h>
int main( )
{
    char *str = "computer";
    for (int i=1; i<=strlen(str); i++)
}
```

```

    cout write (str, i);
    cout <<“\n”;
}
for (i = strlen(str); i > = 1; i --)
{
    cout write(str, i)
    cout <<“\n”;
}
}

```

Q.4) Attempt any four of the following : [4x4=16]

- Explain Virtual Base Class with the help of suitable example.
- Explain use of setw() and setprecision() manipulators with the help of suitable example.
- Write a note on the file handling in C++.
- Create a C++ class Time which contains
 - hour
 - minute
 - second

Write necessary member function to accept and display a Time using <<and>> operators.

- Trace output of the following program and explain it. Assume there is no syntax error.

```

#include <iostream.h>
#include <string.h>
void main( )
{
    char str( ) = “Program”;
    for (int i = 0; i < strlen(str); i++)
    {
        cout << str[i] << i[chr[ << * (str + i) << (i + str) << “\n”;
    }
}

```

Q.5) Attempt **any four** of the following :

[4x4=16]

- (a) Write a note on Class Templates.
- (b) What is Object ? Explain array of object with the help of suitable example.
- (c) Write a C++ program to calculate sum of two integer numbers of two different classes using friend function.
- (d) Create a C++ class

```
class mystring
{
    char str[30];
    int len;
    public:
        //member functions
};
```

overload operator “!” to reverse the case of each alphabet in the string. Write necessary member functions.

- (e) Create a C++ class Telephone containing name, telephone number and city. Write necessary member functions for the following :
 - accept and display information.
 - search the telephone number with given name.
 - search the name with given telephone number.(Use function overloading)

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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-501

B. C. A. (Semester - V) Examination - 2012

VB.NET PROGRAMMING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.
- (3) Draw suitable diagram wherever necessary.
- (4) Design proper GUI.

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) What is MSIL ?
- (b) Explain the Print Preview Dialog Control in Dialog Boxes Function.
- (c) What is Polymorphism ?
- (d) Describe the different features of ASP.Net.
- (e) Enlist different types of error in VB.Net.
- (f) What is Data Validation in VB.Net ?
- (g) What is the use of Timer Control in VB.Net ?
- (h) What is Tree View Control in VB.Net ?
- (i) What is meant by Assembly ? Enlist various types of Assemblies.
- (j) Enlist the different Standard Controls of .Net.

Q.2) Attempt the following : (Any Four) [4x4=16]

- (a) Design GUI and write code in VB.Net for the following :
 - Accept two numbers in two Text Boxes.
 - Add and Multiply both the numbers.
 - Display the result in third Text Box.
- (b) Explain exception handing in VB.Net.
- (c) Explain Overloading and Overriding in VB.Net.
- (d) What is CTS ? Explain Garbage Collection in VB.Net.
- (e) Design GUI and write code for the following in VB.Net :
 - Accept string in Text Box.
 - If entered string is palindrome add it to List Box One and if it is not add it to List Box Second.

Q.3) Attempt the following : (Any Four) [4x4=16]

- (a) What is .Net Framework ?
- (b) Explain any four data types with example in VB.Net.
- (c) Design GUI and write code for the following in VB.Net (ADO.Net) without Wizard :
 - Accept Department details like dept_no, dept_name, location and save these details in Department_Table.
- (d) Explain the following controls :
 - DateTimePicker
 - ComboBox
 - ToolTip
 - CheckedListBox
- (e) Design GUI and write code for the following in VB.Net :
 - Add items to ListBox
 - Remove selected item from ListBox.

Q.4) Attempt the following : (Any Four)

[4x4=16]

- (a) Explain Message Box Control.
- (b) Write a program to calculate the Fibonacci Series of a given number using console application.
- (c) Design GUI and write code for the following in VB.Net.
 - Accept five names in ListBox
 - Sort the items in the ListBox Alphabetically
- (d) Explain try catch finally block with example.
- (e) Design GUI and write code for the following in VB.Net using RichTextBox.
 - FontSize
 - FontColour
 - Exit

Q.5) Write short notes : (Any Four)

[4x4=16]

- (a) User Controls in ASP.Net
 - (b) Inheritance
 - (c) InputBox
 - (d) ADO.Net Architecture
 - (e) Method Overloading
-

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-502

B. C. A. (Semester - V) Examination - 2012

INTERNET PROGRAMMING AND CYBER LAW

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
- (2) *Figures to the right indicate full marks.*
- (3) *State assumptions wherever necessary.*

Q.1) Solve any eight :

[8x2=16]

- (a) Define Encryption and Decryption.
- (b) State any two Style Sheet Property.
- (c) How can we change text to lowercase in CSS ?
- (d) What are Event Handlers in Java Script ?
- (e) Define Response and Request Object.
- (f) On which Platforms does ASP Pages run ?
- (g) What is Cybercrime ?
- (h) Give syntax of Ordered List and Unordered List with example.
- (i) Write any 2 attributes of <table> tag.
- (j) Explain Image Mapping.

Q.2) Solve any four :

[4x4=16]

- (a) Explain Basic Structure of HTML.
- (b) Explain Need of Cyber Law.
- (c) Write an ASP Code to accept pat_no, name, city, hosp_name from user, store it in database and display patient details on the screen (Use JavaScript).
- (d) Write a Javascript to calculate sum of :
Odd numbers
- (e) Write an HTML Code to display following Bus details using table :

Bus Name	Starting Place	Destination Place	Time		Fare
			Arrival	Departure	

(Insert at least 3 records)

Q.3) Solve any four :

[4x4=16]

- (a) What is role of ACL (Access Control List) and capabilities in ACL ?
- (b) Which services are provided by electronic Banking System ?
- (c) Explain Digital Signature.
- (d) Write an HTML Code to design calculator.
- (e) Write an ASP Code to accept student details :
(Roll_no, name, address) update his details and display on the screen (Use Javascript).

Q.4) Solve any four :

[4x4=16]

- (a) What you mean by Granularity ?
- (b) Explain RSA Algorithm.
- (c) Explain role and function of Certification Authority.
- (d) Write an ASP Code to display Armstrong numbers between 1 to 1000.
- (e) Write an JavaScript to create 4 button on the web page. Click on button will change the background colour of Web Page.

Q.5) Solve any four :

[4x4=16]

- (a) Write a note on Group and Roles.
- (b) Explain types of Hackers.
- (c) What are Selectors in CSS ?
- (d) Write an ASP Code to interact with user through radio button with request form command and display following :

Please select your favorite car :

BWW

Swift

Accent

Your favorite cars is BMW.

- (e) Write a HTML Code to display following :

One	
Two	Three
Four	
Five	Six

Seat No.	
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Total No. of Questions : 7]

[Total No. of Printed Pages : 1

[4273]-503

B. C. A. (Semester - V) Examination - 2012

PRINCIPLES OF MARKETING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Attempt *any five* questions.
- (2) All questions carry equal marks.

-
-
- Q.1)** What is Marketing Mix ? State the Elements of Marketing Mix. [16]
- Q.2)** Define the term Brand. State the advantages of Branding. [16]
- Q.3)** Define Price. Explain the factors affecting Price of a Product. [16]
- Q.4)** Explain the meaning of Channel of Distribution. State the functions of Channel of Distribution. [16]
- Q.5)** What is Personal Selling ? State its features, objectives and functions. [16]
- Q.6)** Define Marketing Organisation. Explain Essentials of a Sound Marketing Organisation. [16]
- Q.7)** Write short notes : **(Any Four)** [16]
- (a) Scope of Marketing
 - (b) Packaging Strategies
 - (c) Importance of Market Segmentation
 - (d) Warehousing
 - (e) Promotion Mix
 - (f) Matrix Organisation

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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4273]-504

B. C. A. (Semester - V) Examination - 2012

CORE JAVA

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) Figures to the right indicate full marks.

Q.1) Attempt all :

[8x2=16]

- (a) State Primitive Data Types of Java.
- (b) What are the Two Basic Stream Types supported by Java ?
- (c) State the purpose of “Throws” Keyword.
- (d) Which class is at the top of Exception Hierarchy ?
- (e) Why it is illegal for a Static Method to Invoke a Non-static Method ?
- (f) State any two methods of Mouse Listener.
- (g) What is the purpose of toString() Method ?
- (h) Can an applet class have a Constructor ? Justify.

Q.2) Attempt any four :

[4x4=16]

- (a) What is Package ? What is importance of using user defined packages in Java ?
- (b) What is Adapter Class ? Give suitable example of implementing WindowListener.
- (c) Write a Java program which shows the combobox contains three entries (C, C++, Java). The selected entry is displayed in textbox.
- (d) Write a Java program to find sum of integers from command Line Argument and count invalid integers entered through Command Line. (Use exception handling)
- (e) Explain how multiple inheritance is achieved in Java ?

Q.3) Attempt any four : **[4x4=16]**

- (a) What is Container ? Explain different types of containers available in Java.
- (b) How arrays are represented in Java ? Explain with suitable example.
- (c) When do we declare a method or a class as an Abstract ? Give an example.
- (d) Write an interactive program in Java using Applet which input two numbers in different textboxes and sum of two numbers is displayed in third textbox.
- (e) Write a Java program which accepts a filename as Command Line Argument and finds the total size of content present in file. Display error message if file does not exist.

Q.4) Attempt any four : **[4x4=16]**

- (a) Discuss various levels of Access Protection available for packages and their implications.
- (b) What is Implicit and Explicit Casting ? Explain with the help of example.
- (c) A Class DemoException throws the following exception depending upon the following conditions, take any string from keyboard :
 - (i) If string length is between 0 to 5, then exception of type “Too Small String” is thrown.
 - (ii) If string length is between 5 to 10, then exception to type ‘Perfect String’ is thrown.
- (d) Explain the keywords :
 - (i) Super
 - (ii) Finally
- (e) Write a Java program using AWT to display current date and time and also wish the user accordingly. (If it is AM, wish user)

Q.5) Attempt any four :

[4x4=16]

- (a) Explain any four string manipulation function with suitable examples.
 - (b) Why Java is more secure language than other Programming Languages ?
 - (c) Explain Inner and Outer Class with example.
 - (d) Write a program in Java which will take two string inputs from user. Convert string 1 in upper and string 2 in lower case. Concatenate both the strings and display results.
 - (e) Write a Java program which calculates factorial of a given number.
-

Seat No.	
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Total No. of Questions : 7]

[Total No. of Printed Pages : 1

[4273]-601

B. C. A. (Semester - VI) Examination - 2012

E-COMMERCE

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Q. No. 7 is compulsory.
- (2) Answer **any four** from the remaining.

-
-
- Q.1)** What is E-commerce ? Explain goals of E-commerce along with its advantages and disadvantages. **[15]**
- Q.2)** Brief about WWW. Explain reasons for building own website. **[15]**
- Q.3)** Explain Internet Concept. Differentiate between Intranet and Extranet. **[15]**
- Q.4)** What are the different types of Electronic Payment System ? Describe any three types. **[15]**
- Q.5)** Define EDI. Explain the process of EDI with a model diagram. **[15]**
- Q.6)** What is Internet Marketing ? Give PROS and CONS of On-line Shopping. **[15]**
- Q.7)** Short notes : **(Any Four)** **[20]**
- (a) B2B, B2C
 - (b) Technical Components of E-commerce
 - (c) E-cycle
 - (d) WAN
 - (e) Shopping Bots
 - (f) E-governance

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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4273]-602

B. C. A. (Semester - VI) Examination - 2012

MULTIMEDIA SYSTEMS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.*
- (2) All questions carry equal marks.*
- (3) Draw diagram wherever necessary.*

Q.1) Answer in short : (Any Eight)

[16]

- (a) Multimedia Components
- (b) Flow Line
- (c) Digital Representation
- (d) Hard Disk
- (e) Sound Card
- (f) H D Video
- (g) BMP
- (h) MIDI Messages
- (i) Composite Video
- (j) Graphics File Format

- Q.2) Answer the following : (Any Four) [16]**
- (a) Explain various features of DVD Video.
 - (b) Explain any two system dependent File Formats.
 - (c) Define Multimedia Presentation.
 - (d) Explain CCIR in detail.
 - (e) Explain use of Story, Flowline and Script.
- Q.3) Answer the following : (Any Four) [16]**
- (a) What is Nyquist Theorem ?
 - (b) Explain GM1 in detail.
 - (c) Explain Nested / Hybrid RAID.
 - (d) What is Hypertext ? Explain use of Hypertext.
 - (e) Explain any one Television Broadcasting Standards.
- Q.4) Answer the following : (Any Four) [16]**
- (a) Differentiate 8 Bit and 24 Bit Colour Images.
 - (b) Which are different sound I/P and O/P Parts ?
 - (c) Explain any two Animation Software Tools.
 - (d) Explain Applications of Multimedia.
 - (e) Explain Magnetic Media Storage Technology.
- Q.5) Write short notes : (Any Four) [16]**
- (a) Video Signal Formats
 - (b) X-Windows : XBM
 - (c) Types of Storyboarding
 - (d) Sampling
 - (e) Characteristics of Synthesizer
-

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - VI) Examination - 2012

INTRODUCTION TO SYSTEM PROGRAMMING AND
OPERATING SYSTEM

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) Neat diagram must be drawn wherever necessary.

Q.1) Attempt **any eight** of the following :

[8x2=16]

- (a) What is Compiler ?
- (b) What is Multiprogramming ?
- (c) What is meant by Process ?
- (d) What is the functions of Dispatcher ?
- (e) What is meant by Throughput ?
- (f) Define the term Critical Section.
- (g) What do you mean by Request Edge ?
- (h) Define Physical Address.
- (i) List any four File Attributes.
- (j) What is Buffering ?

Q.2) Attempt any four of the following : **[4x4=16]**

- (a) Differentiate between the Preemptive and Non-preemptive Scheduling.
- (b) Define Editor. Explain the different types of Editors.
- (c) Discuss various techniques of Free Space Management in File System.
- (d) Differentiate between System Program and Application Program.
- (e) Calculate Average Turn Around Time and Average Waiting Time for all set of processes using SJF.

Process	Burst Time	Arrival Time
P ₁	4	1
P ₂	3	0
P ₃	2	2
P ₄	4	3
P ₅	1	2

Q.3) Attempt any four of the following : **[4x4=16]**

- (a) What is Semaphore ? List and explain different types of the Semaphores.
- (b) Explain DMA (Direct Memory Access) with the help of block diagram.
- (c) What are the necessary conditions for Deadlock Occurrence ?
- (d) Explain in detail the various process states with the help of diagram.
- (e) Consider the following page reference string :

4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5

The number of frames are 3. Show page trace and calculate page faults for the following page replacement schemes :

- (i) FIFO
- (ii) MFU

Q.4) Attempt **any four** of the following : **[4x4=16]**

- (a) Explain in detail M.V.T. Job Scheduling.
- (b) Explain different functions performed by an Operating System.
- (c) Define File. Explain the different operations of File.
- (d) Describe in detail the “Dining Philosopher Problem” Synchronization Problem.
- (e) Explain Deadlock Prevention in detail.

Q.5) Attempt **any four** of the following : **[4x4=16]**

- (a) What do you mean by Segmentation ? Explain the advantages of Segmentation.
- (b) Write a short note on Overlays.
- (c) Assume there are total 200 tracks that are present on each surface of the disk. If request quene is 70, 120, 10, 180, 90, 50, 100 and initial position of the head is 105. Apply FCFS Disk Scheduling Algorithm and calculate total head movement.
- (d) What is a Macro ? State its advantages.
- (e) Consider the system with 5 processes $P = \{P_0, P_1, P_2, P_3, P_4\}$ and four resource types $\{A, B, C, D\}$. There are 3 instances of type A, 10 instances of type B, 15 instances of type C and 7 instances of type D.

The allocation and maximum demand matrix are as follows :

	Allocation			
	A	B	C	D
P₀	0	1	2	1
P₁	0	1	2	1
P₂	1	0	0	0
P₃	1	3	5	3
P₄	0	0	4	1

	Max			
	A	B	C	D
P₀	0	8	4	4
P₁	0	6	5	2
P₂	1	6	4	1
P₃	2	3	7	5
P₄	0	5	5	7

Answer the following question using Banker’s Algorithm :

- (i) Is the system in a Safe State ?
- (ii) If a request from process P_4 arrives for (0, 2, 0, 2) can it be granted ?

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - VI) Examination - 2012

ADVANCED JAVA

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
- (2) *Figures to the right indicate full marks.*
- (3) *Answer of sub-questions of each question should be attempted at one place. It should not be written separately.*

Q.1) Attempt the following : (Any Eight)

[2x8=16]

- (a) What is the purpose of Service() Method ?
- (b) Which method is used to change the thread priority ?
- (c) What is advantage of using an iterater() ?
- (d) Name the method to redirect the servlet to another html or servlet.
- (e) Write the syntax of comments in JSP.
- (f) What is the purpose of manifest file ?
- (g) What is the purpose of hasNext() Method ?
- (h) Why Class ? ForName() Method is used ?
- (i) Explain types of Servlet.
- (j) What is Thread ?

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P.T.O.

Q.2) Attempt any four : **[4x4=16]**

- (a) Explain the steps involved in creating JDBC Applications.
- (b) What is Bean ? Explain properties of Bean.
- (c) Write a servlet which counts how many times a user has visited a web page. (Use cookie)
- (d) Write a program to create two threads each displaying a message (Pass the message as a parameter to the constructor). The threads should display the messages continuously till the user presses ctrl-C.
- (e) Explain JSP Scripting Elements.

Q.3) Attempt any four : **[4x4=16]**

- (a) What is Servlet ? Explain Servlet Lifecycle.
- (b) Explain how a thread is created in Java.
- (c) Explain difference between Local and Remote Objects.
- (d) Write a JDBC program to update Employee Table whose job status is "PartTime" update it to "FullTime".
- (e) Write a program to create LinkedList of integer and do the following operations :
 - (i) add elements at the last position
 - (ii) delete the first element

Q.4) Attempt any four : **[4x4=16]**

- (a) Write a note on JSP directives.
- (b) Explain how SQL queries are executed using statement object ?
- (c) Write a program to demonstrate the life cycle of a thread.
- (d) What is Cookie ? Explain how cookie can be created and accessed in servlet ?
- (e) Write a Java program to read n strings and store it into linked list also display contents of same LinkedList.

Q.5) Attempt any four :

[4x4=16]

- (a) What is Jar File ? Write steps for creating a Jar File.
 - (b) Why RMI registry is needed ?
 - (c) Why runnable interface is needed ? Explain with suitable example.
 - (d) Write a servlet to accept two numbers from HTML and display their addition.
 - (e) Write a Jdbc program which displays details of those student whose percentage is more than 70.
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