

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-101**

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

**BUSINESS COMMUNICATION**

**(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 figures wherever necessary.
- 

**Q.1) What is Communication ? State and explain the steps of Communication Process.** [15]

**OR**

**Q.1) What is Written Communication ? State its merits and demerits.** [15]

**Q.2) As a Sales Manager draft a Sales Letter for promoting the Sale of Laptops.** [15]

**OR**

**Q.2) Draft an Application Letter for the post of Lecturer in Computers in an Educational Institute along with resume.** [15]

**Q.3) Define Communication. Explain the Communication Barriers in details.** [15]

**OR**

**Q.3) Explain the advantages and disadvantages of Group Discussion.** [15]

**Q.4) Explain the following : [15]**

- (a) SMS
- (b) Telephone Answering Machine
- (c) Word Processor

**OR**

**Q.4) What is a Business Letter ? Explain Layout of Business Letter. [15]**

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

- (a) Types of Meetings
  - (b) Non-verbal Communication
  - (c) Grapevine
  - (d) Passive Listening
  - (e) Memo
  - (f) Principles of Good Listening
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-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) What is Management ? Explain its features.**

**OR**

**Q.1) What is Planning ? What are the major steps involved in the Planning Process ?**

**Q.2) What Guidelines would you suggest to ensure effective Organising ?**

**OR**

**Q.2) Write notes :**

- (a) Administrative Management Theory
- (b) Importance of Delegation of Authority

**Q.3) What is Controlling ? Explain the steps involved in the Process of Controlling.**

**OR**

**Q.3) Explain the term ‘Motivation’. “Motivation is the soul of the Managerial Process.” Comment.**

**Q.4)** Explain the importance of Strategic Management.

**OR**

**Q.4)** Write notes :

- (a) Rational Decision-making
- (b) Management of Change

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

- (a) Importance of Direction
  - (b) Total Quality Management
  - (c) Staffing
  - (d) Importance of Communication
  - (e) Stress Management
  - (f) Social Responsibility of a Business
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-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 :**

**[2x8=16]**

- (a) What is Variable ?
- (b) What is Compiler ?
- (c) Define Recursion.
- (d) List all Bitwise Operators in ‘C’.
- (e) What is Escape Sequences ?
- (f) Write Syntax and Usage of for Loop.
- (g) What is Actual Parameter ?
- (h) What is Syntax and Usage of putchar( ) ?

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

**[4x4=16]**

- (a) Explain Call by Value and Call by Reference with example.
- (b) Explain If-else and Nested-If-else with example.
- (c) Explain a basic structure of ‘C’ program.
- (d) Write a ‘C’ program to check whether the given number is prime or not.
- (e) Write a ‘C’ program to calculate the sum of digits of a given number.

**[4173]-103**

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

**[4x4=16]**

- (a) Explain Static and Register Storage Class with example.
- (b) Distinguish between Break and Continue Statement.
- (c) Describe the Relational Operators in ‘C’.
- (d) Write a ‘C’ program to check whether the given number is armstrong or not.
- (e) Write a ‘C’ program to calculate factorial of a number.

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

**[4x4=16]**

- (a) What are the advantages of ‘C’ Language ?
- (b) Define the following terms with suitable example :
  - (i) Constant
  - (ii) Identifier
- (c) Explain working of ‘do..... while’ loop with syntax and example.
- (d) Trace the following output and explain :

```
main( )  
{  
    int x = 80;  
    {  
        int x = 30;  
        printf("\n%d", x);  
    }  
    printf("\n%d", x);  
}
```

```
(e) main( )  
{  
    const int y;  
    y = 200;  
    printf("%d", y);  
}
```

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

**[4x4=16]**

- (a) Explain Switch Statement with example.
  - (b) What is Constant ? What are the two methods for declaring constants ?
  - (c) Define Algorithm. Explain characteristics of Algorithm.
  - (d) Write an algorithm to check number is palindrome or not.
  - (e) Draw a flowchart to find maximum and minimum for three numbers.
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-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) Neat diagrams must be drawn wherever necessary.
- 

**Q.1) Attempt any three of the following : [15]**

- (a) What is Computer ? Explain different generations of Computer.
- (b) Explain different types of Charts used in MS-Excel.
- (c) Explain any five Internal DOS Commands.
- (d) What are Metacharacters ? Explain it with example.

**Q.2) Attempt any three of the following : [15]**

- (a) What is Algorithm ? State the different characteristics of Algorithm.
- (b) Draw a flowchart to check given number is armstrong or not.
- (c) Write an algorithm to calculate the Sum of first N numbers.
- (d) Draw a flowchart to calculate Simple Interest.

**Q.3) Attempt any three of the following : [15]**

- (a) Write a note no Kernal of Linux O.S.
- (b) Explain Hard Disk is Secondary Storage Device.
- (c) Explain different types of Operating System.
- (d) Explain various elements of MS-Windows.

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

**[15]**

- (a) Write a note on MS-Powerpoint
- (b) Explain Desk Top Publishing (DTP).
- (c) Explain Vi-editor in Linux.
- (d) Perform the following :
  - (i)  $(1001)_2 = (?)_{10}$
  - (ii)  $(60)_{10} = (?)_2$
  - (iii)  $(596)_{10} = (?)_8$
  - (iv)  $(6EA)_{16} = (?)_2$
  - (v)  $(9F2)_{16} = (?)_8$

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

**[20]**

- (a) Explain MICR and OMR Scanning Device in detail.
- (b) Differentiate between Compiler and Interpreter.
- (c) What is Spreadsheet ? List the different Applications.
- (d) What is Operating System ? State different functions provided by an Operating System.
- (e) Write a Batch File that performs the following task :
  - (i) Display Current Date and Time
  - (ii) Delete file try.txt
  - (iii) Display message and waits for user to press any key
  - (iv) Copy content of fybca.txt file to sybca.txt
  - (v) Rename bca file to mca

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 4**

**[4173]-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) \_\_\_\_\_ issues Accounting Standards in India.
- (b) Trial Balance is \_\_\_\_\_ but not an Account.
- (c) Net Profit/Loss is transferred to the \_\_\_\_\_ Account.
- (d) Purchase Book is used to record all \_\_\_\_\_.
- (e) The Asset that can be seen and touched is \_\_\_\_\_ Asset.

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

- (a) All Accounting Standards are recommendatory.
- (b) Nominal Accounts are the Accounts of Assets.
- (c) Book-keeping and Accounting are two different terms.
- (d) Closing Stock is valued at the end of the year at Market Price only.
- (e) Accounting involves Communication.

(C) Match the following :

[05]

‘A’	‘B’
(a) Accounting Standards	(i) Good Physical Health
(b) Art of Recording	(ii) Disclosure of Accounting Policies
(c) Non-financial Factor	(iii) Approved Guidelines
(d) AS-1	(iv) Book-keeping
(e) Art of Summarizing, Classifying and Interpreting Transactions	(v) Accounting
 <b>(D)</b> Classify the following accounts into Personal Account, Real Account and Nominal Account :	
(a) Furniture Account	
(b) Prepaid Rent Account	
(c) Capital Account	
(d) Cash Account	
(e) Salary Account	

**Q.2) What is Accounting Standard ? Explain the objectives and advantages of Accounting Standards.**

[12]

OR

**Q.2) What is Book-keeping ? State the difference between Book-keeping and Accounting.**

[12]

**Q.3) (A)** Journalize the following transactions in the book of Anilkumar for the month of December, 2011 :

[08]

December, 2011

- 1 Mr. Anilkumar started business with cash Rs. 18,000, Machinery Rs. 15,000 and Furniture Rs. 5,000.
  - 2 Purchased Goods from Ajay Rs. 6,000 at 10% Trade Discount.
  - 4 Sold goods to Mr. Sanjay Rs. 7,000 at 5% Trade Discount.
  - 10 Sold goods to Ravindra Rs. 2,000 at 5% Trade Discount.

- 12 Purchased Machinery of Rs. 3,000 for cash and spent Rs. 150 for Transport of Machinery in cash.  
 16 Paid Rs. 800 as Office Rent.  
 18 Received Commission from Akash Rs. 350.  
 19 Withdraw Rs. 200 for personal use.  
 30 Paid Electricity Charges for Office Rs. 150.
- (B) The Plant and Machinery purchased on 1st April, 2006 for Rs. 1,50,000. Rate of Depreciation to be charged was fixed at 10% Straight Line Method. The Machinery was sold for Rs. 75,000 on 31st December, 2010. Prepare Machinery Account assuming year ending 31st March every year. [08]

**Q.4)** Enter the following transaction in the Books of Abhishek's Cash Book with Cash Discount and Bank Columns : [16]

**December, 2011**

- 1 Abhishek started business with cash of Rs. 75,000.  
 2 Opened Bank Account with Bank of Bikaner and deposited Rs. 60,000.  
 7 Purchased goods from Ambani Brothers and paid by cheque Rs. 8,000.  
 10 Received for Cash Sales Rs. 1,000.  
 15 Withdrawn Cash Rs. 1,150 from bank.  
 17 Purchased Stationery for cash of Rs. 400.  
 19 Received cheque from M/s. Gidwani and Co. for Rs. 1,500 and deposited in the bank on the same date.  
 20 Received from Classic and Co. in cash Rs. 1,350 net after allowing Rs. 75 as discount.  
 21 Paid M/s. Delight and Company by cheque of Rs. 3,200.  
 25 Drawn from Bank for office use Rs. 4,500.  
 30 Paid Salary for the month of December, 2011 Rs. 11,000 by cheque.  
 30 Drawn for personal use Rs. 2,000.

**Q.5) The following is the Trial Balance of Mr. Godbole as on 31st, March, 2012 :**

**[16]**

<b>Debit</b>	<b>Rs.</b>	<b>Credit</b>	<b>Rs.</b>
Drawings	1,000	Capital	50,000
Stock as on 1-4-11	28,000	Sundry Creditors	15,000
Loose Tools	1,000	Sales	1,72,000
Sundry Debtors	25,000	Return Outward	550
Purchases	90,000	Discount	300
Return Inward	750	Commission	18,550
Discount	250	Bank Overdraft	20,000
Land and Building	88,000	Bills Payable	5,500
Salaries and Wages	33,000		
Carriage Inward	1,200		
Carriage Outward	1,500		
Insurance	1,000		
Cash in Hand	1,700		
Advertisement	2,000		
Bills Receivable	7,500		
	<b>2,81,900</b>		<b>2,81,900</b>

You are required to prepare Trading, Profit and Loss Account for the year ended on 31st March, 2012 and the Balance Sheet as on that date after taking into account the following adjustments :

- (1) Stock and Loose Tools were valued as on 31-3-2012 at Rs. 25,000 and Rs. 800 respectively.
- (2) Salaries were outstanding to the extent of Rs. 800 and Insurance of Rs. 400 is prepaid.
- (3) Depreciation is to be provided for Land and Building at 5% per annum.
- (4) Bad Debts to be written off amounted to Rs. 900.

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 8]**

**[Total No. of Printed Pages : 1**

**[4173]-201**

**B. C. A. ( Semester - II ) Examination - 2012**  
**ORGANISATIONAL BEHAVIOUR**  
**(New 2008 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

**Instructions :**

- (1) Answer **any five questions.**
  - (2) All questions carry equal marks.
  - (3) Figures to the right indicate full marks.
- 

- Q.1)** Define Organisational Behaviour. Explain nature, scope and importance of Organisational Behaviour. [16]
- Q.2)** Explain in details the McGregor's Theory X and Theory Y. [16]
- Q.3)** Explain the term Personality. Give any two theories of Personality. [16]
- Q.4)** Define Stress. Explain various symptoms of Stress and sources of Stress. [16]
- Q.5)** What are the Strategies to Overcome Individual Vs. Organisational Stress ? [16]
- Q.6)** Define Leadership. Explain various Traits of Effective Leader. [16]
- Q.7)** Explain Intra-personal and Inter-personal Conflicts and its various effects on organisation. [16]
- Q.8)** Write short notes : **(Any Two)** [8x2=-16]
- (a) Types of Groups
  - (b) Maslow's Need Hierarchy Theory
  - (c) Determinants of Personality
- 

**[4173]-201/1**

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 4**

**[4173]-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 tables and calculator is allowed.
  - (5) Symbols and abbreviations have their usual meanings.
- 

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

**[4x4=16]**

- (a) Define Classification and state its objectives.
- (b) Explain Non-deterministic Experiment with two illustrations.
- (c) Explain the following terms :
  - (i) Process Control
  - (ii) Product Control
- (d) The frequency distribution of marks obtained by 100 students is given below :

<b>Marks</b>	Below 40	41-50	51-60	61-70	71-80
<b>Number of Students</b>	10	24	30	20	16

Answer the following :

- (i) State the type of Classification.
- (ii) State the class boundaries of 3rd class.
- (iii) Obtain the class mark of 2nd class.
- (iv) Obtain the class width of 4th class.
- (e) Compute Coefficient of Variation (C.V.) for the following observations :  
52, 45, 60, 53, 48
- (f) Calculate Geometric Mean for the following observations :  
18, 17, 20, 18, 12

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

- (a) Describe advantages of Sampling over Census.
- (b) What are the Measures of Relative Dispersion ? In what respect are they different than that of Absolute Dispersion ?
- (c) Find the missing frequency from the following data, given that the median mark is 23 :

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	5	8	?	6	3

- (d) For 10 samples each of size 4, we have

$$\Sigma \bar{X} = 116.6, \Sigma R = 63$$

Compute control limits for  $\bar{X}$  and R charts.

(Given that for  $n = 4$ ,  $A_2 = 0.729$ ,  $D_3 = 0$ ,  $D_4 = 2.282$ )

- (e) If two dice are rolled, find the probability that sum of the points appears on the uppermost faces is more than 4.
- (f) Compute Range and Coefficient of Range for the following data :  
80, 75, 100, 120, 115, 77, 98, 105, 112, 110  
What will be range if each observation is increased by 10 ?

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

(a) Define the following terms :

(i) Classical Definition of Probability

(ii) Conditional Probability

(b) Obtain Mode for the following frequency distribution :

Income (in '000 Rs.)	Less than 10	10–20	20–30	30–40	40–50	50–60
No. of Persons	8	14	13	25	7	3

(c) How many four digit numbers can be formed out of the digit 1, 2, 3, 4, 5, 6, 7, 8 9, if no digit is repeated ? How many of these will be greater than 3,000 ?

(d) There are 12 points in a plane of which five are collinear. Find the number of triangles that can be formed using these points.

(e) Distinguish between Control Chart of Variables and Control Chart for Attributes.

(f) A survey conducted to determine the distance travel (in kms.) per litre by newly introduced motorcycle, gives the following information :

Distance	40-45	45-50	50-55	55-60	60-65
No. of Motorcycles	10	17	23	40	10

Obtain Standard Deviation.

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

(a) State the requirements of a good measures of Central Tendency.

(b) Explain Variable and Attribute with one illustration.

(c) Find the probability that a leap year selected at random will contain 53 Sundays.

(d) The weight (in kg.) of 10 students are as follows :

50, 60, 42.5, 62.5, 55, 65, 57.5, 67.5, 60, 52.5

Obtain Mean, Median and Mode.

- (e) There are 7 men and 3 women. Find the number of ways in which a committee of 6 can be formed of them if the committee is to include at least two women.
- (f) If a family spends Rs. 1,200 per month for milk and if the price of milk per litre during months January, February and March is Rs. 35, Rs. 37 and Rs. 40 respectively. Find the average price of milk per litre.

**Q.5) Attempt any two of the following : [8x2=16]**

- (a) Construct Control Chart for Number of Defective (np - chart) for the following data and state your conclusion :

Sample No. (each of 100 items)	1	2	3	4	5	6	7	8	9	10
No. of Defectives	24	9	12	33	21	33	21	36	18	48

- (b) Let A, B, C be three events defined on sample space  $\Omega$ . If  $P(A) = 0.5$ ,  $P(B) = 0.4$ ,  $P(C) = 0.6$ ,  
 $P(A \cap B) = P(B \cap C) = 0.2$ ,  $P(A \cap C) = 0.3$ ,  $P(A \cap B \cap C) = 0.1$ .

**Compute :**

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

- (c) Calculate Arithmetic Mean, Harmonic Mean and Geometric Mean for the following frequency distribution :

Class	10–20	20–30	30–40	40–50	50–60	60–70
Frequency	12	30	34	65	46	43

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 4]**

**[Total No. of Printed Pages : 4**

**[4173]-203**

**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) Define Row Major and Column Major.
- (2) List all Bitwise Operators.
- (3) What is Preprocessor ?
- (4) Give Syntax to define Self Referential Structure.
- (5) “Sizeof is an operator in ‘C’”. State true or false.
- (6) What is Command Line Arguments ?
- (7) State true or false and justify following statement :  
“Alt \* p++ and (\*p) ++ are same when p is pointer to integer.”
- (8) Differentiate malloc( ) and calloc( ).
- (9) What is the use of fseek( ) ?
- (10) State difference between sprintf( ) and fprintf( ).
- (11) State two differences between Union and Structure.
- (12) List String Manuplation Functions.

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

- (a) Discuss File Opening Modes in detail.
- (b) What is Pointer ? Explain Array of Pointer in detail.
- (c) What is Conditional Compilation ? How does Conditional Compilation help a Programmer.
- (d) Sort following data set using bubble sort. Show all steps in detail :  
55, 45, 37, 24, 56, 32, 28
- (e) What is an Array ? What are the limitation of an Array ?

**Q.3) Attempt the following : (Any Four)** [5x4=20]

- (a) Write a ‘C’ program to convert upper case to lower case by using File.
- (b) Write a ‘C’ program to accept customer details such as acc\_no, acc\_name, acc\_bal in account. Assume maximum 20 customers in the bank. Write a function to print the acc\_no, acc\_name of each customer with acc\_bal below Rs. 100.
- (c) Write ‘C’ program to accept ‘n’ number and store all prime number in an array and display this array.
- (d) Write a ‘C’ program to calculate sum of non-diagonal elements of  $n \times n$  matrix.
- (e) Write a menu driven program in ‘C’ which performs the following operation on strings :
  - (i) Check if one string is substring of another.
  - (ii) Count the length of string.
  - (iii) Exit

**Q.4) Trace output and justify : (Any Four)**

**[5x4=20]**

(a) main()

```
{  
    int b[ ] = {5, 10, 15, 20, 25}  
    int i, *ptr;  
    ptr = & b[4] -3;  
    for (i = 1; i < 4; i++)  
    {  
        printf("%d", *ptr);  
        ptr++;  
    }  
}
```

(b) #define square (x) x \* x

```
main()  
{  
    printf("\n%d", square(4 + 2));  
}
```

(c) main()

```
{  
    struct xyz  
    {int i;};  
    struct xyz * p;  
    struct xyz a;  
    p = &a  
    P → i = 10;  
    printf("%d", (*p) + i)  
}
```

```
(d) main( )  
{  
    int i = -5, j = -2;  
    junk (i, &j);  
    printf("i = %d j = % d\n", i, j);  
}  
junk (int i, int * j)  
{  
    i = i * j;  
    * j = * j * * j;  
}  
(e) main()  
{  
    char S1[ ] = "FYBCA SYBCA TYBCA";  
    char S2[20];  
    char S3[20];  
    sscanf (S1, "%S %S %S", S1, S2, S3);  
    printf("%S, %S, %S", S1, S2, S3);  
}
```

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-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 of the following :**

**[4x4=16]**

- (a) Explain Hashed File Organisation Technique in detail.
- (b) What is a Key ? Explain its types.
- (c) Write a short note on Normalization.
- (d) Define :
  - (i) Primary Key
  - (ii) Foreign Key
- (e) Explain Dense Indexing.

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

**[4x4=16]**

- (a) Explain Select and Intersection Operations of Relational Algebra with example.
- (b) Explain Network Model.
- (c) Write short note on Generalization.
- (d) List various File Operations. Explain any three.
- (e) Differentiate between Fixed Length and Variable Length Records.

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

- (a) Explain the Search Operation of  $B^+$  Tree.
- (b) List various Aggregate Functions. Explain any one with example.
- (c) Explain overall structure of DBMS, in brief.
- (d) What are the advantages of DBMS ?
- (e) What do you mean by Database Abstraction ?

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

Consider the following entities and their relationship :

Doctor (dno, dname, city)

Patient (opdno, pat\_name, addr, disease)

The relation between Patient and Doctor is many-to-many.

Create a RDB in 3NF and solve **any five** of the following :

- (a) Insert a row in doctor table.
- (b) Display names of doctors living in ‘Gujarat’ city.
- (c) Add ‘discharge\_date’ column to patient table.
- (d) Find the names of patients who are treated by ‘Dr. Mishra’.
- (e) Count the number of patients suffering from ‘Malaria’.
- (f) Display total no. of patients treated by each doctor.

**Q.5) Attempt the following :**

- (a) A company has several employees. At least one employee is assigned to a project, but an employee may be on vacation and not assigned to any projects.

A database should provide following details to the user :

- (i) Identify all entities
- (ii) Identify all relations
- (iii) E-R diagram

[08]

(b) Consider the following Relational Database :

Customer (cno, cname, city)

Quotation (qno, qdate, description, amt\_quoted, cno)

Customer and Quotation are related with one-to-many relationship.

Write Relational Algebraic Expression for the following :

- (i) Display customer names having quotation for ‘LCD’.
- (ii) List all the customers bearing quotation dated ‘20-May-2010’.
- (iii) List all the customers who live in ‘M.P.’ or ‘U.P.’
- (iv) Display customers of amt\_quoted as Rs. 15,000.

[08]

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5] [Total No. of Printed Pages : 4**

**[4173]-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.
- 
- 

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

- (a) Cost Accounting helps in the Ascertainment of Cost before hand.
- (b) Fixed Cost per unit is always fixed.
- (c) Job Order Costing is most suitable for a Large Steel Mills.
- (d) Contribution is the excess of Sales over Variable Cost.
- (e) For control purposes, long term budget should be prepared.
- (f) At Break-even Point, contribution is equal to Fixed Cost.

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

- (a) Financial Accounting is \_\_\_\_\_ in nature.
- (b) The total of all direct expenses is known as \_\_\_\_\_ Cost.
- (c) \_\_\_\_\_ in a contract provides that in the event of a specified contingency, the contract price would be suitably enhanced.
- (d) P/V Ratio is the ratio of \_\_\_\_\_ to Sales.
- (e) \_\_\_\_\_ is the summary of all the Functional Budget.
- (f) Marginal Costing Techniques takes into account the \_\_\_\_\_ Classification of Cost.

**Q.2)** Define ‘Cost Accounting’. State the advantages and limitations of Cost Accounting. [15]

**OR**

**Q.2)** What do you mean by Element of Cost ? Explain different Element of Cost with suitable examples. [15]

**Q.3)** Write short notes : (**Any Three**)

[15]

- (a) Contract Costing
- (b) Profit Volume Ratio
- (c) Normal and Abnormal Loss
- (d) Features of Operating Costing
- (e) Advantages of Job Costing

**Q.4)** The following details have been obtained from the books of M/s. Cement India Ltd. for one month. You are required to prepare Cost Sheet : [16]

<b>Particulars</b>	<b>Rs.</b>
Stock of Raw Materials on 1st April, 2008	75,000
Stock of Raw Materials on 30th April, 2008	91,500
Direct Wages	52,500
Indirect Wages	2,750
Sales	2,11,000
Work-in-progress on 1st April, 2008	28,000
Work-in-progress on 30th April, 2008	35,000
Purchases of Raw Material	66,000
Factory Rent and Power	15,000
Depreciation on Plant and Machinery	3,500
Expenses on Purchases	1,500
Carriage Outward	2,500
Advertisement	3,500
Office Rent and Taxes	2,500
Traveller's Wages and Commission	6,500
Stock of Finished Goods on 1 April, 2008	54,000
Stock of Finished Goods on 30th April, 2008	31,000

**Q.5) (A)** The following data are available from the records of S.T. Co. Ltd. for the year ended 31-3-2008 :

	<b>Rs.</b>
Sales	— 40,000
Variable Cost	— 20,000
Fixed Cost	— 12,000

**You are required to calculate :**

- (a) P/V Ratio
- (b) BEP Rs.
- (c) Margin of Safety
- (d) Profit at an estimated sales of Rs. 50,000.
- (e) Sales required to earn a profit of Rs. 12,000.

**[12]**

- (B)** The statement given below gives the Flexible Budget at 60% Capacity of Finolex Cable Ltd., Pune. Prepare a tabulated statement giving the budget figures at 75% and 90% capacity where no indication has been given. Make your own classification of expenses between Fixed, Variable and Semi-variable Expenses. **[12]**

<b>Particulars</b>	<b>60% Capacity (Rs.)</b>
Prime Cost Materials	1,60,000
Depreciation	60,000
Productive Wages	40,000
Rent	12,000
Indirect Materials	48,000
Insurance of Machinery	12,000
Indirect Labour	40,000
Electric Power (40% Fixed)	8,000
Repairs and Maintenance (60% Fixed)	20,000

**OR**

(B) From the following information, calculate : [12]

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

<b>Material</b>	<b>Standard</b>	<b>Actual</b>
A	40 units @ Rs. 50 per unit	50 units @ Rs. 50 per unit
B	60 units @ Rs. 40 per unit	60 units @ Rs. 45 per unit

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 4**

**[4173]-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) Let  $A = \{1, 2, 3, \dots, 10\}$  and  $B = \{5, 6, \dots, 20\}$ , then find  
(i)  $A \cup B$ , (ii)  $A \cap B$ , (iii)  $A - B$ , (iv)  $B - A$ .
- (b) Let  $A = \{1, 2, 3, 4, 5\}$  define relation  $R$  on  $A$  as  $aRb$  if and only if  $a \leq b$  then find relation  $R$  in terms of order pairs. Also find  $A \times A$  and show that  $R \subseteq A \times A$ .
- (c) If real valued function defined as  $f(x) = 2x + 3$ , then show that  $f(x)$  is one and onto also find inverse of function  $f(x)$ .
- (d) Evaluate :

$$\lim_{x \rightarrow 2} \frac{x^3 - 8}{x - 2}$$

- (e) If  $y = \frac{1 + 2x + 3x^2 + 4x^3}{5}$ , then find  $\frac{dy}{dx}$  at  $x = 1$ .

- (f) Evaluate  $\int_0^2 \frac{x^2 + 2x - 15}{x - 3} dx$

**[4173]-301**

**1**

**P.T.O.**

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

- (a) Find cube root of 18 corrected upto two decimal places by Bisection Method.
- (b) Using Newten - Raphson Method, find solution of the equation  $x^3 - 6x + 4 = 0$ . Perform two iterations only.
- (c) Explain Least Square Method to Fitting of Straight Line.
- (d) Find the values of a, b and c so that  $y = a + bx + cx^2$  is the best fit to the data :

<b>x</b>	1	2	3	4	5	6
<b>f(x) = y</b>	2	6	7	8	10	11

- (e) Let  $\Delta$  and  $\nabla$  are forward and backward difference operators respectively.

Prove that  $\Delta \nabla = \Delta - \nabla$

- (f) With proper notation prove that :

$$\Delta^3 y_0 = y_3 - 3y_2 + 3y_1 - y_0$$

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

- (a) If  $y_3 = 2$ ,  $y_4 = -6$ ,  $y_5 = 8$ ,  $y_6 = 9$ ,  $y_7 = 17$  then find  $\Delta^4 y_3$ .
- (b) Find missing term of the following data :

<b>x</b>	0	1	2	3	4
<b>y = f(x)</b>	1	2	-	10	17

- (c) Evaluate  $\left(\frac{\Delta^2}{E}\right)x^2$ .

- (d) The values of x and  $y = f(x)$  are given below :

<b>x</b>	0	1	2	3	4
<b>y = f(x)</b>	5	10	17	26	37

Using Newtons Forward Interpolation Formula, find the value of y when  $x = 2.5$ .

- (e) The population of a town is given below in the table. Estimate the population of the town in 1998 :

<b>Year</b>	1951	1961	1971	1981	1991	2001
<b>Population in Thousands</b>	12	15	20	27	39	52

- (f) Using Lagranges Interpolation Formula, find value of y at  $x = 2$ , from following table :

<b>x</b>	0	1	3	4
<b>y = f(x)</b>	-12	0	6	12

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

**[2x8=16]**

- (a) Function  $y = f(x)$  is given in the following table :

<b>x</b>	0	1	2	3	4	5
<b>y = f(x)</b>	4	8	15	7	6	2

Find  $\frac{dy}{dx}$  and  $\frac{d^2y}{dx^2}$  at  $x = 0$

- (b) (i) A curve is given by the points in the table. Calculate area bounded by the curve between x axis and  $x = 0$  to  $x = 4$  by using Trapezoidal Rule :

<b>x</b>	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
<b>y = f(x)</b>	23	19	14	11	12.5	16	19	20	20

- (ii) Compute the value of  $\int_1^2 \frac{dx}{x}$  using Simpsons  $\frac{1}{3}$  rule of integration use  $h = 0.25$ .

- (c) Solve the differential equation  $\frac{dy}{dx} = x + y$  with initial condition  $y = 1$  when  $x = 0$ , use Picard's Method to find approximate value of  $y$  when  $x = 0.1$ .

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

- (a) Using graphical method find optimum solution of the following Linear Programming Problem :

$$\text{Maximize} \quad z = 4x - 3y$$

$$\text{Subjected to} \quad x + y \geq 4$$

$$2x - y \geq -2$$

$$x \leq 3$$

$$y \geq 2$$

$$x, y \geq 0$$

- (b) Find initial basic feasible solution of following Transportation Problem by :

(i) North West Corner Rule

(ii) Least Cost Method

	<b>W<sub>1</sub></b>	<b>W<sub>2</sub></b>	<b>W<sub>3</sub></b>	<b>W<sub>4</sub></b>	<b>Supply</b>
<b>P<sub>1</sub></b>	6	5	8	5	30
<b>P<sub>2</sub></b>	5	11	9	7	40
<b>P<sub>3</sub></b>	8	9	7	13	50
<b>Demand</b>	35	28	32	25	

- (c) Solve the following assignment problem to minimize total time for doing all the jobs on machines :

	<b>Jobs</b>					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>Machines</b>	1	6	2	5	2	6
	2	2	5	8	7	7
	3	7	8	6	9	8
	4	6	2	3	4	5
	5	9	3	8	9	7
	6	4	7	4	6	8

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-302**

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

**DATA STRUCTURE USING 'C'**

**(New 2008 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

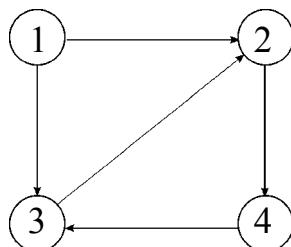
**Instructions :**

- (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 Self-referential Structure ?
- (b) Give the Adjacency Matrix and Adjacency List for the following graph :



- (c) How to measure performance of an Algorithm ?
- (d) What is Queue ? State various operation performed on a Queue.
- (e) What is Linked List ? State its types.
- (f) What is a Binary Search Tree ?
- (g) What is Sorting ? State various techniques of Sorting.
- (h) What are the advantages of a Linked List over an Array ?
- (i) Convert the following infix expression into postfix expression :  
A + (B - C \* D) ^E
- (j) What is difference between Polynomial and Structure ?

**[4173]-302**

**1**

**P.T.O.**

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

- (a) Sort the following data using Bubble Sort show each step in detail :  
108, 97, 71, 23, 12, 57, 93, 100
- (b) Explain Linear Search Method with an example.
- (c) Write the function to insert and delete a Mode in the beginning of a Singly Linked List.
- (d) Explain different types of AVL Rotations with an example.
- (e) Differentiate between DFS and BFS.

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

- (a) Explain Selection Sort Technique with an example.
- (b) Write a C program to create and display Singly Circular Linked List.
- (c) Evaluate the following postfix expression using a Stack :  
 $AB/CD * +$   
 $A = 6, B = 2, C = 3, D = 4$
- (d) Write the recursive functions of Pre-order and Post-order Traversal in a BST.
- (e) What is a Priority Queue ? Explain in short.

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

- (a) Sort the following data using Heap Sort :  
92, 59, 27, 15, 13, 11, 19, 3, 4, 5
- (b) Explain the Division Method of Hashing.
- (c) Write a ‘C’ program for Dynamic Implementation of Stack.
- (d) Define the following terms :
- Height of a Tree
  - Circular Queue
  - Pendant Node
  - Degree of a Node
- (e) What is a Doubly Linked List ? Write a ‘C’ program to add new node at the end of a Doubly Linked List.

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

- (a) Write a ‘C’ program for addition of two Polynomials.
  - (b) Explain Prim’s Algorithm for Minimum Spanning Tree.
  - (c) Explain Insertion Sort with an example.
  - (d) Write a ‘C’ program to search a number in an array using Binary Search Method.
  - (e) Write a ‘C’ program to reverse a Singly Linked List.
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-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 are elements of a System ?
- (b) Define Decision Tree and Decision Table.
- (c) Justify Software does not wear out.
- (d) What is a Module ?
- (e) Define the term Entity.
- (f) What is Feasibility Study ? List out types of it.
- (g) What is Coupling ?
- (h) What is System Analysis ?
- (i) What is Re-engineering ? What are activities involved in it ?
- (j) Define Pesudocode.

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

**[16]**

- (a) Explain Waterfall Model in detail.
- (b) Explain Testing Principles and Objectives.
- (c) Discuss differences between White Box and Black Box Testing.
- (d) Discuss Software Qualities (McCall's Quality Factors).
- (e) Who is System Analyst ? Discuss the roles of System Analyst.
- (f) Discuss different Fact Finding Techniques.

**Q.3) (A)** Design an Input Form for Employees Salary Slip with following details : [08]

- Employee Number, Name and Designation
- Earnings (Basic, DA, HRA, TA) and Deductions (PF, PT and Others)
- Gross Pay and Net Salary

**(B)** Material is issued to the department by considering whether the Material Requisition Note (MRN) is signed or not, it contains valid items or not and it is given within 8 hours or not. Draw Decision Tree and Decision Table. [08]

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

- (a) E-R Diagram
- (b) Software Verification and Validation
- (c) Physical and Logical DFD's
- (d) System Concepts
- (e) Advantages of Data Dictionary

**Q.5)** Case Study :

The Railway Reservation System functions as follows :

The passenger is required to fill in a reservation form giving details of his journey. The counter clerk ensures whether the place is available. If so, entries are made in the register, tickets are prepared amount is computed and cash is accepted. A booking statement is prepared in a triplicate from the reservation register. One copy of it is retained as office copy, the other is pasted on the compartment and the third is passed on to the train conductor. Besides booking statements, cash statement is prepared at the end of each shift.

- (a) Identify all entities
- (b) Draw Content Level Diagram
- (c) Draw First Level DFD for the System

[16]

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-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 the term ‘Management Accounting’. Describe Principal Systems and Techniques in Management Accounting.** [16]

**OR**

**Q.1) Write notes :**

- (a) Common Size Statement [08]
- (b) Trend Percentages [08]

**Q.2) What is ‘Funds Flow Statement’ ? Give the proforma of ‘Funds Flow Statement’ and ‘Adjusted Profit and Loss A/c.’.** [16]

**OR**

**Q.2) From the following data, calculate the following ratios :** [16]

- (a) Gross Profit Ratio
- (b) Net Profit Ratio
- (c) Current Ratio
- (d) Debt - Equity Ratio

	<b>Rs.</b>
Sales	40,000
Cost of Sales	25,000
Net Profit	3,000
Current Assets	64,000
Creditors	10,000
Bills Payable	6,000
Paid up Capital	40,000
Debentures	25,000
General Reserve	2,000

**Q.3)** Explain Concept of ‘Working Capital’. State various factors determining requirement of Working Capital. [16]

**OR**

**Q.3)** From the details given below, estimate the Net Working Capital required for Ajanta Ltd. add 10 per cent to your computed figure to allow contingencies :

<b>Particulars</b>	<b>Amount per unit Rs.</b>
<b>Estimated Cost per unit of Production :</b>	
Raw Material	80
Direct Labour	30
Overheads (exclusive of depreciation, Rs. 10 per unit)	60
<b>Total Cash Cost</b>	<b>170</b>

**Additional Information :**

- (1) Selling Price Rs. 200 per unit.
- (2) Level of Activity, 1,04,000 units of production per annum.
- (3) Raw Materials in Stock, average 4 weeks.

- (4) Credit allowed by Suppliers, average 4 weeks.
- (5) Credit allowed to Debtors, average 8 weeks.
- (6) Lag in Payment of Wages, average 1.5 weeks.
- (7) Cash at Bank is expected to be Rs. 25,000

You may assume that production is carried on evenly throughout the year (52 weeks) and wages and overheads accrue similarly. All sales are on credit basis only.

[16]

- Q.4)** The following figures are available from the records of M/s. Jay-Vijay Enterprises as at 31st March :

Year	Sales (Rs. Lakhs)	Profit (Rs. Lakhs)
2011	150	30
2012	200	50

**You are required to calculate :**

- (a) P/V Ratio and Total Fixed Expenses
- (b) Break-even Level of Sales
- (c) The Sales required to earn a profit of Rs. 90 lakhs
- (d) Profit or Loss that would arise if the Sales were Rs. 280 lakhs. [16]

**OR**

- Q.4)** Define ‘Budgetary Control’. State the advantages and limitations of Budgetary Control System. [16]

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

- (a) Distinction between ‘Financial Accounting’ and ‘Management Accounting’
  - (b) Sources of Working Capital
  - (c) Flexible Budget
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 5**

**[4173]-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 :**

**[8x2=16]**

- (a) What is RDBMS ? List any two features of RDBMS.
- (b) Define PL/SQL. What is use of PL/SQL ?
- (c) What is structure of PL/SQL block ?
- (d) Define the following terms :
  - (i) Commit
  - (ii) Rollback
- (e) What is Transaction ? List states of Transaction.
- (f) Define Lock. List different types of Lock.
- (g) What is Serializability ?
- (h) What is Trigger ? What are the types of Trigger ?

**Q.2) Attempt any four :**

**[4x4=16]**

- (a) Explain any four objects of Oracle.
- (b) Explain different Data Types in PL/SQL.
- (c) What is Cursor ? Explain different Attributes used in it.
- (d) Explain ACID Properties of Transaction in detail.
- (e) Explain two phase locking protocol with example.

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

- (a) What is Exception Handling ? Explain Predefined and User Defined Exception with example.
- (b) What is Schedule ? Give types of Schedules.
- (c) What is Deadlock ? How to prevent Deadlock ?
- (d) Explain different types of Storage Type.
- (e) Explain Immediate Database Modification with example.

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

- (a) Consider the following Relational Database :  
Department (D\_no, D\_name, Location)  
Employee (Eno, Ename, Edesg, Esalary, D\_no)  
Write a cursor to display the department details of employee “Mr. Joshi”.
- (b) Consider the following Relational Database :  
Item(Itemno, Itemname, Qty)  
Supplier (Supplierno, Suppliername, Address, City, Phno)  
I\_S(Itemno, Supplierno, Rate, Discount)  
Define a trigger before updation on discount field, if the difference in the old discount and new discount be is entered is > 15% raise an exception and display corresponding message.
- (c) Consider the following Relational Database :  
Game (Game\_no, Game\_name, Team\_size, Name\_of\_coach)  
Player (Player\_no, Player\_name, Player\_city)  
Game\_Player (Game\_no, Player\_no)  
Write a function which will take game name as a parameter and return total number of players playing that game.
- (d) Consider the following Relational Database :  
Publisher (P\_no, P\_name, P\_addr);  
Book (B\_no, B\_name, Price, P\_no);  
Write a script, which will update the book details of book number entered by user. Raise exception if the given book number is not present or if the price of the book is greater than 500.

- (e) Write a package, which consist of one procedure and one function; pass a number to procedure and print addition of two numbers. Pass city name as a parameter to function and display number of hospitals located in that city for this consider following relation :  
 Hospital (Hno, Hname, Hcity)

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

- (a) Consider the following Non-serial Schedule :

<b>T<sub>1</sub></b>	<b>T<sub>2</sub></b>
Read (X)	
X: = X - N	
	Read (X)
	X: = X + N
Write (X)	
Read (Y)	
	Write (X)
Y: = Y + N	
Write (Y)	

Is this schedule serializable to a serial scheduel <T<sub>1</sub>, T<sub>2</sub>> ?

- (b) Consider the following transactions :

<b>T<sub>0</sub></b>	<b>T<sub>1</sub></b>
Read (A)	Read (A)
A: = A - 70	t: = A * 0.1
Write (A)	A = A - t
Read (B)	Write (A)
B: = B + 70	Read (B)
Write (B)	B = B + t
	Write (B)

Give at least two serial schedules.

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

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

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

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

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

[start\_transaction, T<sub>1</sub>]

[read\_item T<sub>1</sub>, D]

[write\_item T<sub>1</sub>, D, B]

[commit, T<sub>1</sub>]

[checkpoint]

[start\_transaction, T<sub>2</sub>]

[read\_item T<sub>2</sub>, B]

[write\_item T<sub>2</sub>, B, 10]

[start\_transaction T<sub>3</sub>]

[write\_item T<sub>3</sub>, A, 20]

[write\_item T<sub>2</sub>, D]

[write\_item T<sub>1</sub>, D, 20] ← System Crash

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

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-306**

**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) Describe the Relational Operators in ‘C’.
- (b) Explain the switch-case statement with example.
- (c) Explain Static Storage Class with example.
- (d) Explain Syntax and Usage of printf( ) with example.
- (e) What is difference between Call by Value and Call by Reference ?

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

- (a) What is Operator ? Explain Arithmetic and Relational Operators ?
- (b) Explain Loop (Iterative) Statements in ‘C’.
- (c) What is Function ? Explain its working with example.
- (d) Why ‘C’ is called Middle Level Language ?
- (e) Distinguish between Break and Continue Statement.

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

- (a) What is Constant ? What are the two methods for Declaring Constants ?
- (b) Explain any two Preprocessor Directives.
- (c) Discuss various forms of Increment and Decrement Operators.
- (d) Explain the concept and use of Header Files with example.
- (e) Explain Local and Global Variables.

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

- (a) Write a ‘C’ program to accept a number from user and check whether it is a palindrome or not.
- (b) Write a ‘C’ program to accept input from user and calculate Sum of Fibonacci Series.
- (c) Write a ‘C’ program which reads an integer and reverse its digits and print both.
- (d) Write a ‘C’ program to check whether the given number is armstrong or not.
- (e) Write a ‘C’ program to print following pattern :

1  
2     3  
4     5     6

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

(a) main()

```
{  
    int x = 40;  
    {  
        int x = 20;  
        printf("\n%d", x);  
    }  
    printf("\n%d", x);  
}
```

(b) main( )  
{  
    int a = 300, b = 200;  
    printf("%d", (a>b) ? a : b);  
}  
(c) main( )  
{  
    int x = 6;  
    do  
    {  
        printf("%d", x);  
        x = -1;  
    }  
    while (x > 0);  
}  
(d) main( )  
{  
    const int x;  
    x = 140;  
    printf("%d", x);  
}  
(e) main( )  
{  
    int y, x = 7;  
    y = --x + 1;  
    printf("%d", y);  
}

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-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 of the following :**

**[3x5=15]**

- (a) Explain Twisted Pair Cable in detail.
- (b) Explain Broadcast and Point-to-Point Networks.
- (c) What are the functions of following Layers in ISO-OSI Reference Model ?
  - (i) Physical Layer
  - (ii) Data Link Layer
  - (iii) Network Layer
- (d) Write a note on Gateways.

**Q.2) Solve any three of the following :**

**[3x5=15]**

- (a) Explain Ethernet with reference to features and types.
- (b) Write a note on ISP.
- (c) Explain the architecture of IEEE 802.11 (Wireless LAN).
- (d) Write a note on Network Topologies.

**Q.3) Solve any three of the following : [3x5=15]**

- (a) What are design issues of the Layer ?
- (b) What is Bridge ? What are its types ? Explain any one.
- (c) Explain Bluetooth Architecture with applications.
- (d) Describe the functions of NIC.

**Q.4) Solve any three of the following : [3x5=15]**

- (a) Explain the goals and applications of Computer Networks.
- (b) Explain the following terms :
  - (i) Web Server
  - (ii) Web Documents
- (c) Explain Propagation Methods.
- (d) Write a note on Server Based LANs and Peer\_to\_Peer LANs.

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

- (a) Synchronous Communication
  - (b) Repeaters
  - (c) Token Ring (IEEE 802.5)
  - (d) Fiber Optic Cables
  - (e) Search Engines
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-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 illustration wherever necessary.
- 

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

- (a) Property to Set Path Property of DIR List Box.
- (b) Property to Set Font Size using Common Dialog Box.
- (c) To Status Bar for your program.
- (d) To change the title of a Form.
- (e) To Hide Data Control of Runtime.
- (f) Property used to Set Value of Check Box.
- (g) Property used to Set Special Password Character of Text Box.
- (h) Property used to Set Timer Control.
- (i) Property used to place a picture on a Command Button.
- (j) To resize Image Control.

**Q.2) Answer the following : (Any Four)** [16]

- (a) Compare ADO and ADODC Controls.
- (b) What is a Menu ? How to create Menus using Menu Editor ?
- (c) Describe data types used in VB.
- (d) Explain Message Box with syntax and example.
- (e) What are Control Arrays ? Explain with suitable example.

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

- (a) Write a Menu Driven Program in VB for calculating :
  - (i) Area of Circle
  - (ii) Area of Rectangle
- (b) Write a VB program to display even numbers from an Array.
- (c) Write a VB program to concatenate two strings.
- (d) Write a VB program to find the factorial of numbers.
- (e) Write a VB program to display age in year, month and days.

**Q.4) Answer in brief : (Any Two)** [16]

- (a) Explain any two Looping Structure used in VB with syntax and example.
- (b) Write a program to accept the details of customer from user and store that details into the database. (Don't use standard control). Customer having fields custid, custname, custaddress.
- (c) Discuss various Events related with Mouse and Keyboard.

**Q.5) Short notes : (Any Four)** [16]

- (a) Predefined Dialog Boxes
  - (b) Option Button or Radio Buttons
  - (c) Progress Bar
  - (d) Picture Box
  - (e) GUI (Graphical User Interface)
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-403**

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

**INVENTORY MANAGEMENT (SAD)**

**(New 2008 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

---

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

**[16]**

- (a) What is Order Point ?
- (b) Define Inventory.
- (c) Define SKU.
- (d) What are different Technological Emergency ?
- (e) What is Symbology ?
- (f) State Reverse Engineering.
- (g) What is Runchart ?
- (h) Define Software Maintenance.
- (i) What is IRA ?
- (j) What is JIT ?

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

**[16]**

- (a) Describe Selective Inventory Control.
- (b) What are the different elements of Barcode ? Explain with diagram.
- (c) With suitable diagram explain BPR Model.
- (d) Explain FIFO Method with advantages and disadvantages.
- (e) What are duties of Planning Team in Emergency ?

**Q.3) Attempt any two :**

**[16]**

- (a) Describe formula for EOQ and apply for the following :

KBC Ltd. produces a product which has a monthly demand of 5,000 units. The product requires a component which is purchased at Rs. 30 for every finished product one unit of component is required. The ordering cost is Rs. 125 per order and holding cost is 10% per annum.

**Calculate :**

(i) EOQ

(ii) No. of Orders per annum

- (b) Two Materials ‘A’ and ‘B’ are used as follows :

Minimum Usage – 55 units per week

Maximum Usage – 160 units per week

Normal Usage – 100 units per week

Reorder Quantity – A = 600 units

B = 1100 units

Delivery Period – A = 5–7 weeks

B = 1–3 weeks

**Calculate :**

(i) Reorder Level

(ii) Minimum Level

(iii) Maximum Level

(iv) Average Stock Level

- (c) Why Inventory System fail ? How to fix them ?

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

- (a) How to prevent theft in Inventory ?
- (b) Explain BCP Life Cycle with diagram.
- (c) How to control Inventory ?
- (d) What are different factors that can be considered in choosing Symbology ?
- (e) Explain drawbacks of CASE Tools.

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

- (a) Reverse Engineering to Understand Processing
  - (b) Assessment
  - (c) Software Re-engineering Process Model
  - (d) Types of Theft
  - (e) Corrective Maintenance
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 6]**

**[Total No. of Printed Pages : 1**

**[4173]-404**

**B. C. A. ( Semester - IV ) Examination - 2012**  
**HUMAN RESOURCES 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)** Define the term ‘Personnel Management’. Explain in detail the functions of ‘Personnel Management’. **[15]**
- Q.2)** What is ‘Human Resource Planning’ ? Explain the objectives and importance of ‘Human Resource Planning’. **[15]**
- Q.3)** What is Performance Appraisal ? Explain the uses and limitations of Performance Appraisal. **[15]**
- Q.4)** Define the term ‘Training’. Explain various methods of ‘Training’. **[15]**
- Q.5)** What is ‘Organisational Behaviour’ ? Explain the models and approaches of Organisational Behaviour. **[15]**
- Q.6)** Write short notes : **(Any Four)** **[20]**
- (a) Fringe Benefits
  - (b) Organisation Structure of HRM
  - (c) Transfer Policy
  - (d) Management Development Process
  - (e) Selection Procedure
  - (f) Piece Rate System of Wage Payment
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 4**

**[4173]-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 carry equal marks.
  - (4) Assume suitable data, if necessary.
- 

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

**[8x2=16]**

- (a) List any four benefits of OOP.
- (b) What is Destructor ?
- (c) What is Virtual Base Class ?
- (d) What is Stream ? List the C++ Stream Classes for console I/o Operations.
- (e) What is Pure Virtual Function ?
- (f) Define :
  - (i) Object
  - (ii) Class
- (g) What is File Mode ? List any four File Mode supported by C++.
- (h) What is Reference Variable ?
- (i) What is Containership ?
- (j) How do structure and class differ in C++ ?

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

**[4x4=16]**

- (a) Explain default argument with the help of suitable example and also write in which situation default arguments are useful.
- (b) Write a note on Exception Handling.
- (c) Explain Parameterized Constructor with the help of suitable example.
- (d) Write a C<sup>++</sup> program which copy the contents of one file into another by changing the case of characters in original file.
- (e) Write a C<sup>++</sup> program using class with data members bookid and bookname. Write member functions to accept and display book details. Count the number of books accepted and display the total numbers of books. (Use static data member for maintaining book count.)

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

**[4x4=16]**

- (a) Explain Multilevel Inheritance with the help of suitable example.
- (b) Define a class cricket, include data member player code, player name, no\_of\_innings, total\_runs. Write a member function :
  - (i) To accept information of a player.
  - (ii) To display information of a player.
  - (iii) Search details of a given player using player\_code.  
(Use array of objects)
- (c) Write a C<sup>++</sup> program using class person with data members, person name and age. Define function max that takes one person object as argument and use other person object for invoking max function, function should return person object having maximum age. (Use this pointer)
- (d) What is Friend Function ? What are the merits and demerits of using Friend Function ?
- (e) Create C<sup>++</sup> class date with data members :
  - day
  - month
  - yearWrite necessary functions to accept and display a data using >> and << operator. (Use operator overloading)

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

**[4x4=16]**

- (a) Trace output of the following program and explain it : (Assume there is no syntax error)

```
# include < iostream.h>
# include < conio.h>
int n = 10;
void pass (int & a, int b, int & c)
{
    int n = 4;
    c += n;
    a *= :: n;
    b += c;
}
void main()
{
    int y = 1;
    int n = 2;
    pass (y, :: n, n);
    cout << n << ":" << :: n << endl;
    pass (:: n, n, y);
    cout << n << ":" << y << ":" << :: n << endl;
}
```

- (b) Explain Binary Operator overloading with the help of suitable example.
- (c) Write a note on Class Template.
- (d) Write a menu driven C++ program using class to perform all arithmetic operation (+, -, \*, /). (Use in-line function)
- (e) List all manipulators used in C++. Explain use of any two manipulators with the help of suitable example.

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

**[4x4=16]**

- (a) Write a C++ program to calculate area of a triangle, circle and rectangle using function overloading.

- (b) Explain Memory Management Operators in C++ with the help of suitable example.
- (c) Explain Rules for Virtual Functions.
- (d) Write a C++ program which will accept ‘n’ integers from user, write all even integers into “even.dat” file and write all odd integers into “odd.dat” file. Display contents of both files.
- (e) Trace the output of following program and explain it : (Assume there is no syntax error)

```
class base
{ public
    void basefun( )
    { cout << "From Base" << endl;
    }
};

class derive : public base
{ public :
    void basefun( )
    { cout << "From Derived" << endl; }
};

void foo(base * baseobj)
{ baseobj → basefun( ); }

int main()
{ base baseobj;
    sumfun(& baseobj);
    derive deriveobj;
    sumfun(& deriveobj);
}
```

---

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-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 diagrams wherever necessary.
  - (4) Design proper GUI.
- 

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

**[8x2=16]**

- (a) Enlist various features of .NET Framework.
- (b) What are the properties of TextBox Control ?
- (c) Explain difference between ListBox and CheckedListBox.
- (d) Explain ‘ MyBase ’ Keyword in VB-NET.
- (e) What is Anchoring ?
- (f) What is Property ? Enlist types of Property.
- (g) What is CLS ?
- (h) Enlist various types of Mouse Event.
- (i) What is Exception ?
- (j) What is Polymorphism ?

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

- (a) Write a program in VB-NET to do the following operation on Combo Box Control :
- Add Item
  - Remove Item
  - Sort Item
- (b) What do you understand by Access Modifiers ? Explain different Access Modifiers used in VB-NET.
- (c) Explain various components of .NET Framework.
- (d) Design GUI and write code for the following in VB-NET :
  - to store numbers in single dimensional array.
  - to display maximum number from them.
- (e) Design GUI and write code for the following in VB-NET :
  - Accept any number in TextBox.
  - Display reverse of it in Message Box.

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

- (a) Explain the following keywords in VB-NET :
  - Not Inheritable
  - Not Overridable
  - Must Inherit
  - Must Override
- (b) Design GUI and write code for the following in VB-NET :
  - Accept a number in a textbox.
  - If entered number is odd add it to listbox one.
  - If entered number is even add it to listbox two.
- (c) Design GUI and write code for the following in VB-NET (ADO-NET) without Wizard :
  - Accept customer details like cust\_id, cust\_name, cust\_address, cust\_contactno and save these details in customer table.
- (d) Explain Exception Handling in VB-NET with example.
- (e) Explain any two built-in Dialog Boxes with example.

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

**[4x4=16]**

- (a) What is Interface ? Explain with example.
- (b) Write a program to test the below class using console application.  
Define a class 'Employee' include the following :

Data Members :

- Emp\_id
- Emp\_name
- Designation
- Salary

Member Functions :

- Accept Employee details
- Display Employee details with Salary

- (c) Design GUI and write code in VB.NET :

- Accept Binary Number in Textbox.
- Convert Binary Number into Octal or Hexadecimal Number using Radio Button.
- Display Result on a Textbox.

- (d) Explain Destructor with suitable example.

- (e) Explain any four control structures used in VB.NET.

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

**[4x4=16]**

- (a) ASP.NET
- (b) Data Set
- (c) Progress Bar
- (d) Overloading
- (e) MDI Application

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 4**

**[4173]-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) Give any four Event Handlers used in JavaScript.
- (b) Which are the different types of HTML Tags ?
- (c) What is an ASP ?
- (d) What is the use of Class Attribute ? Give an example.
- (e) What is Granularity ? List different levels of Granularity.
- (f) Who developed RSA Algorithm ?
- (g) What is the use of a Link and Vlink Attributes used in <body> tag ? Give an example.
- (h) Give any two disadvantages of Access Control List.
- (i) List any four methods of String Object.
- (j) What is the use of Coords Attribute of <area> tag ? Give an example.

**[4173]-502**

**1**

**P.T.O.**

**Q.2) Solve any four :**

**[4x4=16]**

- (a) Explain Asymmetric Key Cryptography.
- (b) How can user include image as hyperlink ? Explain with an example.
- (c) Write an ASP Code to print reverse of a number. (Use JavaScript)
- (d) Write an ASP Code to accept CustomerName, update his details (address, mobileno.) and display that details on the screen. (Use JavaScript)

Design necessary HTML Code.

- (e) Write an ASP Code to print total number of employees live in ‘Pune’ city. (Use JavaScript)

**Q.3) Solve any four :**

**[4x4=16]**

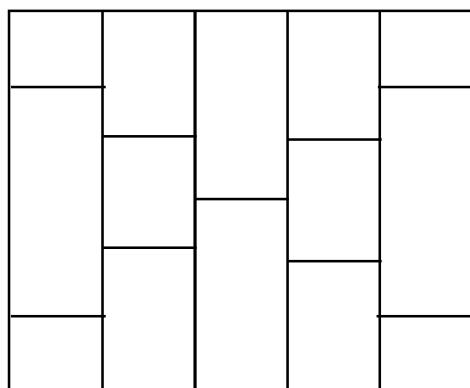
- (a) Discuss the implementation of Security in UNIX Operating System.
- (b) Explain Window DOM Object with an example.
- (c) Write a JavaScript Code to find even numbers from a given array.
- (d) Write a note on Banking and Book-keeping.
- (e) Write HTML and JavaScript Code to accept information and display accepted information :

Name of the games	Cricket	▽
	Tennis	
	Football	
	Hockey	
	Chess	
My favorite games are		

**Q.4) Solve any four :**

**[4x4=16]**

- (a) How to create an instance of Recordset Object ? Explain with an example.
- (b) Explain different features of Window 2000.
- (c) What is Digital Contract ? Explain different categories of Digital Contract.
- (d) Write a HTML Code to create the following frames :



- (e) Write a HTML Code to design the following output :

<b><u>Library Management System</u></b>		
Book Code	:	<input type="text"/>
Book Name	:	<input type="text"/>
Member Name	:	<input type="text"/>
Issued on	:	<input type="text"/> Day Difference : <input type="text"/>
Return Date	:	<input type="text"/> Per Day Fine : <input type="text"/> Rs.
Return Due Date	:	<input type="text"/> Fine Amount : <input type="text"/>
<input type="checkbox"/> Fine Charged		
<input type="button" value="Return"/>		<input type="button" value="Exit"/>

**Q.5) Solve any four :**

**[4x4=16]**

- (a) Explain the use of Application Object.
- (b) Explain different Physical Tags used in HTML.
- (c) Explain how functions are declared in JavaScript with an example ?
- (d) Write a ASP Code to display student details (rollno, studname, address, class) whose name start with ‘N’. (Use JavaScript)
- (e) Write HTML and CSS Code to generate the following output :

** Names of Car **	
■ Maruti <ul style="list-style-type: none"><li>a. Zen</li><li>b. SX4</li><li>c. Swift</li><li>d. Ridz</li></ul>	● Tata <ul style="list-style-type: none"><li>i. Indica</li><li>ii. Sumo</li><li>iii. Manza</li><li>iv. Tata Safari</li></ul>

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 7]**

**[Total No. of Printed Pages : 1**

**[4173]-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)** Define Marketing. Explain the importance of Marketing as a business function in the Economy. [16]
- Q.2)** What is Product Planning ? Describe various New Product Development Process. [16]
- Q.3)** What is Consumer Behaviour ? State the factors influencing Consumer Behaviour. [16]
- Q.4)** Define Channel of Distribution. Explain the classification of the Middlemen in Distribution Channels. [16]
- Q.5)** What is Sales Promotion ? Explain various tools of Sales Promotion. [16]
- Q.6)** Define Marketing Organisation. Explain various types of Marketing Organisation. [16]
- Q.7)** Write short notes : **(Any Four)** [16]
- (a) Importance of Marketing Mix
  - (b) Characteristics of Product
  - (c) Discounts and Rebates
  - (d) Advertising
  - (e) Market Segmentation
  - (f) Transportation
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-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) What is Javac ?
- (b) State any two differences between Primitive Data Types in Java and C++.
- (c) List the methods for Inserting and Deleting Elements in a Vector Class.
- (d) What is the use of tostring( ) method ?
- (e) State any two methods of Window Listener.
- (f) What is the purpose of this keyword ?
- (g) List any two dissimilarities between Class and Interface.
- (h) What is the use of : (i) Final, (ii) Finally ?

**Q.2) Attempt any four :**

**[4x4=16]**

- (a) Write a program in Java to convert the temperature in Fahrenheit to Celsius using following formula :  
$$C = F - 32 / 1-8$$
- (b) How to add an user defined package in main class ? List the steps with suitable example.
- (c) What is Interface ? Why they are used in Java ? Explain.

- (d) Write a Java program using AWT to display current date and time and also wish the user accordingly. (if it is am, which user “Good Morning”)
- (e) Write a Java program which creates only one object. If user attempt to create second object, he should not create. (Using Exception Handling)

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

- (a) What is Applet ? Explain Life Cycle of Applet.
- (b) Write a Java program using swing, that take colour name as input from user and add that item in the List Box. Also display selected colour on screen.
- (c) List major differences between Interface and Abstract Class.
- (d) Explain advantages and disadvantages of Vector.
- (e) Write a program for the following :
  - (i) to convert upper case string to lower case.
  - (ii) to calculate length of the given string.
  - (iii) to compare two strings.

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

- (a) What is Static Import ? How it is useful in package ?
- (b) Explain how Exception Handling can be used in debugging a program ?
- (c) Write a program to count number of lines in file using FileReader Class.
- (d) What is Adapter Class ? Explain its purpose in Java.
- (e) Write a Package StrPack which has two classes con and comp. Con Class has to concatenate two strings and comp class compares two strings. Also display proper message on execution.

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

- (a) What is Wrapper Class ? What are the applications of Wrapper Classes ?
  - (b) Explain different Containers used in Swings.
  - (c) Write a Java program using AWT which creates a frame, if we try to close frame, it should not close and should change its background colour.
  - (d) Explain Inner and Outer Class with example.
  - (e) Write a Java program to accept ‘n’ elements from user and display it in accending order. (Using Command Line Arguments)
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 7]**

**[Total No. of Printed Pages : 1**

**[4173]-601**

**B. C. A. ( Semester - VI ) Examination - 2012**  
**E-COMMERCE**  
**(New 2008 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

***Instructions :***

- (1) *Q. 7 is compulsory.*
  - (2) *Answer any four from the remaining.*
- 

- Q.1) What do you meant by E-commerce ? Explain different technical components of E-commerce. [15]**
- Q.2) Explain in detail how a Domain is registered ? Brief about Cost, Time and Reach factors for building own Website. [15]**
- Q.3) What are the different Categories of Network ? Explain each of them in detail. [15]**
- Q.4) “E-commerce is changing structure of many business deals and operations.” Explain your views on the same. [15]**
- Q.5) What are the applications of EDI ? Mention the advantages and disadvantages of EDI. [15]**
- Q.6) Explain Concept of Electronic Fund Transfer. Brief about different types of Electronic Payment Systems. [15]**
- Q.7) Short notes : (Any Four) [20]**
- (a) E-cycle
  - (b) ISP
  - (c) Intranet
  - (d) E-cash
  - (e) LAN
  - (f) Target E-mail
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-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) Subject Matter
- (b) DVD + R
- (c) HAM
- (d) What is Fault Tolerant System ?
- (e) BMP
- (f) CCIR
- (g) Quantization
- (h) Sound
- (i) Discrete Media
- (j) List Multimedia Components.

**Q.2) Answer the following : (Any Four)** [16]

- (a) Explain various types of Media.
- (b) Explain various features of DVD Video.
- (c) Distinguish between 8-bit Colour Image and 24-bit Colour Image.
- (d) Explain Synthesizer. Which are different types of Synthesizers ?
- (e) Explain Hard Disc Storage.

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

- (a) Distinguish Analog and Digital Representation.
- (b) What is GM1, GM2 and GML ?
- (c) Compares CD Digital Audio and Digital Audio Tape.
- (d) Explain Conceptualization in Multimedia.
- (e) Explain S-Video Signal Format.

**Q.4) Answer the following : (Any Four)** [16]

- (a) Explain Guidelines for Video Elements.
- (b) Explain Disk-mirroring Technique in RAID.
- (c) What is Sampling ? Explain Sampling Rate and Frequency.
- (d) Explain TIFF in detail.
- (e) Explain NTSC Standards.

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

- (a) MIDI Messages
  - (b) Digital Audio Software Tool
  - (c) Types of CD
  - (d) Multimedia in Games
  - (e) Storyboard
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-603**

**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 Context Switch ?
- (b) Define Rollback.
- (c) What is System Call ?
- (d) Define Operating System.
- (e) What is Swapping ?
- (f) What is Semaphore ?
- (g) Explain Belady's Anomaly.
- (h) Define Waiting Time.
- (i) What is a Claim Edge in Resource Allocation Graph ?
- (j) "Round Robin Algorithm is Non-preemptive." Comment and Justify.

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

**[4x4=16]**

- (a) Explain Multilevel Feedback Queue Scheduling Algorithm in detail.
- (b) List and explain different types of System Programs.
- (c) Explain Indexed Allocation Method in detail.
- (d) What is Deadlock Prevention ? Explain Deadlock Prevention Strategies.
- (e) Consider the following page reference string :

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

The number of frames are 4. Show page trace and calculate page faults for the following page replacement schemes :

- (i) FIFO
- (ii) LRU

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

**[4x4=16]**

- (a) What is Page Fault ? Explain the different steps in Handling a Page Fault.
- (b) Explain in brief Direct Access Method of File Access.
- (c) Differentiate System Program and Application Program.
- (d) Write short note on Acyclic Graph Directory.
- (e) Calculate Average Turn Around Time and Average Waiting Time for all set of processes using FCFS :

<b>Process</b>	<b>Burst Time</b>	<b>Arrival Time</b>
P <sub>1</sub>	5	1
P <sub>2</sub>	6	0
P <sub>3</sub>	2	2
P <sub>4</sub>	4	0

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

- (a) List and explain System Calls related to Device Manipulation.
- (b) Differentiate between MVT and MFT Job Scheduling.
- (c) Explain File Protection in detail.
- (d) Explain the term ‘Selecting a Victim’ in the Context of Deadlock Recovery.
- (e) What do you mean by Maskable and Non-maskable Interrupt ?

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

- (a) Explain the Creation and Termination of Processes.
- (b) Write a short note on Demand Paging.
- (c) Assume there are total 200 tracks that are present on each surface of the disk. If request queue is 30, 140, 20, 170, 60, 190 and initial position of the head is 120. Apply FCFS Disk Scheduling and calculate total head movement.
- (d) What is Critical Section Problem ? Which requirement must be satisfied by solution to the Critical Section ?
- (e) Consider the system with 5 processes  $P = \{P_0, P_1, P_2, P_3, P_4\}$  and four resources type {A, B, C, D}. There are 3 instances of type A, 14 instances of type B, 12 instances of type C and 12 instance of type D.

The allocation and maximum demand matrix are as follows :

	Allocation			
	A	B	C	D
$P_0$	0	6	3	2
$P_1$	0	0	1	2
$P_2$	1	0	0	0
$P_3$	1	3	5	4
$P_4$	0	0	1	4

	Max			
	A	B	C	D
$P_0$	0	6	5	2
$P_1$	0	0	1	2
$P_2$	1	7	5	0
$P_3$	2	3	5	6
$P_4$	0	6	5	6

Answer the following question using Bankers Algorithm :

- (i) Is the system in a Safe State ?
- (ii) If a request from process  $P_4$  arrives for (0, 0, 4, 1) can the request be immediately granted.

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5**

**[Total No. of Printed Pages : 3**

**[4173]-604**

**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 JDBC ?
- (b) Who is loading the init( ) method of servlet ?
- (c) List the JSP components / tags.
- (d) What is UnicastRemoteObject ?
- (e) Give two methods of Cookie.
- (f) List JDBC Driver Types.
- (g) What is SetPriority( ) Method ?
- (h) What is BDK ?
- (i) Which operations are provided by sorted set ?
- (j) Explain JSP Features.

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

- (a) Explain JDBC Architecture with suitable diagram.
- (b) Explain Thread Life Cycle.
- (c) Write a JDBC Application to delete a record from employee table whose name starts with 'A'.
- (d) Write a program to accept name from user and display Greeting Message according to Server Time.
- (e) Explain Properties of Bean.

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

- (a) Explain Stub and Skeleton.
- (b) Write program to create link list of integer and do the following operations :
  - (i) Add elements at the first position.
  - (ii) Delete the last element.
- (c) Write a multithreaded program to generate :
  - (i) table of 5 upto 1000.
  - (ii) abc... z each alphabet after 3 seconds.
- (d) Explain JSP Directives with example.
- (e) Write a note on PreparedStatement and CallableStatement.

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

- (a) Write a JDBC program to accept employee id from command line argument and delete it from table.
- (b) Explain Thread Priority. State its advantages.
- (c) Write a Servlet program which will display any four functionality of server or client browser related to Servlet Programming.
- (d) Differentiate between Hash and HashSet.
- (e) Explain JSP Life Cycle.

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

**[4x4=16]**

- (a) Explain difference between Local Object and Remote Object.
  - (b) What is Menifest File ? Write steps to create Menifest File.
  - (c) Write a short note on Collection Interface\_list.
  - (d) Write a program to create two threads : Thread 1 and Thread 2 of mythread class.  
Set the maximum priority to Thread 2 and minimum priority to Thread 1.
  - (e) Compare Servlet and CGI.
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-61**

**B. C. A. ( Semester - VI ) Examination - 2012**  
**ADVANCED NETWORKING**  
**(Old 2005 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

**Instructions :**

- (1) All questions are compulsory.
  - (2) Draw neat labelled diagrams wherever necessary.
- 
- 

**Q.1) Answer the following : (Any Three) [15]**

- (a) Explain ATM Addressing.
- (b) Explain IP Packet in detail with diagram.
- (c) Explain types of Security Services.
- (d) Explain Asynchronous and Synchronous Transmission.

**Q.2) Answer any three of the following : [15]**

- (a) Explain IPV6 Header Format with diagram.
- (b) Explain ATM Cell Header.
- (c) Explain User Datagram Protocol.
- (d) Explain LAN and WAN.

**Q.3) Solve any two : [20]**

- (a) Explain different layers of OSI Model.
- (b) What is Lossless Data Compression ? Explain Adaptive Codes in Lossless Data Compression.
- (c) Explain Network Topologies in detail.

**Q.4) Explain TCP/IP Model with OSI Reference Model. [10]**

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

**[20]**

- (a) IP Addressing
  - (b) CIDR
  - (c) JPEG Image Coding Standard
  - (d) ATM Service Categories
  - (e) UNI Signalling
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 2**

**[4173]-62**

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

**MULTIMEDIA**  
**(Old 2005 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

---

**Q.1) Discuss various Input and Output Devices required for Multimedia Application.** [10]

**Q.2) Solve any three :** [15]

- (a) What is the importance of the Storyboard in the Design Phase of Multimedia Production ?
- (b) Write different Software Tools used for Image and Graphics Editing.
- (c) Distinguish Channel and System Messages.
- (d) Explain 8-bit Colour Image.

**Q.3) Solve any three :** [15]

- (a) Different types of Compact Discs. Explain.
- (b) Explain System Dependant File Formats with example.
- (c) What is Graphics ? Discuss the essential difference between Graphics and Image.
- (d) Explain Hypertext, Hypermedia and Multimedia.

**Q.4) Solve any four :** [20]

- (a) Which are technical design issues for Multimedia Application ?
- (b) Explain different size and capacity of DVD.
- (c) Discuss interactivity features of Multimedia.
- (d) Explain functions of Authoring Software.
- (e) What are Applications of Multimedia over Internet ?

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

- (a) GIF File Format
  - (b) RAID (Redundant Array of Inexpensive Disk)
  - (c) DAT (Digital Audio Tape)
  - (d) Types of Animation
  - (e) History of Multimedia
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 7]**

**[Total No. of Printed Pages : 2**

**[4173]-63**

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

**MARKETING MANAGEMENT**

**(Old 2005 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

***Instructions :***

- (1) *Question No. 7 is compulsory.*
  - (2) *Attempt any four out of the remaining.*
- 

**Q.1) Define Marketing. Distinguish between Selling and Marketing in details.** [15]

**Q.2) What do you mean by Consumer Behaviour ? Discuss various factors affecting on it.** [15]

**Q.3) Explain the Marketing Mix for the following :** [15]

- (a) Cold Drinks
- (b) Toothpaste
- (c) Bajaj Pulser Bike

**Q.4) What is ‘Social Marketing’ ? How it is important for organisation to sustain in Market.** [15]

**Q.5) Elaborate on various Prising Polices followed by an Organisation with examples.** [15]

**Q.6) What is Marketing Segmentation ? Explain the bases on which it is done.** [15]

**Q.7) Write short notes : (Any Four) [20]**

- (a) Impact of Branding
  - (b) E-marketing
  - (c) Channels of Marketing
  - (d) Global Marketing
  - (e) Rural Marketing
  - (f) Marketing Research
-

<b>Seat No.</b>	
---------------------	--

**Total No. of Questions : 5]**

**[Total No. of Printed Pages : 3**

**[4173]-64**

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

**JAVA**

**(Old 2005 Pattern)**

**Time : 3 Hours]**

**[Max. Marks : 80**

**Instruction :**

*All questions are compulsory.*

---

**Q.1) Answer the following : (Any Four) [20]**

- (a) Explain Overriding Through the Java Interface.
- (b) Describe the different stages in the Life Cycle of an Applet. Distinguish between init( ) and start( ) methods.
- (c) Discuss different types of Layout Managers with examples.
- (d) How do we add a class or an interface to a package ?
- (e) What is Final, Finalize( ) and Finally ? Explain.

**Q.2) Attempt the following : (Any Five) [10]**

- (a) When to use Execute Update ?
- (b) State the Set Interface.
- (c) Why Garbage Collector is used ?
- (d) List Primitive Datatypes in Java.
- (e) What is Inner Class ?
- (f) Explain each keyword of ‘public static void main (string args[ ])’.

**Q.3) Explain the following : [10]**

- (a) What are the two different ways used to implement threading in Java ?
- (b) Write a note on Event Handler in AWT with suitable example.

**[4173]-64**

**1**

**P.T.O.**

**Q.4) Write Java programs for the following : (Any Six) [30]**

- (a) Write a Java program to display the following output :

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

- (b) Write a package for game, which have 2 classes, indoor and outdoor. Use function display() to generate list of players for the specific games. Use defant and parametrized constructors. Make use of protected access specifier. (Use Finalise)
- (c) Write a Java program to find out maximum of array elements and check for array limit. (Use Exception Handling)
- (d) Write a JDBC program that inserts the following details to teacher table having the structure :
- tech\_no, tech\_name, salary
- (e) Write a multithreaded program to create threads and use suspend and resume methods to transfer control.
- (f) Write a Java program that uses AWT Frame and the graphics functions to create 3 buttons Piano, Casio and Harmonium. If the button is pressed, display appropriate messages in message box.
- (g) Write a Java program to read 5 strings and sort them in ascending order also display the resultant strings.

**Q.5) Attempt the following : [10]**

- (a) Find the output :

```
import java.util.*;
public class Lists
{
    public static void main (String[ ] args)
    {
        List list = new ArrayList( );
        list.add("1");
        list.add("2");
```

```

        List.add(1, "3");
        List list2 = new LinkedList(list);
        list.addAll (list2);
        list2 = list.SubList(2, 5);
        list2.clear();
        system.out.print/n(list);
    }
}

```

(b) Find the output :

```

Class Exp
{
    public static void main(string args[ ])
        int a[ ] = {5, 10};
        int b = 5;
        int { int x = a[2] / b - a[1];
        }
    catch (ArithmaticException e)
        { system.out.print/n("Division by 'zero'); }
    catch (ArrayIndexOutOfBoundsException e)
        { system.out.print/n ("Array error"); }
    catch (ArrayStoreException e)
        { system.out.print/n("Wrong datatype"); }
    int y = a[1] / a[0];
    system.out.print/n("y = " + y);
}

```

---