

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

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B. C. A. (Semester - I) Examination - 2010

BUSINESS COMMUNICATION

(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 ? Describe various Methods of Communication. [15]

OR

Q.1) Define Communication. Explain principles of Effective Communication. [15]

Q.2) Write an application letter with resume to Modern Software Pvt. Ltd., Pune-16, for the post of Joint Director. [15]

OR

Q.2) What is a Sales Letter ? As a Sale Executive draft a sales letter for promoting sales of i-pad launched by Samsung. [15]

Q.3) What is Meeting ? What are the essential elements of Valid Meeting ? [15]

OR

Q.3) What is Non-verbal Communication ? Explain various Non-verbal Cues of Communication. [15]

Q.4) What are the Listening Skills ? Explain barriers of Good Listening. [15]

OR

Q.4) Define the term Listening. Gives guidelines for Effective Listening. [15]

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

[20]

- (a) Tele Conferencing
 - (b) Memo
 - (c) E-mail
 - (d) Multimedia
 - (e) Group Discussion
 - (f) Letter of Enquiry
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[3873]-102

B. C. A. (Semester - I) Examination - 2010

PRINCIPLES OF MANAGEMENT

(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'. How would you argue that management is valuable for organisational success ?

OR

Q.1) Explain contributions and limitations of Fayol's Administrative Theory of Management.

Q.2) What is 'Delegation of Authority' ? What steps are involved in Delegation ?

OR

Q.2) Write notes on :

- (a) Theory X and Theory Y of Motivation
- (b) Types of Decisions

Q.3) Define Leadership. State qualities and functions of a Leader.

OR

Q.3) What is Control ? Explain relationship between Planning and Control.

Q.4) Describe various Social Responsibilities of Management towards different Interest Groups.

OR

Q.4) Write notes on :

- (a) Process of Rational Decision-making
- (b) Importance of Strategic Management

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

- (a) Management as an Art
- (b) Importance of Co-ordination
- (c) Staffing
- (d) Nature of Direction
- (e) Benefits of Total Quality Management
- (f) Management of Change

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-103

B. C. A. (Semester - I) Examination - 2010

PRINCIPLES OF PROGRAMMING AND ALGORITHM

(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 Compiler ?
- (b) What is Identifier ?
- (c) List various Relational Operators in C.
- (d) What is the difference between getch() and getchar().
- (e) What is the use of Continue Statement ?
- (f) Define Alogrithm.
- (g) Explain Keyword.
- (h) List different Preprocessor Directives.

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

[4x4=16]

- (a) Explain various basic data types in C.
- (b) Discuss various Forms of Increment and Decrement Operator.
- (c) Write a 'C' program to find sum of digits of a number and reverse the number.

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P.T.O.

- (d) Write a 'C' program to accept a number and check whether it is a perfect number.
- (e) Write a 'C' program to display first n terms of the Fibonacci Series.

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

- (a) What is an Escape Sequence ? List and explain them.
- (b) Explain If-else and Nested If-else with example.
- (c) Define Algorithm. Explain characteristics of Algorithm.
- (d) Write a 'C' program to display Floyd's Triangle :

```
1
2  3
4  5  6
   :
   :
```

- (e) Write a 'C' program to determine whether the given year is a leap year or not.

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

- (a) Define Function. What are the advantages of Function ?
- (b) Explain any two Storage Classes.
- (c) Define Recursion. Explain with example.
- (d) Trace the following output and explain :

```
main()
{
    int i = 1;
    for (;;)
        printf("%d", i);
}
```

(e) Trace the following output and explain :

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

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

[4x4=16]

- (a) What are the features of 'C' Language.
- (b) Differentiate between While and Do-while.
- (c) Illustrate with an example Function Declaration, Function Definition and Function Call.
- (d) Write an algorithm to calculate GCD of two numbers.
- (e) Draw a flowchart to find maximum of three numbers.

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

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B. C. A. (Semester - I) Examination - 2010

COMPUTER FUNDAMENTALS AND OFFICE AUTOMATION

(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 Secondary Storage Devices and define any one Device.
- (b) Write full forms of (i) ROM (ii) PROM.
- (c) Draw any four Flowchart Symbols.
- (d) Define Algorithm.
- (e) Define Cold Booting.
- (f) Define Operating System and give types of Operating Systems.
- (g) Explain the term 'GUI'.
- (h) Write any two features of DTP.
- (i) Write any two features of MS-Access.
- (j) What is the purpose of /dev and /home directory in Linux File System ?

Q.2) Attempt any four of the following :

[16]

- (a) Explain Machine and High Level Language.
- (b) Explain Generation of Computers.
- (c) Draw a flowchart to find factorial of a number.
- (d) Write a note on Power Point.
- (e) Write a note on Pipe.

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P.T.O.

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

- (a) Write a batch file that performs the following :
 - (i) Rename file ABC.txt to PQR.txt.
 - (ii) Display contents of file PQR.txt.
 - (iii) Copy contents of PQR.txt into XYZ.txt.
 - (iv) Delete file XYZ.txt
- (b) What are the different types of Menus available in Windows ? Explain any one.
- (c) What is Mail Merge ? Explain with its features.
- (d) Write a note on MS-Access.
- (e) List Output Devices. Explain any one Output Device.

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

- (a) Write an algorithm to display 1 through 100 numbers.
- (b) Write any two Internal and External DOS Commands.
- (c) Write any four Linux Commands with their purpose.
- (d) State any four features of MS-Word.
- (e) Write a note on Hard Disk.

Q.5) Answer the following : (Any Four) [16]

- (a) Perform the following :
 - (i) $(6EA)_{16} = (?)_2$
 - (ii) $(127)_{16} = (?)_{10}$
 - (iii) $(15)_{10} = (?)_8$
 - (iv) $(29)_{10} = (?)_2$
- (b) What is Flowchart ? Explain characteristics of Flowchart.
- (c) Explain different charts available in MS-Excel.
- (d) Explain difference between DOS and Windows.
- (e) Write a note on Vi editor.

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

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B. C. A. (Semester - I) Examination - 2010

BUSINESS ACCOUNTING

(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) Fill in the blanks : [05]

- (a) A _____ debt is a debt which cannot be recovered.
- (b) Every Business Transaction has _____ fold effect.
- (c) Payment for Purchase of a Permanent Asset is a _____ Expenditure.
- (d) Bank Overdraft is a _____ of the Business.
- (e) Returns from Customers are to be recorded on the basis of _____ note received.

(B) Write word, term or phrase which can substitute each of the following : [05]

- (a) A Discount given on the Catalogue Price.
- (b) Monetary Valuation of business reputation.
- (c) A Source Document used for recording of deposits of Cash and Cheque into the Bank.
- (d) A book of prime entry.
- (e) A Bank Account which the businessmen prefer to open with the Bank.

- (C) State whether the following statements are **true** or **false** : [05]
- (a) The liabilities of a solvent person are always less than his assets.
 - (b) Salary payable is a Nominal Account.
 - (c) The bank makes immediate cash payment on presenting a bearer cheque.
 - (d) Narration is written just below the journal entry.
 - (e) Depreciation is an amortised expenditure.
- (D) Classify the following accounts into Personal A/c., Real A/c. and Nominal A/c. : [05]
- (a) Government of India A/c.
 - (b) Discount Earned A/c.
 - (c) Fixtures A/c.
 - (d) Carriage on Sales A/c.
 - (e) Dena Bank A/c.

- Q.2)** Enter the following transactions in the Cash Book with Cash, Bank and Discount Columns of Mahesh More, Malegaon and balance the same for January, 2010 : [16]
- 1st Cash Balance Rs. 8,000 and Bank Balance Rs. 12,000.
 - 4th Received from Dinesh a cheque of Rs. 780 and allowed discount Rs. 20.
 - 6th Withdrew from Bank for office use Rs. 1,000.
 - 9th Cheque received from Dinesh deposited into the Bank.
 - 12th Issued a cheque to Ramesh Rs. 1,900 and earned a discount of Rs. 50 for purchases of goods during last month.
 - 15th Purchased a secondhand machinery for Rs. 1,200 from Suresh for cash and paid installation charges Rs. 100.
 - 18th Received an advice from the Bank for collection of Interest on Investments Rs. 620.
 - 21st Paid Rent by cheque Rs. 1,100 and Taxes in cash Rs. 900.
 - 24th Introduced Rs. 5,000 as additional capital into business.
 - 26th Sold goods to Yogesh Rs. 1,000 @ 20% Trade Discount and 5% Cash Discount for Cash.
 - 29th Bought goods from Nilesh for Rs. 1,500 and paid by cheque after deducting 4% as Cash Discount.
 - 31st Withdrew from Bank for personal use Rs. 960.

Q.3) (A) Journalise the following transactions in the books of Nelco Enterprises, Nashik for December, 2009 : **[08]**

1st Started business with cash Rs. 5,000 and a Bank Loan of Rs. 15,000.

7th Bought Machinery Worth Rs.. 1,000 from Tata Co. on credit and paid Rs. 250 on account.

16th Sold private car for Rs. 12,000 and deposited the same into Business Account as additional capital.

31st Purchases furniture from Yatin for Rs. 6,000 @ 25% Trade Discount and paid by cheque.

(B) Enter the following transactions in the Sales Day Book of Majestic Furnitures for January, 2010 : **[08]**

2nd Invoiced 140 Dining Chairs to Shreyash Hotel @ Rs. 500 per Chair @ 10% Trade Discount.

8th Sold 210 Office Chairs to Kasturi Plaza @ Rs. 400 per Chair @ 20% Trade Discount.

17th Despatched 35 Computer Tables to SEED Computers Ltd. for Rs. 21,000 @ 5% Trade Discount.

30th Sold 30 Office Tables to WIPRO Co. @ Rs. 1,500 per Table @ Rs. 3,850 Trade Discount.

Q.4) Following Ledger Balances were extracted from the books of Laxmidas Lokhande, Lasalgaon as on 31st March, 2009. Prepare a Trading and Profit and Loss Account for the year ended 31st March, 2009 and a Balance Sheet as on that date after taking into account the adjustments given below. **[16]**

Trial Balance as on 31st March, 2009

Debit Balances	Rs.	Credit Balances	Rs.
Stock as on 1-4-2008	18,000	L's Capital	40,000
L's Drawings	10,000	Sales	1,25,000
Purchases	70,000	Purchase Returns	2,000
Sales Returns	1,000	Provision for Bad Debts	1,000
Sundry Debtors	25,300	Sundry Creditors	15,000
Salaries paid for 10 months	6,000	Commission	2,000

Debit Balances	Rs.	Credit Balances	Rs.
Rent and Taxes	1,000	Discount Received	1,600
Insurance	900	Bills Payable	5,500
Wages	5,100		
Carriage on Purchases	1,200		
Carriage on Sales	800		
Buildings	20,000		
Investments	10,700		
Plant and Machinery	12,000		
Cash in Hand	3,000		
Cash at Bank	5,700		
Printing and Stationery	1,000		
Bad Debts	400		
	1,92,100		1,92,100

Adjustments :

- (1) Stock on 31st March, 2009 valued at Rs. 19,300.
- (2) Commission received but not earned Rs. 100.
- (3) Provide Depreciation on Buildings @ 10% p.a.
- (4) Create a Bad Debts reserve @ 4% on Sundry Debtors.
- (5) Unexpired Insurance amounted to Rs. 200.
- (6) Interest accrued on Investments Rs. 300.
- (7) Write off further Bad Debts Rs. 300.

Q.5) What is 'Computerised Accounting' ? Explain significance of Computerised Accounting System in the Competitive Environment. [12]

OR

Q.5) Write short notes : (Any Three) [12]

- (a) Limitations of Financial Accounting
- (b) Matching Principle
- (c) Dual Aspect Concept
- (d) Objectives of Accounting Standards
- (e) Horizontal Form of Company Balance Sheet

Total No. of Questions : 8]

[Total No. of Printed Pages : 1

[3873]-201

B. C. A. (Semester - II) Examination - 2010

ORGANISATIONAL BEHAVIOUR

(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)** Describe various Theories of Work Motivation. **[16]**
- Q.3)** Define Personality. Explain any two Theories of Personality. **[16]**
- Q.4)** What are the different Sources of Stress and its effects on Human Behaviour ? **[16]**
- Q.5)** What is Team ? State its importance and characteristics. **[16]**
- Q.6)** Define Leadership. Explain various Traits of Effective Leader. **[16]**
- Q.7)** What are the different levels of Conflict ? Also explain Positive Effects of Conflicts. **[16]**
- Q.8)** Write short notes : **(Any Two)** **[16]**
- (a) Types of Groups
 - (b) Nature and Importance of Motivation
 - (c) Total Quality Management

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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-202

B. C. A. (Semester - II) Examination - 2010

ELEMENTS OF STATISTICS

(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 term Population and Sample, giving illustrations.
- (b) What do you mean by measures of Central Tendency ? What purpose does it serve ?
- (c) Define :
 - (i) Mutually Exclusive Events
 - (ii) Exhaustive Events
- (d) What are the limitations of Statistics ?
- (e) The mean monthly salary of all the employees in a firm is Rs. 1,500. The mean salary of male employees is Rs. 1,520 and that of female employees is Rs. 1,420. Find percentages of male and female employees in the firm.
- (f) Obtain mean, median and mode for the data given below :
280, 280, 140, 180, 340, 250, 260.

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

- (a) How many four digit numbers can be formed by using digits 0, 1, 2, 3 and 4 (no digit should be repeated) ? How many of these numbers will be divisible by 5 ?
- (b) Find values of :
- (i) 7P_4
 - (ii) 7C_3
 - (iii) 8C_5
 - (iv) 4C_2
- (c) Two cards are drawn at random from a well shuffled pack of playing cards. Find probability that :
- (i) both king cards are drawn.
 - (ii) one king and one queen card is drawn.
- (d) The means of two samples of sizes 50 and 100 are respectively 70 and 40 and the standard deviations are 10 and 5 respectively. Obtain standard deviation of the combined group of 150 observations.
- (e) What is the probability that a leap year selected at random will contain 53 Sundays ?
- (f) Find Median for the following data :

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	5	8	10	4	3

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

- (a) The breaking strength of 80 test pieces of a certain metal (in thousand pounds per square inch) is given below :

Breaking Strength	44-46	46-48	48-50	50-52	52-54
No. of Pieces	3	24	27	21	5

Find Standard Deviation of the above data.

- (b) Obtain Mode for the following data :

Profit (in 000 Rs.)	0-10	10-20	20-30	30-40	40-50
No. of Firms	4	15	20	10	2

- (c) Explain the following terms with one illustration of each :
- (i) Complementary Event, (ii) Intersection of two events.
- (d) If $P(A) = 0.6$, $P(B) = 0.3$ and $P(A \cap B) = 0.2$,
find : (i) $P(A \cup B)$, (ii) $P(B')$, (iii) $P(A' \cap B)$.
- (e) A coin is tossed two times. Let event A denote head occurs on the first toss and B denote head occurs on second toss. Verify whether A and B are independent events.
- (f) What is Classification ? Explain Inclusive and Exclusive Method of Classification.

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

[4x4=16]

- (a) There are 7 gents and 4 ladies. A committee of 4 is to be formed. Find number of committees that can be formed so as to include at least one lady.
- (b) Distinguish between Control Charts for Variables and Control Charts for Attributes.
- (c) What are the measures of Relative Dispersion ? In what respect are they different than that of Absolute Dispersion ?
- (d) Find Geometric Mean for the following Set of Observations :
12, 18, 17, 20, 10
- (e) A Man travels 30 km. at a speed of 40 km./hour and next 50 km. at the speed of 70 km./hour. Find his average speed.
- (f) If $P(A) = 0.5$, $P(B) = p$ and $P(A \cap B) = 0.7$.
find p, if A and B are mutually exclusive events.

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

[2x8=16]

- (a) Given below are the data relating to a machine process set to produce corrugated sheets of a given length :

Sample No. (of 5 each)	1	2	3	4	5	6	7	8	9	10
Sample Mean	16	17	15	18	14	17	18	15	17	15
Sample Range	5	11	4	18	7	8	9	4	7	7

Draw Mean and Range Chart and comment on the state of control.

[Given that for $n = 5$, $A_2 = 0.577$, $D_3 = 0$, $D_4 = 2.115$].

- (b) Prices (in Rs.) of a particular commodity in five years in two cities are given below :

Price in City A	20	22	19	23	26
Price in City B	10	20	18	12	15

Which city has more stable price ? Justify.

- (c) Write sample space for each of the following experiments :
- A card is drawn from a well-shuffled pack of playing cards and the suit is noted.
 - Number of defectives are noted from a lot of 10 items.
 - A coin is tossed until a head appears first time.
 - Two dice are tossed and the upper-most faces are noted.

Total No. of Questions : 4]

[Total No. of Printed Pages : 4

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B. C. A. (Semester - II) Examination - 2010

‘C’ PROGRAMMING

(2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

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

[10x2=20]

- (1) What is the difference between the 5's in these two expressions -
int num [5]; num [5] = 11; ?
- (2) What is Nested Structure ?
- (3) What are the advantages of Command Line Argument ?
- (4) What are the advantages of Dynamic Memory Allocation ?
- (5) Explain strlen() and strcpy().
- (6) What is Syntax and use of rewind() ?
- (7) What is a Bit Field ?
- (8) What are the different types of Files ?
- (9) List types of File Opening Modes.
- (10) What is Indirection Operator ?
- (11) Define Union with example.
- (12) State different types of Bitwise Operators in C.

Q.2) Attempt any four of the following :

[4x5=20]

- (a) Illustrate difference between Array and Structure with example.
- (b) What is Macro ? Explain Macro with arguments with example.
- (c) Explain :
 - (i) putc() and fputc()
 - (ii) fprintf() and fscanf()

- (d) Define Array. How are they declared ? Explain different types of Arrays.
- (e) Compare Macro with Functions.

Q.3) Attempt **any four** of the following : **[4x5=20]**

- (a) Write a 'C' program for multiplication of $m \times n$ matrix.
- (b) Write a 'C' program using Command Line Argument to search a word from a file and replace it with specified word.
- (c) Write a 'C' program to check if given string is Palindrome or not using Pointers.
- (d) Write a 'C' program to calculate sum of elements of lower triangle of $n \times n$ matrix using Dynamic Memory Allocation.
- (e) Create a structure to store data of 10 students as Roll No., Name and Percentage. Write a 'C' program to print Roll No., Names of Students who have secured more than 70 percent.

Q.4) Trace output and justify : **[5x4=20]**

```
(a) main( )
    {
        static char a[ ] = 'Able was I ere I saw elba';
        char *t, *s, *b;
        s = a;
        b = a + strlen (a) - 1;
        t = b;
        while(s! = t)
        {
            printf("%c", *s);
            s++;
            printf("%c", *t);
            t - - ;
        }
    }
```

```
(b) main()  
{  
    int a[5] = {5, 1, 15, 20, 25};  
    int i, j, m;  
        i = ++ a[1];  
        j = a[1] ++;  
        m = a[i++];  
    printf("%d %d %d", i, j, m);  
}
```

```
(c) main()  
{  
    char * p = "alqc";  
    printf("%c ---", ++* (++p));  
    printf("%c", * ++p);  
}
```

```
(d) # define cube (x) (x * x * x)  
main()  
{  
    int x, y = 3;  
    x = CUBE (y++);  
    printf(" %d", x);  
}
```

```
(e) main()  
{  
    struct student  
{  
    char name [20];  
    int rollno;  
}  
    s1, * ptr, s[10];  
printf("\n %d", size of (s1));  
printf("\n %d", size of (ptr));  
printf("\n %d", size of (s));  
}
```

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - II) Examination - 2010

FILE STRUCTURE AND DATABASE CONCEPTS

(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 algorithm used for searching an element in B⁺ tree.
- (b) Explain any four advantages of DBMS.
- (c) Differentiate between Physical and Logical Data Independence.
- (d) Write a short note on : Network Model.
- (e) Define Normalization. Explain advantages of Normalization with suitable example.

Q.2) Attempt any four :

[4x4=16]

- (a) Write a short note on : Heap File.
- (b) Explain Sparse Index with suitable example.
- (c) Explain System Architecture in detail.
- (d) State Functions of Database Users.
- (e) What are the different File Organisation Techniques ? Explain any one in detail.

Q.3) Attempt any four :

[4x4=16]

- (a) Define the following :
 - (i) Super Key
 - (ii) Relation
- (b) What are select and intersection operations in Relational Algebra ? Discuss with suitable example.
- (c) Explain any two aggregate functions of SQL with suitable example.
- (d) Explain Basic File Operations.
- (e) Explain Weak Entity with suitable example.

Q.4) Attempt the following :

[16]

Consider the following entities and their relationships :

Book (Bno, Bname, publication, price)

Author (Ano, Aname, addr)

Book and Author are related with many to many relationship.

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

- (a) Insert a row in Author table.
- (b) Count total number of books written by 'Balagurusamy'.
- (c) Add 'publish_year' (p_year) column to Book table, use altertable command.
- (d) Update book_name from 'DBMS' to 'RDBMS' published by 'Vision Publication'.
- (e) Display books published by 'Nirali Publication' and written by 'Mr. Raina'.
- (f) Display book information whose price is greater than Rs. 300.

Q.5) Attempt the following :

- (a) An Insurance Agent sells insurance policies to clients. Policies can be of different types such as Vehicle Insurance, Life Insurance, Accident Insurance etc. The agent collects monthly premiums on the policies in the form of cheques of local banks.

Database should provide the following details to the user :

(i) Identify all entities.

(ii) Identify all relations.

(iii) E-R Diagram

[08]

- (b) Consider the following Relational Database :

Department (dept_no, dept_name, location)

Employee (e_no, ename, addr, salary, designation, dept_no)

Department and Employee are related with one to many relationship.

Construct queries into Relational Algebra :

(i) List all employees who are working as 'Manager'.

(ii) List all employees whose salary is greater than 10,000 and less than 25,000.

(iii) List all employee details working in 'Accounts' of 'Pune' City.

(iv) Display Department Name and Employee Name working in 'Sales' or 'Inventory'.

[08]

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-205

B. C. A. (Semester - II) Examination - 2010

COST ACCOUNTING

(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) Costing, Cost Accounting and Cost Accountancy are Synonyms.
- (b) All the Variable Expenses are Indirect Expenses.
- (c) In case of job costing a separate cost sheet is maintained for each job or product.
- (d) Marginal Costing is the technique and decision-making tool in the hands of Management.
- (e) In Flexible Budget the costs are classified according to behaviour i.e. Fixed and Variable and Semi-variable.
- (f) Historical Costing uses post period costs while standard costing uses predetermined costs.

(B) Fill in the blanks : (Any Five)

[05]

- (a) Financial Accounting is _____ in nature.
- (b) Fixed cost per unit _____ with increase in the size of output.

- (c) In job costing each _____ is cost unit to which material, labour and overhead costs may be assigned.
- (d) _____ loss arises due to carelessness, bad plant operation, sabotage etc.
- (e) The Method of Costing used in undertakings like Gas Companies, Cinema Houses, Canteens etc. is known as _____.
- (f) Marginal Costing Technique takes into account the _____ classification of costs.

Q.2) What is Cost Accounting ? Differentiate between Cost Accounting and Financial Accounting. **[15]**

OR

Q.2) Explain briefly various Elements of Cost. Give suitable examples for the same. **[15]**

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

- (a) Advantages of Job Costing
- (b) Work Certified and Work Uncertified
- (c) Normal Loss and Abnormal Loss
- (d) Features of Process Costing
- (e) Labour Variances

Q.4) The following data have been extracted from the books of Moonshine Industries Ltd., for the year ending 31 March, 2009 :

	Rs.
Opening Stock of Raw Materials	25,000
Purchase of Raw Materials	85,000
Closing Stock of Raw Materials	40,000
Expenses on Purchases of Raw Materials	5,000
Wages – Direct	75,000
– Indirect	10,000
Other Direct Charges	15,000
Rent and Rates – Factory	5,000
– Office	500
Consumption of Indirect Materials	500

Depreciation – On Plant and Machinery	1,500
– On Office Furniture	100
Salary – Office	2,500
– Salesmen	2,000
Other Factory Expenses	5,700
Other Office Expenses	900
Managing Director’s Remuneration	12,000
Bad Debts Written Off	1,000
Advertisement Expenses	2,000
Travelling Expenses of Salesmen	1,100
Carriage and Freight Outward	1,000
Sales	2,50,000
Advance Income Tax Paid	15,000

The Managing Director has overall charge of the company and his remuneration is to be allocated at Rs. 4,000 to the Factory, Rs. 2,000 to the Office and Rs. 6,000 to the Selling Department.

Prepare a Cost Sheet and show :

- Prime Cost
- Factory or Works Cost
- Cost of Production
- Cost of Sales
- Net Profit [16]

Q.5) (A) You are given the following data :

Year	Sales (in Rs.)	Profit (in Rs.)
2008	1,20,000	8,000
2009	1,40,000	13,000

Find out :

- P/V Ratio
- B. E. Point/Break Even Point
- Profit when Sales are Rs. 1,80,000. [12]

- (B) Swastik Company Ltd. Ahmednagar provides the following cost data for a 60% working capacity, from which you are required to prepare a flexible budget for the production at 80% and 100% capacity level.

Current Production	–	600 units	
Selling Price (fixed) per unit	–	Rs. 300	
Process Material Cost per unit	–	Rs. 100	
Productive Wages per unit	–	Rs. 40	
Prime Cost Expenses per unit	–	Rs. 10	
Total Works Overheads (40% fixed)	–	Rs. 40,000	
Total Office and Selling and Distribution Overheads (50% variable)	–	Rs. 30,000	[12]

OR

- (B) From the following calculate : [12]
- (a) Labour Cost Variance
- (b) Labour Price Variance
- (c) Labour Efficiency Variance

Category of Worker	Standard		Actual	
	Hours	Rate per Hour (Rs.)	Hours	Rate per Hour (Rs.)
Skilled Workers	800	4=00	700	4=40
Unskilled Workers	400	2=00	500	1=80

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-301

B. C. A. (Semester - III) Examination - 2010

NUMERICAL METHODS

(MATHEMATICS)

(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) Attempt any one of the following : [06]

(a) Find real root of the equation $x^3 - 9x + 1 = 0$ between $x = 2$ and $x = 4$ using Bisection Method.

(b) Using Newton – Raphson Method find value of $\sqrt[4]{72}$.

(B) Attempt any two of the following : [10]

(a) Evaluate $\lim_{x \rightarrow 3} \frac{x^2 - 5x + 6}{x^2 - 9}$.

(b) Find derivative of $y = x^2$ using the definition of derivative.

(c) Evaluate $\left(\frac{\Delta^2}{E}\right)(x^3)$. (Take $h = 1$)

Q.2) (A) Attempt any one of the following : [06]

(a) Find the percentage number of criminals under 35 years by Lagrange's Interpolation Formula :

Age	Percentage Number of Criminals
Under 25 years	52
Under 30 years	67
Under 40 years	84
Under 50 years	94

- (b) Find first derivative of the function tabulated below at the point $x = 2.03$:

x	1.96	1.98	2.00	2.02	2.04
y	0.7825	0.7739	0.7651	0.7563	0.7473

- (B) Attempt **any two** of the following : [10]

- (a) Represent function $f(x) = 2x^4 + 5x^2 + 4x + 7$ and its successive differences into factorial notations.

- (b) Find missing term in the following table :

x	0	1	2	3	4
f(x)	1	3	9	?	81

- (c) From the following data, find number of students who obtained less than 45 marks :

Marks	30-40	40-50	50-60	60-70	70-80
No. of Students	31	42	51	35	31

- Q.3)** (A) Attempt **any one** of the following : [06]

- (a) Using Trapezoidal Rule, evaluate the following integral -

$$\int_{-2.5}^2 \frac{x}{5 + 2x} dx \text{ (Take } h = 1)$$

- (b) The velocity of a vehicle running on a straight road at intervals of 2 minutes is given below :

Time in Minutes	0	2	4	6	8	10	12
Velocity in k/hr.	00	22	30	27	18	07	00

Apply Simpson's $\frac{3^{\text{th}}}{8}$ rule to obtain distance covered by the vehicle.

- (B) Attempt **any two** of the following : [10]

- (a) Fit a Second Degree Polynomial to the following data :

x	0	1	2	3	4
y	1	0	3	10	21

- (b) Derive normal equations to fit straight line $y = a + bx$ from the set of points $(x_1, y_1), (x_2, y_2), \dots, (x_n, y_n)$.

- (c) Estimate value of $\int_2^6 \frac{dx}{1+x}$ by using Simpson's $\frac{1^{\text{rd}}}{3}$ rule.

(Take $h = 1$)

Q.4) (A) Attempt **any one** of the following : [06]

- (a) Using Euler's Method, solve equation $\frac{dy}{dx} = xy$ with $y(0) = 4$ by taking $h = 0.1$. Obtain $y(0.2)$, $y(0.4)$.
- (b) Use Runge - Kutta's Second Order Formula to find $y(0.2)$, $y(0.4)$ taking $h = 0.2$. Given that $y(0) = 0$ and $\frac{dy}{dx} = 1 + y^2$.

(B) Attempt **any two** of the following : [10]

- (a) Solve $\frac{dy}{dx} = x - y$ with the initial condition $y = 1$ when $x = 0$ by using Picard's Method and obtain value of y when $x = 0.2$.
- (b) Explain Euler's Method of successive approximation.
- (c) Use Euler's Modified Method to solve $\frac{dy}{dx} = xy^2$, with $y(0) = 2$, find $y(0.1)$. (Take $h = 0.1$)

Q.5) (A) Attempt **any one** of the following : [06]

- (a) Plot region as shown by the inequalities :

$$\begin{aligned} x + y &\leq 3 \\ x &\leq 2 \\ -2x + y &\leq 1 \\ x &\geq 0 \\ y &\geq 0 \end{aligned}$$

Find at which vertex of the region is $z = 3x + 2y$ greatest, what is the greatest value of z ?

- (b) A Workshop Supervisor has 4 assistants who are supposed to complete 4 tasks. The supervisor's estimate of time for each assistant and for each task is given in the following table :

Tasks	Machine			
	I	II	III	IV
Time in Hours				
A	17	25	26	20
B	28	27	23	25
C	20	18	17	14
D	28	25	23	19

Determine how should the supervisor assign tasks in order to minimize requirements of man hours.

(B) Attempt **any two** of the following :

(a) A manufacturer produces two types of items X and Y. The market survey reveals the following information.

He must produce at least 60 units of X per month. He has no facility to produce more than 180 units of X per month. He also has no facility to produce more than 160 units of Y per month. The total demand for X and Y does not exceed 200 per month. The profit per unit of X is Rs. 80 and that per unit of Y is Rs. 60. It is required to know how many units of X and Y should be produced per month so that the total profit is maximum. Formulate the problem as a L.P.P.

(b) Solve the following L.P.P. by Graphical Method :

$$\text{Minimize } Z = 2x + 3y$$

$$\text{Subject to } 3x + y \geq 8$$

$$2x + y \geq 7$$

$$x - y \leq 0$$

$$x \geq 0$$

$$y \geq 0.$$

(c) Obtain an initial basic feasible solution to the following transportation problem by using Least Cost Method (LCM) :

	Q_1	Q_2	Q_3	Supply
P_1	10	6	3	9
P_2	4	7	8	28
P_3	9	8	6	20
P_4	5	7	9	18
Demand	25	25	25	75

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-302

B. C. A. (Semester - III) Examination - 2010

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 are the different techniques to search elements in an Array ?
- (b) What is Priority Queue ?
- (c) What is a Stack ? Discuss Operations Performed on Stack.
- (d) State different types of Sorting Techniques.
- (e) How to measure Performance of an Algorithm ?
- (f) Explain Singly Circular Linked List.
- (g) What is Self Referential Structure ?
- (h) Define Complete Graph.
- (i) What is the use of typedef keyword ?
- (j) What are the advantages of an Array over Linked List ?

Q.2) Attempt any four of the following :

[4x4=16]

- (a) Explain algorithm to convert infix expression to its equivalent postfix expression.
- (b) Explain Dynamic Representation of Stack.
- (c) Explain Depth First Search with an example.

- (d) Write a function to delete a node from Doubly Linked List.
- (e) Sort the following data using insertion sort (show each step) in descending order :
-5, 8, 12, 64, 5, 88.

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

- (a) Write a program to reverse a string using stack.
- (b) Explain in brief the functions of Dynamic Memory Allocation.
- (c) Differentiate between Array and Linked List.
- (d) Write a 'C' program for Implementation of Circular Queue.
- (e) Convert the following infix to prefix expression :
 - (i) $A + B * C/D$
 - (ii) $A + B + C + D$

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

- (a) Write functions to traverse in BST :
 - (i) Recursive function for inorder
 - (ii) Recursive function for preorder
- (b) What is Overflow Handling ? Explain with example.
- (c) Explain Kruskal's Algorithm for Minimum Spanning Tree.
- (d) Write a 'C' program for evaluation of a given polynomial (e.g. $2x^3 + x + 3$).
- (e) Explain Heap Tree with an example.

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

- (a) Construct a binary tree for the following data :
12, 30, 6, 7, 25, 10, 15, 18, 33.
- (b) Write a function to accept size of stack and insert element till it is full.

- (c) Define the following terms :
- (i) Spanning Tree
 - (ii) Cycle in a Graph
 - (iii) Adjacent Vertices
 - (iv) Indegree of Graph
- (d) Convert the following Infix Expression into Postfix Expression :
- $$A * (B + C \quad D) - E/F * (G + D)$$
- (e) Discuss different Tree Traversal Methods.
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-303

B. C. A. (Semester - III) Examination - 2010

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) Define Software Engineering.
- (b) What is Data Dictionary ?
- (c) Define the terms : Coupling and Cohesion.
- (d) What is Software Testing ?
- (e) What is E-R Diagram ? Draw various symbols of E-R Diagram.
- (f) What are Elements of System ? Explain one in short.
- (g) State different types of Modules. Explain any one.
- (h) What is Technical Feasibility ?
- (i) What is Decision Table ?
- (j) What is Pseudo Code ?

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

[16]

- (a) Compare Logical and Physical DFD with suitable example.
- (b) What is Structured Design ? What are the various aspects of Structured Design ?
- (c) What is Software Quality Assurance ? Why Quality Assurance is important ?
- (d) Explain Classical SDLC.
- (e) Explain in detail SRS Documentation.
- (f) With suitable diagram describe Black Box Testing.

[3873]-303

1

P.T.O.

Q.3) (A) Design an output screen layout for electricity bill containing period, customer name, address number, previous and current reading, rate, amount (per unit), penalty, gross amount etc. Suggest validations for screen. **[08]**

(B) The discount policy of a manufacturer, producing two products :

(a) Mechanical Typewriter and

(b) Electronic Typewriter, and who has three types of customers, (R) Retailer, (D) Dealer, (I) Institution, is given below :

Rules : In case of Mechanical Typewriter.

(i) If the order is from retailer for amount up to Rs. 5,000, he allows 6% discount.

(ii) If the order is from dealer for amount up to Rs. 5,000, he allows 7.5% discount.

(iii) On retail exceeding Rs. 5,000, 7.5% discount.

(iv) If the order is from dealer for an amount exceeding Rs. 5,000, 11% discount is given.

(v) In all of the above cases a flat discount of 7.5% is given to Institution.

(vi) In the case of Electronic Typewriter a flat discount of 6% is given regardless of amount. **[08]**

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

(a) Difference between : White Box Testing and Black Box Testing

(b) Qualities of a Good Design

(c) Structure Chart

(d) Spiral Model

(e) Software Qualities (McCall's Quality Factors)

(f) Fact Finding Technique

Q.5) Case Study :

[16]

Consider a System for Swimming Tank Management. Applicants fill admission form containing details like address, date of birth, age, father's/guardian's name and also submit two photographs, medical certificate and fees. Then Swimming Tank Management issues I Card to the applicant.

- (a) Identify all Entities
- (b) Draw Context Level Diagram and
- (c) First Level DFD for the System.

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-304

B. C. A. (Semester - III) Examination - 2010

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.
- (3) Use of calculator is allowed.

Q.1) Explain the term 'Management Accounting'. Distinguish between Management Accounting and Cost Accounting. **[16]**

OR

Q.1) Explain role of Management Accountant in Modern Business. **[16]**

Q.2) A Proforma Cost Sheet of a Company is given below :

Particulars	Cost per Unit Rs.
Raw Material	52
Direct Labour	26
Overheads	32
Total Cost	110
Profit	20
Selling Price	130

Additional Information :

- (1) Average Raw Material in stock is one month.
- (2) Average material in process half a month.
- (3) Credit allowed by suppliers one month.
- (4) Credit allowed to debtors two months.
- (5) Time Lag in Payment of Wages one and half weeks, overheads one month.
- (6) $\frac{1}{4}$ th of the sales are on cash basis.
- (7) Expected Cash Balance Rs. 1,20,000.

Prepare a statement showing working capital requirements to finance of activity of 45,000 units output. **[16]**

Q.3) The results of X, Y, Z Ltd., for two periods reveal that :

Year	Sales (Rs.)	Total Cost (Rs.)
2009	40,00,000	44,00,000
2010	60,00,000	56,00,000

Find out :

- (a) Profit Volume Ratio
- (b) Fixed Cost
- (c) Sales required to break even
- (d) Sales necessary to earn profit of Rs. 10,00,000 **[16]**

OR

Q.3) What is Working Capital Management ? Bring out role of various constituents of Working Capital. **[16]**

Q.4) The following figures are extracted from the books of ABC Ltd. as on 31st March, 2010 :

Particulars	Rs.
Sales	24,00,000
Less : Operating Expenses	18,00,000
Gross Profit	6,00,000
Less : Non-operating Expenses	2,40,000
Net Profit	3,60,000
Current Assets	7,60,000
Inventories	8,00,000
Fixed Assets	14,40,000
Total Assets	30,00,000
Net Worth	15,00,000
Debt	9,00,000
Current Liabilities	6,00,000
Total Liabilities	30,00,000
Working Capital	9,60,000

Calculate :

- (a) Gross Profit Ratio
- (b) Net Profit Ratio
- (c) Return on Assets
- (d) Inventory Turnover Ratio
- (e) Working Capital Turnover
- (f) Net Worth to Debt

[16]

OR

Q.4) What is Fund Flow Statement ? Discuss significance of Fund Flow Statement as a tool of Financial Statement. **[16]**

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

- (a) Flexible Budget
 - (b) Objectives of Budgetary Control
 - (c) Cash Flow Statement
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-305

B. C. A. (Semester - III) Examination - 2010
RELATIONAL DATABASE MANAGEMENT SYSTEM
(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) Explain any two distinguishing characteristics of RDBMS.
- (b) What is difference between % type and % rowtype ?
- (c) List steps involved in defining explicit cursor.
- (d) What is Transaction ? List properties of Transaction.
- (e) List any four predefined exceptions.
- (f) Give proper syntax for function in PL/SQL.
- (g) What is Precedence Graph ? Explain its use.
- (h) Define : Commit, Rollback.

Q.2) Attempt any four :

[4x4=16]

- (a) What are the features of Oracle ?
- (b) What is Cursor ? Explain two types of Cursors.
- (c) What is Transaction ? Explain States of Transaction.
- (d) What is Deadlock ? Explain how deadlock is recovered ?
- (e) What is Serializability ? Explain Conflict Serializability.

Q.3) Attempt any four :

[4x4=16]

- (a) What is PL/SQL ? Give PL/SQL block structure and explain its details.
- (b) What is package in PL/SQL ? Explain with example.
- (c) Explain Recoverable Schedule and Cascadless Schedule with example.
- (d) Explain different types of Failures.
- (e) Explain recovery using deferred update method.

Q.4) Attempt any four :

[4x4=16]

- (a) Consider the following relational database :

doctor (doct_no, doct_name doct_city)

hospital (hosp_no, hosp_name, hosp_city)

doct_hosp (doct_no, hosp_no)

Write a script using cursor to print hospitalwise list of doctors.

- (b) Consider the following relational database :

department (dept_no, dept_name)

employee (emp_no, emp_name, designation, salary, dept_no)

Define a trigger that will take care of the constraint that employee salary should not be less than zero.

- (c) Consider the following relational database :

publisher (pub_no, pub_name, pub_city)

book (book_no, book_name, price)

pub_book (pub_no, book_no)

Write a procedure which will take publisher name as parameter and will display books published by that publisher.

- (d) Consider the following relational database :

customer (cust_no, cust_name, cust_city)

account (acc_no, acc_type, balance, cust_no)

Write a function which will take acc_type as a parameter and will return total number of accounts of given acc-type.

- (e) Write a package which consists of one procedure and one function. Pass a number as parameter to a procedure and print whether a number is even or odd. Pass per_no of person as a parameter to a function and return ph_no of that person. For this consider the following relation :

Person (Per_no, Per_name, Per_addr, Per_city, Ph_no)

Q.5) Attempt any four :

[4x4=16]

- (a) Consider the following transaction. Give two non-serial schedules that are serializable :

T₁	T₂
read (x)	read (x)
x = x - m	x = x + n
write (x)	write (x)
read (y)	
y = y + m	
write (y)	

- (b) Consider the following transaction. Find out a non-serial schedule which is serializable to serial schedule $\langle T_1, T_2, T_3 \rangle$:

T₁	T₂	T₃
read (x)	read (z)	read (y)
x = x + 100	read (y)	read (z)
write (x)	y = y + z	y = y + 50
read (y)	write (y)	write (y)
y = y - 100	read (x)	z = z + y
write (y)	x = x - z	write (z)
	write (x)	

- (c) Following is the list of events in an interleaved execution of sets T₁, T₂, T₃ and T₄ 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, 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 of sets 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 (A, S)
t_2	T_2	Lock (B, X)
t_3	T_3	Lock (C, X)
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 log entries at the time of system crash :

[Start – transaction T_1]
 [Read – item T_2 , A]
 [Read – item T_1 , D]
 [Write – item T_1 , D, 20]
 [Commit T_1]
 [Check Point]
 [Start – transaction T_2]
 [Read – item T_2 , B]
 [Write – item T_2 , B, 12]
 [Start – transaction T_3]
 [Write – item T_3 , C, 30]
 [Read – item T_3 , D]
 [Write - item T_3 , D, 25] ← System Crash

If deferred update with check point is used, what will be recovery procedure ?

Total No. of Questions : 6]

[Total No. of Printed Pages : 2

[3873]-31

B. C. A. (Semester - III) Examination - 2010

DIGITAL COMPUTER DESIGN AND COMPUTER ORGANISATION

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Solve **any five** questions.*
- (2) Figures to the right indicate full marks.*
- (3) Draw neat labelled diagrams wherever necessary.*
- (4) Assume suitable data wherever necessary.*

-
-
- Q.1)** (A) Draw logic diagram for Half Adder and Full Adder and give their truth tables. **[08]**
- (B) What is meant by Shift Register ? Give its basic types. Explain SISO and SIPO. **[08]**
- Q.2)** (A) Explain 2 to 4 Line Decoder with neat diagram. **[04]**
- (B) With the help of block diagram explain RAM and ROM. **[04]**
- (C) Simplify given Boolean Expression using Boolean Algebra :
$$Y = (A + B) (A + \bar{B}) (\bar{A} + B)$$
 [04]
- (D) Using NAND Gate construct AND and OR Gate. **[04]**
- Q.3)** (A) Explain Arithmetic Micro-operations. **[04]**
- (B) Write short note on Register Transfer Operation. **[04]**
- (C) Construct 8 to 1 Multiplexer using 4 : 1 Multiplexers. **[04]**
- (D) Explain Basic Computer Instruction Format in detail. **[04]**

[3873]-31

1

P.T.O.

Q.4) (A) Explain Memory Transfer and Bus Transfer Operation in detail. [08]

(B) Explain Shift Micro Operations using suitable block diagram. [08]

Q.5) What is ALU ? Explain in detail the design of Accumulator Logic. [16]

Q.6) Attempt any four : [4x4=16]

(a) Draw logic diagram of JK Flip-Flop and give its truth table.

(b) The contents of 4-bit Shift Register is initially 1101. The register is shifted four times to the right with serial input 0110. What is contents of Shift Register after each shift.

(c) The 8-bit Registers AR, BR, CR and DR initially have following values :

AR = 11100111

BR = 10000011

CR = 11110000

DR = 00001100

Determine contents of each register after the execution of following Micro-operations :

(i) $AR \leftarrow AR + BR$

(ii) $CR \leftarrow CR - DR$

(iii) $BR \leftarrow BR + 1$

(iv) $DR \leftarrow DR \wedge BR$

(d) List different steps in instruction execution and explain each step in brief.

(e) Draw flowchart for Basic Computer Operation.

Total No. of Questions : 4]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - III) Examination - 2010

‘C’ PROGRAMMING

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Draw a flowchart to Calculate Average of N Numbers. [10]

Q.2) Attempt **any four** of the following : [20]

- (a) Write different symbols used in Flowchart.
- (b) Explain Relational Operators with example.
- (c) Explain use of For Loop with example.
- (d) Write steps to execute a ‘C’ Program.
- (e) What is meant by Pointer ? Explain Command Line Argument.

Q.3) Explain output of the following codes : (Any Four) [20]
(Assume all header files are included.)

```
(a) #define N 100
#define A 2
main( )
{
    int a;
    a = A;
    while(a < N)
    {
        printf(“%d\n”, a);
        a * = a;
    }
}
```

```

(b) main()
{
    float a, b, c, x, y, z;
    a = 9, b = 12, c = 3;
    x = a - b/3 + c * 2 - 1;
    y = a - b/(3 + c) * (2 - 1);
    z = a - (b/(3 + c) * 2) - 1;
    printf("x = % f \n", x);
    printf("y = % f \n", y);
    printf("z = % f \n", z);
}

(c) main()
{
    int x;
    for(x = 0; x <= 9; x = x + 1)
    {
        printf("%d", x);
    }
    printf("\n");
}

(d) main()
{
    int x, y;
    int * ptr;
    x = 10;
    ptr = &x;
    y = * ptr;
    printf("value of x is %d\n\n", x);
    printf("%d is stored at address% u\n", x, &x);
}

```

```

(e) main( )
    {
        int x;
        x = 20;
        change(&x);
        printf(“%d\n”, x);
    }

    change(p)
    int * p;
    {
        *p = *p + 10;
    }

```

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

[30]

- (a) Write a program to find factorial of a given number.
- (b) Write a program to accept ‘n’ nos array from user and sort these numbers in ascending order.
- (c) Write program to generate the following o/p :


```

1
2  3
4  5  6
7  8  9  10

```
- (d) Write a program to check whether the number is prime or not.
- (e) Write a program to calculate sum of digits using array. (n number)
- (f) Write a program to find Fibonacci Series of a given n number. (eg. upto 5 i.e. 0 1 2 3 4)

Total No. of Questions : 7]

[Total No. of Printed Pages : 2

[3873]-33

B. C. A. (Semester - III) Examination - 2010

SYSTEM ANALYSIS AND DESIGN

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Explain Spiral Model in detail. [10]

Q.2) Describe the following fact finding techniques : [10]

- (a) Interviews
- (b) Questionnaire

Q.3) Design 'Railway Reservation Form' to be filled by a passenger to reserve a ticket. Also suggest required validations. [10]

OR

Q.3) 'Unique Company' wants to print departmentwise salary statement showing employee's all salary details. Also suggest required validations. [10]

Q.4) Consider a company offering certain discount on the total amount of purchase. If the purchase amount is greater than 10,000 and the payment is made within 10 days, then 3% discount is offered on the total invoice amount. If total purchase amount is less than 10,000 and the payment is made within 10 days, then 2% discount is offered. And if the total amount is less than 5,000 and payment is made within 10 days, then no discount is offered on the invoice. If the payment is not made within 10 days, then full invoice amount has to be payed. Draw Decision Tree and Decision Table for the above case. [10]

Q.5) 'Unit Bank' is a wellknown and reputed bank in the city. It is aimed at providing better ATM Banking facility to the customers. The organisation wants to know efficiency of services to customers.

Prepare questionnaire to be distributed among customers for getting maximum information about ATM Banking. **[10]**

Q.6) Describe various types of Systems. **[10]**

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

- (a) MIS
 - (b) Structured English
 - (c) Feasibility Study
 - (d) Rules for Designing Input Screen
 - (e) Elements of System
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 6

[3873]-34

B. C. A. (Semester - III) Examination - 2010

MANAGEMENT ACCOUNTING

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) (A) Answer the following in brief : (Any Five) [10]

- (a) Why is Trade Discount given ? How is it treated in accounting ?
- (b) Define the terms 'Debtor' and 'Creditor'.
- (c) What is a Contra Entry ? When is it passed ?
- (d) Explain 'Accrual' Concept of Accounting.
- (e) What is Petty Cash Book ? Explain its importance.
- (f) What is 'Trial Balance' ? Explain its significance.
- (g) What is 'Real Account' ? State its rule.

(B) Define the term Financial Accounting. State its important objectives. [05]

Q.2) Define the terms 'Cost', 'Costing', 'Cost Accounting' and 'Cost Accountancy'. How Cost Accounting differs from Financial Accounting ? [15]

OR

Q.2) Write detailed notes on any three of the following : [15]

- (a) Methods of Time Booking
- (b) Allocation and Apportionment of Overheads
- (c) Bill of Material
- (d) Cost Center and Cost Units
- (e) Direct Cost and Indirect Cost

[3873]-34

1

P.T.O.

Q.3) The following is the Trial Balance of Miss BINA, prepared as on 31st March, 2009 :

Particulars	Debit	Credit
Drawing and Capital	10,000	2,50,000
Machinery	1,50,000	–
Sundry Debtors and Creditors	80,000	75,000
Furniture	70,000	–
Stock as on 1st April, 2008	65,000	–
Delivery Van	45,000	–
Purchases and Sales	1,45,000	2,55,000
Salary	35,000	–
Wages	46,000	–
Outstanding Salary	–	9,500
Printing and Stationery	8,500	–
Insurance	15,500	–
Advertising	32,500	–
Loan from Miss FINA	–	1,50,000
General Expenses	15,800	–
Bad Debts	7,500	–
Reserve for Bad and Doubtful Debts	–	15,400
Returns of Goods	6,500	7,800
Carriage Inward	14,500	–
Cash and Bank	15,900	–
	7,62,700	7,62,700

You are required to prepare 'Trading' and 'Profit and Loss Account' for the year ended on 31st March, 2009 and 'Balance Sheet' as on that date after giving effect to the following adjustments :

- (1) Stock as on 31st March, 2009 was valued at Rs. 76,000.
- (2) Wages for the year are payable at the rate of Rs. 4,000 per month.

- (3) Insurance includes Rs. 10,000 paid as Life Insurance Premium of Miss BINA.
- (4) All fixed assets are to be depreciated by 10%.
- (5) Goods of Rs. 25,000 are destroyed by fire and the Insurance Company has admitted only 80% of the claim.
- (6) Additional Bad Debts are 5,000. Reserve for Doubtful Debts is to be maintained @ 10%. [20]

Q.4) From the following information prepare Stores Ledger on the basis of FIFO and Simple Average Method :

Balance as on 1st September, 2009 : 2,000 units @ Rs. 56.00 and
1,600 units @ Rs. 54.00

Receipts During the Month of September, 2009

Date	Units	Rate (Rs. per Unit)
2nd	1,200	55.00
8th	1,500	57.00
15th	2,000	54.00
24th	1,800	52.00

ISSUES

5th	3,000	
11th	2,500	
18th	2,200	
29th	2,000	[15]

OR

Q.4) ABC Limited, Pune having three Production Cost Centres and one Service Cost Centre has provided you the following information :

Overheads	Amount (Rs.)
Rent and Rates	18,000
Electricity Charges	8,600
Insurance of Machinery	9,450
Depreciation on Machinery	39,600
Labour Welfare Expenses	8,500
Power and Fuel	12,600
Indirect Material	2,500
General Expenses	11,500
Supervision Charges	18,600

Additional Information :

Particulars	'A'	'B'	'C'	'D'
H.P. Ratio of the Machines	6	3	2	1
Book Value of Machinery	30,000	25,000	20,000	15,000
Area Occupied (Sq. Mtrs.)	150	200	100	50
Direct Labour Cost	15,000	20,000	10,000	5,000
Time Devoted for Supervision	30%	35%	25%	10%
Light Points of Equal Wattage	40	30	20	10

You are required to prepare statement showing Primary Distribution of Overheads.

[15]

Q.5) The following information for the year ended on 31st March, 2009 is extracted from the cost records of COS Limited, Pune :

Particulars	Amount (Rs.)
Purchases	2,40,000
Wage - Direct	1,70,000
Factory Rent	45,000
Advertising	23,000
Printing and Stationery	12,500
Salary	24,500
General Expenses	15,600
Insurance	19,000
Commission on Sales	25,000

Book Value of Fixed Assets :

Machinery	2,50,000
Office Equipments	1,20,000
Furniture	80,000
Delivery Van	60,000

Inventory	Opening (Rs.)	Closing (Rs.)
Raw Material	35,000	23,000
Work-in-Progress	18,000	19,000
Finished Goods	24,000	32,000

Additional Information :

- (1) Depreciation on Furniture is apportioned in the Office and Sales Department in the ratio of 3 : 2.
- (2) All Fixed Assets are to be depreciated by 10% except Delivery Van which is to be depreciated by 20%.

- (3) 10% of the Salary is to be charged to the factory.
- (4) During the year a machine was hired @ 2,500 per month for the period of four months for a Production Cost Centre.

You are required to prepare a Cost Sheet showing :

- (a) Prime Cost
- (b) Works Cost
- (c) Cost of Production
- (d) Cost of Goods Sold
- (e) Total Cost and
- (f) Net Profit when goods are sold at 20% Profit on Sales. [15]

OR

- Q.5)** What do you mean by Absorption of Overheads ? Explain causes and remedies of Over Absorption of Overheads. [15]

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-35

B. C. A. (Semester - III) Examination - 2010

DATABASE MANAGEMENT SYSTEM

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Banks provide schemes through which people can deposit money with a bank as a fixed deposit for a certain period of time. The bank pays interest for this period and return money when fixed deposit period is over. Interest rate depends upon the period as follows : For 30 to 180 days - Interest Rate is 10%, 181 to 364 days - 11%, 1 to 2 years - 12.5%, 2-3 years – 14% and more than 3 years interest is 15.5%. The depositor may choose to renew FD for another time period. Depositor may get loan against the deposit. A maximum 75% of the deposit amount is allowed as the loan amount. As a System Analyst :

- (a) Draw Entity Relationship Diagram.
- (b) Design Relational Database. **[15]**

OR

Q.1) Define DBMS and explain its advantages and disadvantages. **[15]**

Q.2) Consider the following entities and relationships and solve queries in SQL : **(Any One)** **[15]**

Course (CourseCode, CourseName, Syallabus, LastNo)

Batch (CourseCode, BatchCode, StartingDate, Duration, CourseFees, NetIncome, ExpectedIncome, LastNo)

- (a) Display syllabus of particular course.
- (b) Delete all batches, which are not having any specified expected income.
- (c) Change or increase contents of course fee by 10%.
- (d) List name of batch having average income > 1000.
- (e) Remove table from the Database.

OR

Q.2) Dept (deptno, deptname, location)

Emp (empno, empname, birthdate, address, city, phno, basicsalary, deptno)

- (a) Display details of employees having character 'W' in their names.
- (b) Display total basic salary for all departments.
- (c) Display Birthdate of Employee in the format "Birthday : dath Month YYYY".
- (d) Display details of employees working in HR Department and staying in "Mumbai" City.
- (e) Add a row in the tables. **[15]**

Q.3) Explain the following commands/functions of SQL with example :

(Any Five) **[15]**

- (a) Insert
- (b) Commit
- (c) Count
- (d) Select
- (e) Update
- (f) Union Operator

Q.4) Attempt **any three** of the following : **[15]**

- (a) Explain properties of Transaction.
- (b) Explain fundamental set operations in Relational Algebra with an example.
- (c) Differentiate between Relation and Relation Schemes.
- (d) Explain any 4 Group Functions in SQL.

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

- (a) DDL Commands
 - (b) Database Security and Privacy
 - (c) Importance of Primary Key and Foreign Key
 - (d) Nested Queries
 - (e) Aggregation
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[3873]-401

B. C. A. (Semester - IV) Examination - 2010

NETWORKING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any three of the following : [3x5=15]

- (a) Define Network Topology. List different types of Topologies. Explain any one in detail.
- (b) What is NIC ? List types of NICs and explain any one in detail.
- (c) Write note on Bluetooth.
- (d) Define :
 - (i) Hubs
 - (ii) Repeaters
 - (iii) Routers
 - (iv) Bridges
 - (v) Gateways

Q.2) Attempt any three of the following : [3x5=15]

- (a) What are different advantages and disadvantages of Connection Oriented and Connectionless Oriented Models ?
- (b) Define Firewall. What are several types of Firewall Techniques available ?
- (c) Explain in detail 'Line-of-Sight'.
- (d) Write note on Protocols and Standards.

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

- (a) Write differences between ISO-OSI and TCP-IP Reference Models.
- (b) Write differences between Co-axial Cable and Twisted Pair.
- (c) Explain www Architecture.
- (d) Write note on Unguided Medias.

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

- (a) Explain Synchronous Communication in detail.
- (b) Write note on SAP.
- (c) Explain Intranet and Extranet.
- (d) Write full forms for :
 - (i) ANSI
 - (ii) TCP-IP
 - (iii) EIA
 - (iv) ISO-OSI
 - (v) IEEE
 - (vi) ITU-T
 - (vii) LED
 - (viii) DHCP
 - (ix) ILD
 - (x) NIC

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

- (a) Modes of Communication
- (b) Wireless Transmission
- (c) Server based and Peer-to-peer LANs
- (d) Functions of each layer in ISO-OSI Reference Model
- (e) Search Engines

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[3873]-402

B. C. A. (Semester - IV) Examination - 2010

VISUAL BASIC

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

- (a) Property to place a picture on the command button.
- (b) Property to set maximum number of characters to be input using textbox.
- (c) Property to set control items alphabetically in a combo box.
- (d) Property used to set value of check boxes.
- (e) Property used to disable label control.
- (f) Property used to remove an item from a list.
- (g) Property to maximize form at run time.
- (h) Property to set font size using Common Dialog Box.
- (i) Property to set path property of DIRList Box.
- (j) Property to set tab order for the controls on the form.

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

- (a) Explain briefly ADO Data Control.
- (b) Explain If - Then - Else Statement in Visual Basic with syntax and example.
- (c) Describe data types used in VB.
- (d) Explain briefly MDI Form. How it differs from Simple Form ?
- (e) Differentiate between MSGBOX and InputBox.

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

- (a) Write program in VB to check whether given no. is perfect or not by using 'msgbox'.
- (b) Write program in VB to find maximum number from an Array.
- (c) Write a menu driven program in VB for :
 - (i) Area of Circle
 - (ii) Area of Rectangle
- (d) Write program in VB to find factorial of a given number.
- (e) Write program in VB to check whether given no. is Armstrong or not.

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

- (a) Draw an interface and code for the following. Also give property setting for appropriate controls. Write a program in Visual Basic to store student's data into the database with the fields rollno, name, marks1, marks2, marks3.
Calculate average.
- (b) How do you create menus in Visual Basic ?
- (c) Explain any two looping structures used in VB with syntax and examples.

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

- (a) Status Bar
- (b) Keyboard Events
- (c) Event Driven Programming
- (d) Picture Box
- (e) Data Report

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[3873]-403

B. C. A. (Semester - IV) Examination - 2010

INVENTORY MANAGEMENT (S.A.D.)

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) List out criteria for judging Inventory System.
- (b) What is Safety Stock ?
- (c) What is EOQ ?
- (d) What are Incited Emergencies ?
- (e) State different Elements of Bar Code.
- (f) What is Inventory Record Accuracy ?
- (g) What is CASE Tools ?
- (h) Explain Variance Chart.
- (i) What is Business Process ?
- (j) What are the advantages of Re-engineering ?

Q.2) Attempt any four of the following :

[4x4=16]

- (a) What is the need to hold inventories in Organisation ?
- (b) State benefits of Bar Code.
- (c) Explain what are different emergencies that can occur in organisation ?
- (d) Discuss "Integrated Case Environment is a powerful method for Software Development".
- (e) What do you mean by Software Maintenance ?

[3873]-403

1

P.T.O.

Q.3) Attempt **any two** of the following : **[2x8=16]**

- (a) Explain benefits and weaknesses of Case Tools.
- (b) Explain Bar Code with a neat diagram. Also explain what are different symbologies used in Bar Coding.
- (c) Describe Software Re-engineering Process Model with suitable diagram.

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

- (a) A manufacturing company has an expected usage of 50,000 units of certain product during the next year. The cost of processing an order is Rs. 20 and carrying cost per unit is 0.50 for one year. Calculate Economic Order Quantity.
- (b) What is ABC Analysis ? Explain with suitable example.
- (c) Explain Logic Chart. How does it differ from Flow Chart ?
- (d) What are duties of Planning Team in Emergency ?
- (e) Explain BPR Model with neat diagram.

Q.5) Write short notes : (**Any Four**) **[4x4=16]**

- (a) Re-order Point
 - (b) Theft
 - (c) Turbo Analyst
 - (d) Reverse Engineering to Understand Data
 - (e) JIT
-

Total No. of Questions : 6]

[Total No. of Printed Pages : 1

[3873]-404

B. C. A. (Semester - IV) Examination - 2010

HUMAN RESOURCE MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

-
-
- Q.1)** Define PM and HRM. Differentiate between PM and HRM. [15]
- Q.2)** What is Selection ? Explain Selection Process in detail. [15]
- Q.3)** Define Remuneration. What are the factors determining the level of Remuneration ? [15]
- Q.4)** Explain various Training Methods used to Train Employees. [15]
- Q.5)** Define Organisational Behaviour. Explain Models of OB in detail. [15]
- Q.6)** Write short notes : **(Any Four)** [20]
- (a) Internal Sources of Recruitment
 - (b) Demotion
 - (c) Objectives of Performance Appraisal
 - (d) Management Development Process
 - (e) Transfer Policy
 - (f) Objectives of HRP

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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-405

B. C. A. (Semester - IV) Examination - 2010

OBJECT ORIENTED PROGRAMMING USING C++

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) All questions carry equal marks.
- (3) Black figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) Define the following :
 - (i) Class
 - (ii) Object
- (b) Give any four applications of Object Oriented Programming (OOPs).
- (c) What are the advantages of using new operator as compared to the malloc() ?
- (d) How do structure and class differ in C++ ?
- (e) What is difference between Normal Function and Static Function ?
- (f) What is Default Constructor ?
- (g) What is Inheritance ? List its any two types.
- (h) Define Pure Virtual Function.
- (i) Enlist any four Manipulators.
- (j) Write syntax of seekg() function to :
 - (i) move get pointer 50 bytes backward from end of file.
 - (ii) move get pointer to beginning of file.

[3873]-405

1

P.T.O.

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

- (a) What is application of Scope Resolution Operator ‘:.’ in C++ ?
- (b) What is Function Overloading ? Explain with suitable example.
- (c) Explain ‘Call by Reference’ and ‘Return by Reference’ with suitable example.
- (d) Write a C++ program which defines a class string using dynamic memory allocation. Initialize object using parameterised constructor and concat two strings by passing one string as a parameter.

e.g. `z = y.concat(&x)`

where x, y, z are objects of type string.

- (e) Bank has two types of accounts - Savings and Current. Write a C++ program to calculate interest for both. Interest rate is 5% for Savings and 1.5% for Current Account. Interest is given on balance in the account. Use class account (account_no, holder_name) as base class and savings, current account as derived class.

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

- (a) Write a C++ program to calculate area and circumference of circle. (Use default parameter)
- (b) Explain Hybrid Inheritance with suitable example.
- (c) Write a C++ program to accept details (roll, name, marks, percentage) of 5 students. Find out topper among them. (Use array of object)
- (d) Explain Operator Overloading with suitable example.
- (e) Write a C++ program which opens a file. If file does not exist, display proper error message. If file exists, then calculate number of characters and number of lines in the file.

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

- (a) How do we achieve polymorphism at –
 - (i) Compile Time
 - (ii) Run Time
- (b) Write a C++ program to illustrate setw() and setprecision() manipulator.

- (c) What is meant by OOPs ? How is it different from Procedure Oriented Programming (POP) ?
- (d) Explain different errors encountered during file handling. Give four functions to handle errors.
- (e) Trace output of the following program. (Assume there is no syntax error)

```
#include <iostream.h>
Class A
{ public :
    void f1()
    {
        cout << "Base f1\n";
    }
    virtual void f2()
    {
        cout << "Base f2";
    }
};
Class B : public A
{ public :
    void f1()
    {
        cout <<"Derived f1\n";
    }
    void f2()
    {
        cout << "Derived f2\n";
    }
};
void main()
{
    A aobj;
    B bobj;
    A * aptr;
    aptr = & aobj; aptr → f1() ; aptr → f2();
    aptr = & bobj ; aptr → f1() ; aptr → f2();
}
```

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

[4x4=16]

- (a) Write a C++ program to define a class, derive a class from it. Take user defined function display in both classes with same name. Display contents of both base and derived class. (Use concept of overriding)
- (b) Explain Class Template with suitable example.
- (c) Write a C++ program to find out maximum of two integer numbers of two different classes using Friend Function.
- (d) What is an Exception ? How is it handled in C++ ? Explain it with suitable example.
- (e) Trace output of the following program. (Assume there is no syntax error)

Class test

```
{ static int count;
public :
    display()
    {
        count ++;
        cout << "Have a nice day";
    }
    void display_count()
    {
        cout << "count is :" << count;
    }
};
int test :: count;
int main()
{
    best a, b, c;
    a. display();
    b. display();
    a. display_count();
    c. display();
    c. display_count();
}
```

Total No. of Questions : 4]

[Total No. of Printed Pages : 3

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B. C. A. (Semester - IV) Examination - 2010

OPERATING SYSTEMS

(Old 2005 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 ten of the following :

[10x2=20]

- (1) What is Operating System ?
- (2) What is Buffering ?
- (3) Define the term Process and list different states.
- (4) Define Belady's Anomaly.
- (5) What is System Call ?
- (6) What is Fragmentation ?
- (7) What is Semaphore ?
- (8) What is Waiting Time ?
- (9) What is Dispatcher ?
- (10) What is Paging ?
- (11) Comment : "FCFS is Optimize Algorithm". Justify true/false.
- (12) What is Page Fault ?

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

[5x5=25]

- (a) Calculate Average Turnaround Time and Average Waiting Time for FCFS and SJF :

Process	Burst Time
P ₁	1
P ₂	27
P ₃	2
P ₄	6
P ₅	3
P ₆	3

- (b) What is the purpose of an Operating System ?
- (c) What is Scheduler ? State types of Schedulers.
- (d) State difference between Multitasking and Multiprogramming.
- (e) Explain Kernel I/O Structure.
- (f) Distinguish between Buffer and Cache.

Q.3) Attempt **any one** of the following ((a) or (b)) :

[1x10=10]

- (a) (i) What is Polling and how it is achieved to control more than one device ?
- (ii) What is Deadlock Detection ? Explain how to recover from Deadlock ?
- (b) (i) Explain Process Control Block (PCB) in detail.
- (ii) What are the functions performed by Dispatcher ?

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

[5x5=25]

- (a) Explain Operation on Process.
 - (b) What are the types of Operating Systems ?
 - (c) Compare Pre-emptive and Non-pre-emptive Scheduling.
 - (d) Explain M.F.T. Job Scheduling.
 - (e) Explain Internal and External Fragmentation.
 - (f) Explain Logical Address and Physical Address.
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-42

B. C. A. (Semester - IV) Examination - 2010

VISUAL BASIC

(Old 2005 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) Check whether the following section code is correct. Give output and suitable explanation for the output : **(Any Four)** **[20]**

- (a) Dim strname as string
strname = "Hello World"
Form1. cls
Form1. print InstrRev (StrName, "Hello")
- (b) Dim str as string
str = "Welcome To Visual Basic"
Form1. print StrConv (str, lowercase)
- (c) Form1. cls
Form1. print string \$(20, "*")
Form1. print string \$(20, "A")
- (d) Dim i as integer
for i = 20 to 2 step -2
print i
Next

```
(e) Dim str as string
    str = "VISUAL"
    i = len(str)
    x = 1
    Do while (i > 0)
    print mid (str, x, i)
    x = x + 4
    i = i - 1
    Loop
```

Q.2) Explain the following property settings : (**Any Five**) **[15]**

- (a) Property used to visible command button at runtime.
- (b) Property used to automatically resize lable control.
- (c) Property used to resize picture on the command button.
- (d) Property used to display picture on the command button.
- (e) Property used to display all *.doc files in filelist.box.
- (f) Property used to type multiline text in a text box.
- (g) Property used to arrange list items alphabetically in a list box.

Q.3) Draw an interface and code for the following. Also give property settings for the appropriate controls. Write a program in visual basic for checking wheather a number is Armstrong or not and display result in the message box. Do proper validation for the textbox that only numbers should be accepted by the text box. **[10]**

OR

Q.3) Draw an interface and code for the following. Also give property setting for the appropriate controls. Write a program in Visual Basic to design a calculator. **[10]**

Q.4) Answer the following in brief : (Any Four) [20]

- (a) Explain various data types of Visual Basic.
- (b) Explain how to add controls to toolbox.
- (c) How do you create Menus in Visual Basic ?
- (d) Write difference between Option Button and Checkbox.
- (e) Discuss various events related with Mouse.

Q.5) Write short notes : (Any Three) [15]

- (a) Three-tier Architecture
 - (b) Common Dialog Box
 - (c) Control Array
 - (d) Binary Access Files
-

Total No. of Questions : 6]

[Total No. of Printed Pages : 2

[3873]-43

B. C. A. (Semester - IV) Examination - 2010

SOFTWARE ENGINEERING

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) *All questions are compulsory.*
 - (2) *Figures to the right indicate full marks.*
 - (3) *Neat diagrams must be drawn wherever necessary.*
-
-

Q.1) Mr. Sohoni, the Senior Accountant of Modern College of Commerce has been insisting on computerizing the College Payroll System. As the cost of computers has reduced considerably, the college authorities have decided to provide a Pentium III and a printer for the accounts department. The college wanted to computerize Payroll System for Senior College Teachers in the first phase. Explain system to be developed for this task through the following :

- (a) Draw E-R Diagram **[07]**
- (b) Draw Context Level Diagram **[06]**
- (c) Draw First Level DFD **[07]**

Q.2) A manufacturing company has stated the following rules to prepare an invoice :

- (1) On the orders booked on or before 15-2-1992, offer a discount of 10% on the items listed and displayed in the advertisements.
- (2) Additional 2% discount is offered to the appointed dealers. Construct the following for the above case :
 - (a) Decision Tree **[05]**
 - (b) Decision Table **[05]**

- Q.3)** Design a suitable screen layout with the following details for College Admission Fee Receipt : **[10]**
- (a) Name of Student and Class
 - (b) Fee Code
 - (c) Receipt No. and Date
 - (d) Mention various fees in tabular format
- Q.4)** What is a System ? Explain characteristics of System. Also explain different types of Systems. **[10]**
- Q.5)** (A) Explain Prototyping Model in detail. State and explain advantages and disadvantages of the Model. **[07]**
- (B) Distinguish between System Analysis and System Design. **[03]**
- Q.6)** Write short notes : **(Any Four)** **[20]**
- (a) Role of System Analyst
 - (b) Feasibility Study
 - (c) Structure Chart
 - (d) Normalization
 - (e) System Maintenance
-

Total No. of Questions : 6]

[Total No. of Printed Pages : 1

[3873]-44

B. C. A. (Semester - IV) Examination - 2010

HUMAN RESOURCE MANAGEMENT

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

-
-
- Q.1)** Define HRM. Explain scope and importance of HRM. [15]
- Q.2)** What is HRP ? Explain process of HRP. [15]
- Q.3)** What do you understand by the term Industrial Relations ? Explain importance and scope of Industrial Relations. [15]
- Q.4)** What is Recruitment ? Describe Sources of Recruitment in detail. [15]
- Q.5)** What is Selection ? What are the steps in the Selection Process ? Explain. [15]
- Q.6)** Write short notes : **(Any Four)** [20]
- (a) Career Planning
 - (b) Structure of HR Department
 - (c) Retention of Manpower
 - (d) Collective Bargaining
 - (e) On the Job Training Methods
 - (f) Evaluation of Training Programmes

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[3873]-45

B. C. A. (Semester - IV) Examination - 2010

ORACLE

(Old 2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) For the following tables, write SQL Commands : (Any Ten) [20]

Table : Employee (Empno, Empname, Designation, Salary, Commission, Deptno)

Dept (deptno, deptname, location)

Employee Table : Empno is primary key and deptno is foreign key.

Dept Table : deptno is primary key.

- (1) Arrange records of employees in descending order of name.
- (2) Display all employee details whose designation is manager.
- (3) Display all employee names who work in Computer Department.
- (4) Display department details of employee name 'Scott'.
- (5) Display employee details whose salary is between 5,000 to 10,000.
- (6) Raise salary of employee who works in 'Sales' Department by 10%.
- (7) Display total no. of employees working in 'Computer' Department.
- (8) Display employee name and total salary as (Salary + Commission).
- (9) Display employee details whose salary is greater than 5,000 and department name is 'Sales'.
- (10) Display employee details whose name starts with 'A'.
- (11) Display employee details who works at Pune location.
- (12) Display employee details whose salary is maximum salary in Computer Department.

[3873]-45

1

P.T.O.

Q.2) Write short notes : (Any Three) [15]

- (a) Locks in Oracle
- (b) Data Types in SQL
- (c) Triggers in Oracle
- (d) DML

Q.3) Explain the following : (Any Three) [15]

- (a) Cursors in Oracle
- (b) Explain various Set Operators with example.
- (c) Joins in Oracle
- (d) Components of SQL

Q.4) (A) Explain Date Functions with syntax and example. [05]

(B) Explain Rollback, Commit, Savipoint. [05]

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

- (a) Write a cursor to print information of 1st 5 lowest paid employees.
- (b) Write a PL/SQL block to print reverse of a given number.
- (c) Write a PL/SQL to print account information where customer number is input through key board.
- (d) Write trigger before inserting account record if current balance is less than zero.
- (e) Write PL/SQL block to print prime number between 1 to 500.

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-501

B. C. A. (Semester - V) Examination - 2010

.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) Enlist any two applications that can be developed in VB.Net.
- (c) What is CLR ? Enlist any two features.
- (d) Explain properties of Form.
- (e) State different types of Access Modifiers.
- (f) What do you mean by an Event in VB.Net ?
- (g) What is the use of keyword 'Finally' in Exception Handling ?
- (h) Enlist operators used for String Concatenation.
- (i) Explain any two Built-in Date Functions.
- (j) Explain difference between ListBox and ComboBox.

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

[4x4=16]

- (a) Design GUI and write Code for the following in VB.Net :
 - Add an item into ListBox.
 - Display total number of items into TextBox.

- (b) What is .Net Framework ? Explain its Architecture.
- (c) What is CTS ? Explain Garbage Collection in VB.Net.
- (d) Design GUI and write Code in VB.Net using Rich TextBox :
 - Font Size
 - Font Colour
 - Exit
- (e) Design GUI and write Code in VB.Net to sort an array in descending order and display in ListBox.

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

- (a) Explain Constructor and Destructor in VB.Net.
- (b) Explain any four Datatypes with example in VB.Net.
- (c) Design GUI and write Code for the following in VB.Net (ADO.Net) without Wizard :
 - Accept employee details like emp_no, emp_name, emp_age and save these details in employee table.
- (d) Design GUI and write Code for the following in VB.Net :
 - Accept two numbers in two TextBoxes.
 - Display prime number among them in message box.
- (e) Explain the following controls :
 - LinkLabel
 - ToolTip
 - DateTimePicker
 - CheckBox

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

- (a) Explain Overloading and Overriding in VB.Net.
- (b) Explain Exception Handling in VB.Net.
- (c) Write a program to test the below class using console application :
 - Define a class 'Account', include the following :
 - **Data Members :**
 - (i) Name of Depositor
 - (ii) Account Number
 - (iii) Type of Account
 - (iv) Balance Amount in Account
 - **Member Functions :**
 - (i) To assign initial values
 - (ii) To deposit an amount
 - (iii) To withdraw an amount after checking balance
 - (iv) To show balance in account
- (d) Design GUI and write Code in VB.Net :
 - Accept Amount in Rupee
 - Convert Amount into Dollar or Pound using Radio Button
 - Display Result on a Label
- (e) Explain an Interface in VB.Net with example.

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

- (a) ADO.Net Architecture
- (b) Inheritance
- (c) Treeview Control
- (d) Control Structure (any two)
- (e) ASP.Net file types

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-502

B. C. A. (Semester - V) Examination - 2010
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) Explain with two attributes.
- (b) What is the use of ?
- (c) What is Dense Array ?
- (d) What is the use of Application Object in ASP ?
- (e) What is Cyber Law ?
- (f) Define Digital Signature.
- (g) Explain <textarea> tag.
- (h) What is Decryption ?
- (i) What is Hacking ?
- (j) Explain any two methods of Window Object.

Q.2) Solve any four :

[4x4=16]

- (a) Write HTML Code to create the following frame :

[3873]-502

1

P.T.O.

- (b) Write HTML and JavaScript Code to accept information and display result :

Enter Number :	<input type="text"/>
Action :	<input type="radio"/> Cube <input type="radio"/> Factorial
Result :	<input type="text"/>

- (c) Write an ASP Code that accepts name and class from user and stores in stud_master table. Design necessary HTML Code.
- (d) Explain briefly Cyber Jurisprudence.
- (e) Explain RSA Algorithm.

Q.3) Solve any four :

[4x4=16]

- (a) Write a short note on Global.asa.
- (b) Explain in detail Digital Contract.
- (c) Explain different types of lists used in HTML.
- (d) Write a JavaScript Code to print reverse of a given number.
- (e) Write a ASP Code to delete specific record from database. Code must accept product_name and delete all related records from the product table. Design necessary HTML Code.

Q.4) Solve any four :

[4x4=16]

- (a) Write HTML Code which generates the following output :

Player List :

- **Cricket :**
 1. Sachin Tendulkar
 2. Rahul Dravid
 3. Yuvraj Singh

- **Tennis :**
 1. Saniya Mirza
 2. Soniya Nehval
 3. Mahesh Bhupati

(b) Write HTML and JavaScript Code to accept information and display accepted information :

Information

Name :

Age :

Hobbies :

Games	▽
Reading	
Singing	
Watching TV	

- (c) Explain sandboxing and proof-carrying code.
- (d) Explain different dialogue boxes used in JavaScript.
- (e) What is Electronic Banking ?

Q.5) Solve any four :

[4x4=16]

- (a) Explain Font and Text Attributes used in CSS.
- (b) Explain any two elements of forms used in HTML.
- (c) Write HTML Code to design the following output :

Country	Population (in crore)	
India	2000	100
	2004	105
	2008	110
USA	2000	40
	2004	45
	2008	50

Population Table

- (d) Write an ASP Code to show a welcome message to user based on login time. (e.g. 6 am to 12 Noon - Good Morning, 12 Noon to 5 pm - Good Afternoon, Rest - Good Evening).
- (e) Write a short notes on IT Act, 2000.

Total No. of Questions : 7]

[Total No. of Printed Pages : 1

[3873]-503

B. C. A. (Semester - V) Examination - 2010

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)** Distinguish between Marketing and Selling. **[16]**
- Q.2)** Define Marketing. Describe importance of Marketing as a Business Function and in the Economy. **[16]**
- Q.3)** What is Product ? Explain characteristics of Product. **[16]**
- Q.4)** Define Price. Explain factors affecting Price of a Product. **[16]**
- Q.5)** Define Distribution Channels. Explain various types of Distribution Channels. **[16]**
- Q.6)** What is Marketing Organisation ? Explain types of Marketing Organisations. **[16]**
- Q.7)** Write short notes : **(Any Four)** **[16]**
- (a) Optimum Promotion Mix
 - (b) Advertising Media
 - (c) Objectives of Sales Promotion
 - (d) Role of Distribution Channels
 - (e) Importance of Market Segmentation
 - (f) Product Life Cycle (P.L.C.)

[3873]-503/1

Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[3873]-504

B. C. A. (Semester - V) Examination - 2010

CORE JAVA

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt all :

[2x8=16]

- (a) State any two system defined java exceptions.
- (b) What are the different types of Stream Classes ?
- (c) Why Abstract Class is used ?
- (d) List out the uses of Final Keyword.
- (e) Distinguish init() to start() methods of an applet.
- (f) How will you add panel to a frame ?
- (g) What is the standard way to read a textfile in Java ?
- (h) What is the use of Class Loader ?

Q.2) Attempt any four :

[4x4=16]

- (a) What is Package ? How to design Package ?
- (b) Write a Java program to find sum of integers from Command Line Argument and count invalid integers entered through command line.
- (c) How Multiple Inheritance Feature is supported in Java ?
- (d) Write a Java program to find out maximum of array elements and check for array limit. (Use Exception Handling)
- (e) Write a Java program to copy a file into another file and delete first file.

Q.3) Attempt any four :

[4x4=16]

- (a) Explain Life Cycle of an Applet.
- (b) Write a Java program to find Exception Marks out of Bounds. Create a class student. If the mark is greater than 100, it must generate user defined exception called mark out of Bounds Exception and throw it.
- (c) Explain Polymorphism principle and different Forms of Polymorphism.
- (d) Write a Java program to accept principal, rate of interest and no. of years from user and calculate simple interest.
- (e) Write a note on Garbage Collector.

Q.4) Attempt any four :

[4x4=16]

- (a) Explain steps for executing Java program.
- (b) Create a package TYBCA which will have 2 classes. Class MATHS with a method to add 2 integers and another method to add 3 float values. Class Maximum with a method to find Maximum of 3 Numbers. [Make use of Finalize Method]
- (c) What is an Interface ? How it is implemented ?
- (d) What will be the output for the following Code ? Explain (consider there is no syntax error) :

Class number

```
{  
    int x;  
    void store (Number Num)  
    {  
        num.x++;  
    }  
}
```

Class main number

```
{  
    public static void main()  
    {
```

```
        Number n = new Number( );
        n.x = 10;
        n.store(n);
        system.out.print\n(n.x);
    }
}
```

- (e) Explain Access Modifiers.

Q.5) Attempt any four :

[4x4=16]

- (a) Explain Purpose of Throw Clause.
- (b) Write a Java program to create three radio buttons. When any of them is selected, an appropriate message is displayed in status bar.
- (c) Write a short note on Constructor.
- (d) Write a Java program to create an abstract class person. Derive two classes employees and workers from it. Use proper method to accept and display details for the same.
- The fields of employees are emp_no, emp_name and address. Similar fields for workers are name and working hours.
- (e) Explain Byte Stream Classes in detail.

Total No. of Questions : 6]

[Total No. of Printed Pages : 1

[3873]-51

B. C. A. (Semester - V) Examination - 2010

DATA COMMUNICATION AND NETWORKING

(2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Question No. 1 is compulsory.*
- (2) Attempt **any four** questions from Q. Nos. 2 to 6.*
- (3) Questions 2 to 6 carry equal marks.*
- (4) Draw neat diagrams wherever necessary.*

-
-
- Q.1)** Explain why the connectivity devices are needed in a Network ?
Explain these devices in detail. **[20]**
- Q.2)** Explain difference Switching Techniques in detail. **[15]**
- Q.3)** Differentiate between Peer to Peer and Client Server Network. **[15]**
- Q.4)** Explain working of Web Server. **[15]**
- Q.5)** Differentiate between Routers and Gateways. Explain their working mechanism and types of Gateways. **[15]**
- Q.6)** Write short notes : **[15]**
- (a) Token Ring
 - (b) World Wide Web
 - (c) Internet Service Provider

[3873]-51/1

Total No. of Questions : 6]

[Total No. of Printed Pages : 3

[3873]-52

B. C. A. (Semester - V) Examination - 2010

WEB DESIGN AND INTERNET PROGRAMMING

(2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Question No. 1 is compulsory.
- (2) Solve **any 4** from the remaining.
- (3) Figures to the right indicate full marks.
- (4) State assumptions wherever necessary.

Q.1) Write short notes : (Any Four)

[20]

- (a) CSS
- (b) Anchor Tags in HTML
- (c) Image Mapping
- (d) Web Hosting
- (e) Global.asa

Q.2) (A) Write a HTML Code to design the following table :

[10]

Paysheet Analysis

Sr. No.	Name of the Employee	Basic	HRA	DA	CCA	PF	Total Deductions	Net Salary
1	Mr.A.B. Sane	8,000	1,200	4,000	1,800	300	300	14,700

(B) Write a short note on DOM.

[05]

Q.3) (A) Write HTML and JavaScript Code and display accepted information :

[10]

Bill Processing

Electricity Bill Period : to

Bill No. : Meter No. :

Customer Name :

Address :

Customer Type :

Previous Reading : Date

Current Reading : Date

Units Consumed :

Rate per Unit : Rs.

Amount in Rs. :

Gross Amount :
(in Rs.)

Validate textboxes and then display information.

(B) Write a JavaScript Code to find prime nos. between 1 to 100. **[05]**

Q.4) (A) Write a VBScript Code to accept a number and check whether the no. is armstrong or not. **[05]**

(B) Write a JavaScript Code to display $2n \times n$ matrices and also display result after adding those 2 matrices **[10]**

Q.5) Create a screen in ASP as Registration Form which accepts information such as user_name, email_id, password, address, gender, areas of interest, educational qualification, etc. from the user, store this information in the database and display message to user as 'You have registered successfully'.

(Use Database : User.mdb)

Make necessary validations. **[15]**

Q.6) Write an ASP Code that accepts student details in table format. Display no. of students who have more than 70% on other screen. Display necessary HTML Code.

(Database : Student.mdb)

[15]

OR

Q.6) Write an ASP Code to display shopping details on the screen. Code must accept customer_name, address, phone_no, no. of product purchased, per unit rate of product, etc. and then display shopping details and total amount to be paid to the user when the user presses 'Submit' button.

[15]

Total No. of Questions : 6]

[Total No. of Printed Pages : 1

[3873]-53

B. C. A. (Semester - V) Examination - 2010

MATERIALS MANAGEMENT

(2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

- (1) Solve *any four* questions.
- (2) State assumptions where necessary.

-
-
- Q.1)** (A) What do you mean by Materials Management and how it is inter-related with Production and Finance ? [10]
(B) Explain Methods of Codification of Materials. [10]
- Q.2)** (A) Discuss in detail ABC Analysis. [10]
(B) What is Inventory Control and what are its objectives ? [10]
- Q.3)** (A) Explain Principles of Purchasing. [10]
(B) Describe Centralized Stores. Explain advantages and disadvantages of Centralized Stores. [10]
- Q.4)** Describe in detail the steps involved in MRP. [20]
- Q.5)** Elaborate Export Procedure of Materials. [20]
- Q.6)** Write short notes : **(Any Four)** [20]
- (a) Purchase Requisition
 - (b) Principles of Material Handling Equipments
 - (c) Standardization of Materials
 - (d) EOQ
 - (e) LIFO and FIFO

[3873]-53/1

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[3873]-54

B. C. A. (Semester -V) Examination - 2010

C++ AND OOP

(2005 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 :

[20]

- (a) What are the features of Procedure Oriented Programming ?
- (b) What is the functional difference between Normal Function and Inline Function ?
- (c) Explain Concept of Destructor with suitable example.
- (d) Write short note on Memory Management Operators in C++.
- (e) What is the structure of C++ Program ? Explain with example.

Q.2) Define the following : (Any Five)

[10]

- (a) Polymorphism
- (b) Inline Function
- (c) Abstract Class
- (d) Late Winding
- (e) Constructor
- (f) File

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

- (a) Explain Public, Private and Protected Access Specifiers.
- (b) Explain Hybrid Inheritance with suitable example.
- (c) How to overload Binary Operator using Friend Function ? Give suitable example.
- (d) Write short note on Classes for File Stream Operations.

Q.4) Write C++ programs : (**Any Five**) **[25]**

- (a) Create a class vehicle having 2 private members (vehicle no., owner name). Derive a class two-wheeler having private member (type ie scooter/bike), define functions, accept and display in both classes. Write a main function to accept details of 2 wheelers and display them.
- (b) Write a program to accept 3 nos and find their maximum. (Use of class is compulsory)
- (c) Write a program to add 2 matrices. Let m_1 , m_2 be 2 matrices, calculate $m_3 = m_1 + m_2$. (Use operator overloading)
- (d) Write a program to accept a filename, check if it exists. If it exists, display contents of the file, else display an error message.
- (e) Write a program by using function overloading for adding 2 integer numbers, 2 float numbers, an integer and float number.
- (f) Write a program to print :

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

Accept number of lines from the user.

(Use of class is compulsory.)

Q.5) Trace output :

[10]

```
(a) #include <iostream.h>
int total = 0;
class myclass
{
    public
    myclass()
    { total ++;
      cout << endl << total << "object are created";
    }
    ~ myclass()
    { cout << endl << total << "obejct are destroyed";
      total --;
    }
}
int main()
{
    myclass ob1, ob2, ob3
    {
    cout << "block1" << endl;
    myclass ob4;
    }
    {
    cout << "block2" << endl;
    myclass ob5;
    }
return 0;
}
(b) #include <iostream.h>
class base
{ public
void message( )
{
    cout << "\n\n we are inbase";
}
}
```

```

    virtual void display( )
    { cout << 'It is the base class';
      }
};
Class derived : public base
{
    public :
        void message( )
        { cout << "\n\n we are in derived";
          void display( )
          { cout <<"It is derived class";
            }
        };
int main( )
{ base B
  derived D;
  base * str;
cout << "\n Pointer points to base";
ptr = &B;
ptr → message( );
ptr → display( );
cout << "\n Pointer points to derived";
ptr = &D;
ptr → message( )
ptr → display( )
return 0;
}

```

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

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B. C. A. (Semester - VI) Examination - 2010

ADVANCED NETWORKING

(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 Asynchronous and Synchronous Transmission.
- (b) Explain TCP Protocol.
- (c) Explain Adaptation Layer.
- (d) What is Cryptographic Algorithm. Explain any one of them.

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

- (a) Explain Run Length Codes in Lossless Data Compression.
- (b) Explain TCP/IP Reference Model.
- (c) Discuss ATM Addressing.
- (d) Discuss LAN, WAN and MAN.

Q.3) Solve any two : [20]

- (a) Discuss Internet Group Management Protocol of Multicast Routing.
- (b) What is Lossless Data Compression ? Explain Adaptive Codes in Lossless Data Compression.
- (c) What is Cryptography ? Explain Application of Cryptography to Security.

Q.4) Explain Message Format while 2 computers connect to each other. **[10]**

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

- (a) Analog to Digital Conversion
 - (b) JPEG Image Coding Standard
 - (c) Bandwidth and Frequency Spectrum
 - (d) UNI Signaling
 - (e) Security Protocols
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 2

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B. C. A. (Semester - VI) Examination - 2010

MULTIMEDIA

(2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Explain Multimedia Software Tools. [10]

Q.2) Solve any three : [15]

- (a) Discuss about MIDI and its uses.
- (b) Define System Independent File Format.
- (c) Explain about Resolution of Colour Monitor.
- (d) Discuss Visual Design Issues.

Q.3) Solve any three : [15]

- (a) Discuss about DVD and its types.
- (b) Define Components of Multimedia.
- (c) Discuss about Human Retina. Explain its Cones and Perception.
- (d) Explain in brief Animation, Image and Graphics.

Q.4) Solve any four : [20]

- (a) Discuss about Digital Audio Tape.
- (b) Explain about 24-bit Colour Images.
- (c) Define Hypertext and Hypermedia with example.
- (d) Discuss Interactivity of Multimedia.
- (e) Define any two Input Devices of Multimedia.

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

[20]

- (a) RGB Colour Model
 - (b) JPEG
 - (c) CD - Digital Audio
 - (d) Digital Signals
 - (e) Optical Storage
-

Total No. of Questions : 6]

[Total No. of Printed Pages : 2

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B. C. A. (Semester - VI) Examination - 2010

MARKETING MANAGEMENT

(2005 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

(1) Question No. 1 is compulsory.

*(2) Attempt **any four** out of the remaining.*

Q.1) (A) Define Marketing. Distinguish between Marketing and Selling.

(B) What is the meaning of Marketing Management ? Explain importance of Marketing Management in today's Competitive Environment.

Q.2) What is the meaning of Consumer Behaviour ? Explain various factors affecting Consumer Buying Behaviour.

Q.3) What is 'Marketing Planning' ? How is it useful in Effective Marketing ?

Q.4) What are the various stages in Product Life Cycle ? State promotional strategies used in the stages of PLC.

Q.5) Discuss Marketing Mix of the following products :

(a) Hero Honda Motor Cycle

(b) Washing Machine

(c) Lux Soap

Q.6) Write short notes : **(Any Three)**

- (a) E-marketing
 - (b) Segmentation
 - (c) Services Marketing
 - (d) Channels of Marketing
 - (e) Branding
-

Total No. of Questions : 5]

[Total No. of Printed Pages : 4

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B. C. A. (Semester -VI) Examination - 2010

JAVA

(2005 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 :

[16]

- (a) Explain with example arrays in Java.
- (b) What is Package ? Explain steps to Create Package.
- (c) What is Event Listeners ? State all event classes.
- (d) Design a Class Emp having fields empcode, name, address and department. Provide necessary constructors and methods along with getsalary() method.
- (e) Why we need Interface ? Explain.

Q.2) Answer any four :

[16]

- (a) What is JDBC API ? Explain java.sql package.
- (b) What is Exception ? When to use Exception Handling.
- (c) What is Thread ? Write a program which implements concept of Multiple Threads.
- (d) Write a Java program that allows user to accept two end points (using mouse) and draw a line between two points. (Use AWT Frame Class and Mouse Listener)
- (e) What is numeration Interface ? Explain.

Q.3) Attempt any four :

[16]

- (a) Comment “Class is logical and object is physical representation of an Entity”.
- (b) What is Wrapper Class ? Explain any four in detail.
- (c) What is AWT ? Explain any six classes under java.awt package.
- (d) A class DemoException throws the following exception depending upon the following conditions, accept any number from keyboard, if number is not perfect then throw exception “Number is NOT Perfect”.
- (e) Develop an applet that receives percentage from user as input and then displays class on screen. If percentage < 40 “Fail”, > = 40 and < 50 “Pass”, percentage > = 50 and < 60 “second”, percentage > = 60 and < 70 “First” and percentage > = 70 “First Class with Distinction”. Also write a HTML page.

Q.4) Attempt any four :

[16]

- (a) Explain Method Overloading and Constructor Overloading.
- (b) Explain Thread Synchronized Methods and Blocks.
- (c) Comment “Compiler does not check directory structure when it compiles source files”.
- (d) Write a JDBC Code to insert records into employee table (eno, ename, sal) using prepared statement.
- (e) Explain with example Static Var and Static Method.

Q.5) (A) Write notes : (Any Two)

[08]

- (a) Abstract Class
- (b) Adapters
- (c) Composite Data Types

(B) Find output : (Assume there is no syntax error)

[08]

(a) Class A

```
{
    void callme( )
    {
        system.out.print\n("Inside A's callme method");
    }
}
```

Class B extends A

```
{
    void callme( )
    {
        system.out.print\n ("Inside B's) callme method");
    }
}
```

Class C extends A

```
{
    void callme( )
    {
        system.out.print\n ("Inside C's callme method");
    }
}
```

Class Dispatch

```
{
    public static void main (string args [ ])
    {
        A aa = new A();
        C cc = new C();
        B bb = new B( );
        A rr;
        rr = aa;
        rr . callme( );
        rr = cc;
        rr = callme( );
        rr = bb;
        rr . callme( );
    }
}
```

(b) Class Demo

```
{
    Static void demoproc()
    {
        try
        {
            throw new NullPointerException ("demo");
        }
        catch (NullPointerException e)
        {
            system.out.print\n ("Caught inside demoproc");
            throw e;
        }
    }
    public static void main (string args[ ])
    {
        try
        {
            demoproc( );
        }
        catch (NullPointerException e)
        {
            system.out.print\n ("Recaught :" + e);
        }
    }
}
```

Total No. of Questions : 5]

[Total No. of Pages : 3

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[3873]-65

F.Y. B.C.A.

PRINCIPLES OF PROGRAMMING AND ALGORITHM (327)

(2004 Pattern) (Sem. - III)

Time : 3 Hours]

[Max. Marks : 80

Instructions to the candidates:

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

Q1) Attempt any four of the following :

[4 × 4 = 16]

- a) Describe the data types in C.
- b) 'C' is middle level language. Comment.
- c) Define following terms with example.
 - i) Identifier.
 - ii) Keyword.
- d) Explain the use of break and continue statement with example.
- e) Explain the structure of 'C' program.

Q2) Attempt any four of the following :

[4 × 4 = 16]

- a) Explain automatic and static storage classes.
- b) What is operator? Explain relational operators with the help of suitable example.
- c) Differentiate between local and global variables.
- d) Explain syntax of switch case with the help of suitable example.
- e) Explain different preprocessor directives.

Q3) Attempt any four of the following :

[4 × 4 = 16]

- a) Differentiate between structure and union.
- b) Explain 'do-while' loop with syntax and example.
- c) What is an array? Explain two types of array with example.
- d) Explain four functions used for file handling with syntax and usage.
- e) What is pointer? Explain its usage.

P.T.O.

Q4) Attempt any four of the following :

[4 × 4 = 16]

- a) Write a C program to check whether the given number is palindrome or not.
- b) Write a C program to check whether the given number is perfect or not.
- c) Write a C program to display n terms of Fibonacci series.
- d) Write a C program to find maximum and minimum of three numbers.
- e) Write a C program to calculate sum of digits of a given number.

Q5) Trace the output (any four) :

[4 × 4 = 16]

- a)

```
void main ()
{
    int a = 7, b = 5;
    printf ("%d", a ++ + b ++ + ++a + ++b);
    a = 7; b = 5;
    printf ("\n%d", ++a * b++);
}
```
- b)

```
void main ()
{
    int i = 5;
    while (i)
    {
        printf ("\t%d", i);
        i --;
    }
}
```
- c)

```
main ()
{
    int x = 100, y = 200;
    printf ("%d", (x > y)? x : y);
}
```
- d)

```
char ch = 'a';
switch (ch)
{
    case 'a':
        printf ("A");
    case 'b':
        printf ("B");
    default:
        printf ("C");
}
```

e) `main()`
`{`
`int x = 10;`
`if(x = 20)`
`printf("true");`
`else`
`printf("false");`
`}`

