

Seat No.	
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Total No. of Questions : 7]

[Total No. of Printed Pages : 2

[4373]-101

B. C. A. (Semester - I) Examination - 2013

BUSINESS COMMUNICATION

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Define Communication. Write Essentials of Good Communication. [16]

Q.2) Explain Face-to-Face Communication with its merits and limitation. [16]

Q.3) What do you mean by Business Letters ? Explain layout of Business Letters. [16]

Q.4) (A) As a Sales Manager draft a Sales Letter for Promoting sale of Tata Motors Pvt. Ltd., Pune. [08]

(B) Draft a circular letter announcing the establishment of a new branch of HDFC Finance Ltd., Mumbai. [08]

Q.5) What is Listening ? Explain the principles of Good Listening. [16]

Q.6) Define Oral Communication. Explain Media of Oral Communication. [16]

Q.7) Short notes : (Any Four)

[16]

- (a) Fax
 - (b) Video Conferencing
 - (c) Telephone Answering Machine
 - (d) Group Discussion
 - (e) SMS
 - (f) Press Conference
-

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4373]-102

B. C. A. (Semester - I) Examination - 2013

PRINCIPLES OF MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Describe Principles of Henry Fayol towards Administrative Management.

OR

Q.1) Define the term 'Management'. Explain characteristics and importance of Management.

Q.2) What is Planning ? Explain advantages and limitations of Planning.

OR

Q.2) Write short notes :

- (a) Types of Decisions
- (b) Types of Communication

Q.3) What is Control ? Explain essential steps in Control Process.

OR

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

Q.4) What is Strategy ? Explain role of different Strategists.

OR

[4373]-102

1

P.T.O.

Q.4) Write short notes :

- (a) Types of Organisations
- (b) Total Quality Management

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

- (a) Contribution of F. W. Taylor
 - (b) Stress Management
 - (c) Management of Change
 - (d) International Management
 - (e) Decentralisation
 - (f) Management as an Art
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-103

B. C. A. (Semester - I) Examination - 2013

PRINCIPLES OF PROGRAMMING AND ALGORITHM

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Answer the following : (All)

[2x8=16]

- (a) What is Variable ?
- (b) Define Algorithm. List its characteristics.
- (c) Define Time Complexity.
- (d) What is difference between 'a' and "a" ?
- (e) What is Interpreter ?
- (f) Define Recursion.
- (g) What is #include ?
- (h) Write syntax and usage of Ternary Operator.

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

[4x4=16]

- (a) Explain difference between Do-while and while loop with example.
- (b) Explain Logical and Arithmetic Operators.
- (c) Explain following functions with example :
 - (i) getchar()
 - (ii) putchar()

- (d) Write a 'C' program to find the sum of the first n numbers.
- (e) Write a 'C' program to accept number and find out whether it is even or odd.

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

[4x4=16]

- (a) What is Operator ? Explain Associativity of Operator.
- (b) Distinguish between If-else Structure and Switch Statement.
- (c) What is Extern Storage Class ? Explain with example.
- (d) Write a 'C' program to accept number and display its digits in words.
- (e) Write a 'C' program to check whether the given number is perfect or not.

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

[4x4=16]

- (a) Distinguish between Call By Value and Call By Reference.
- (b) What is Structure of 'C' program ?
- (c) What are the different types of 'C' Statements ?
- (d) Trace the following output and explain :

```
main()  
{  
    int x, y, z;  
    x = y = z = 1;  
    z = ++x || ++ y && ++z;  
    printf("x = %d y = %d z = %d\n", x, y, z);  
}
```

(e) Trace the following output and explain :

```
main()
{
  int i;
  for (i = 2; i<=10 ; i++)
  {
    switch(i)
    {
      Case 2 : printf("O");
              continue;
      Case 3 : break;
      Case 4 :
      Case 5 : printf("D");
              break;
      default : printf("!")
    }
  }
}
```

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

[4x4=16]

- (a) What is an Escape Sequences ? List and explain them.
 - (b) Explain working of Break and Continue Statement.
 - (c) What is difference between Actual Parameter and Formal Parameter ?
 - (d) Write an algorithm to check number is armstrong or not.
 - (e) Draw a flowchart to check number is positive or negative.
-

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-104

B. C. A. (Semester - I) Examination - 2013

COMPUTER FUNDAMENTALS AND OFFICE AUTOMATION

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[16]

- (a) List any two types of File Organisation.
- (b) What is mean by Data and Information ?
- (c) Explain the purpose of following commands :
 - (i) pwd
 - (ii) cat
- (d) Differentiate between Floppy Disk and CD ROM.
- (e) What is mean by WYSIWYG ?
- (f) Define Spreadsheet.
- (g) What is an Operating System ? Write any two types of O.S.
- (h) Define Flowcharts and its use.
- (i) List any four External DOS Commands.
- (j) What is Memory ? State its type.

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

- (a) Differentiate between the Compiler and Interpreter.
- (b) Write a short note on MS-Powerpoint.
- (c) What are the characteristics of Word Processor ?
- (d) Explain the File Permission of Linux.
- (e) Draw a flowchart to print sum of digits of a numbers.

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

- (a) Write an algorithm to print numbers in reverse order.
- (b) Write a short note on Data Manipulation.
- (c) List different Output Devices. Explain any two in details.
- (d) Write a batch file that perform the following task :
 - (i) Display current of the file xyz.txt.
 - (ii) Rename abc file as par.
 - (iii) Display message and waits for user to press any key.
 - (iv) Copy content of hellow.txt file to by.txt.
- (e) Write a note on Vi Editor in Linux.

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

- (a) What are the features of MS-Access ?
- (b) What is Software ? Explain Application Software and System Software.
- (c) Perform the following :
 - (i) $(1001)_2$
 - (ii) $(1101110)_2$
 - (iii) $(596)_{10}$
 - (iv) $(1A_2.3b)_{16}$
- (d) Discuss the Scope of Computer in Modern Office and Education.
- (e) State the roles of Operating System.

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

[16]

- (a) Explain grep command in Linux with syntax and various options.
 - (b) Explain the following MS-Excel Functions :
 - (i) SUM()
 - (ii) MOD()
 - (iii) ROUND()
 - (iv) SQRT()
 - (c) What is Wildcard Characters ? Explain it.
 - (d) State advantages and disadvantages of Flowcharts.
 - (e) List out the Secondary Storage Devices. Explain any one in details.
-

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Total No. of Questions : 5]

[Total No. of Printed Pages : 5

[4373]-105

B. C. A. (Semester - I) Examination - 2013

BUSINESS ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[05]

- (a) The account is set to have _____ balance if the total of the debit side of the account is more than the total of the credit side.
- (b) Only _____ transactions are recorded in the Cash Book.
- (c) Trial Balance is _____ but not an account.
- (d) Sale Book is used to record all _____.
- (e) Debit what comes in and credit what goes out is a principle of _____ account.

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

- (a) Book-keeping and Accounting are the same terms.
- (b) Accounting is not the language of Business.
- (c) Accounting Standard I deals with disclosure of Accounting Policies.
- (d) Depreciation is charged on Current Assets.
- (e) The basic function of accounting is to interpret financial data.

- (C) Answer in one sentence : [05]
- (a) What is Creditor ?
 - (b) What is Journal ?
 - (c) What is Ledger ?
 - (d) Define Personal Account.
 - (e) What do you mean by Liabilities ?
- (D) Classify the following accounts into, Personal Account, Real Account and Nominal Account : [05]
- (a) Purchase Account
 - (b) Telephone Expenses Account
 - (c) Audit Fees Account
 - (d) Land and Building Account
 - (e) Cash Account

Q.2) Define the term Accounting. Explain the Scope of Accounting. [12]

OR

Q.2) What is Accounting Principle ? Explain Basic Principles of Accounting. [12]

Q.3) (A) Journalize the following transactions in the books of Mr. Gupta for the month of April, 2012 : [08]

April, 2012

- 1 Mr. Gupta started business with Cash of Rs. 18,000, Machinery Rs. 10,000 and Furniture Rs. 3,500.
- 12 Purchased goods from Mr. Sanghavi of Rs. 9,000 at 10% Trade Discount.
- 13 Deposited with Bank of Baroda Rs. 2,800.
- 14 Sold goods to Mr. Khanna Rs. 8,000 at 5% Trade Discount.
- 25 Sold goods to Mr. Anand Rs. 3,000 at 5% Trade Discount and 2% Cash Discount.
- 26 Purchased furniture of Rs. 2,500 for cash and spent Rs. 200 for transport of furniture.
- 27 Paid electricity charges for office Rs. 300.
- 28 Withdraw Rs. 200 for personal use.

(B) The Plant and Machinery purchased on 1st April, 2007 for Rs. 1,80,000. Rate of Depreciation was to be charged fixed at 8% p.a. as per Straight Line Method.

The machinery was sold for Rs. 85,000 on 31st December, 2012.

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

Q.4) Enter the following transactions in the books of Mr. Advani's Cash Book with Cash Discount and Bank Columns : [16]

December, 2011

- 1 Mr. Advani started business with Cash of Rs. 90,000.
- 3 Opened Bank Account with Bank of India and deposited Rs. 80,000.
- 5 Purchased goods from Gidwani Brothers and paid by cheque Rs. 12,000.
- 11 Received Cash from Sales Rs. 3,000.
- 14 Withdrawn Cash Rs. 1,500 from Bank.
- 17 Purchased Stationery for cash Rs. 600.
- 20 Received cheque from M/s. Aniket and Company for Rs. 1,800 and deposited in the Bank on the same date.
- 21 Received cash from Amit Enterprises of Rs. 1,750 net after allowing Rs. 50 as discount.
- 22 Paid to M/s. Deluxe and Co. by cheque for Rs. 3,500.
- 24 Drawn from bank for office use Rs. 3,800.
- 26 Drawn for personal use Rs. 1,500.
- 30 Paid salary for the month of December, 2011 Rs. 15,000 by cheque.

Q.5) The following is the Trial Balance of Mr. Ravi Kumar as on 31st March 2012 :

**Trial Balance
on 31st March, 2012**

Particulars	Debit Balance	Credit Balance
Sales	—	1,31,000
Bank Credit Balance	—	20,000
Commission	—	2,000
Bills Payable	—	7,000
Pre-received Commission	—	2,000
Sundry Creditors	—	39,000
Loan from Bank	—	55,000
Purchases Returns	—	1,000
Capital	—	1,30,000
Sales Returns	1,000	—
Carriage Inward	6,000	—
Salary	25,000	—
Import Duty	6,000	—
Property Tax	4,000	—
Stock on 1st April, 2011	40,000	—
Prepaid Salary	1,000	—
Purchases	82,600	—
Wages	4,800	—
Cash in Hand	12,000	—
Live Stock	20,000	—
Misc. Expenses	7,100	—
Advertising	7,600	—
Discount Allowed	300	—
Net Interest on Bank Loan	2,800	—
Sundry Debtors	41,000	—
Buildings	80,000	—
Vehicles	40,000	—
Bad Debts	1,800	—
Carriage Outwards	4,000	—
	3,87,000	3,87,000

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

- (1) Unsold Stock of Goods on hand on 31st March, 2012 amounted to Rs. 30,000.
- (2) Goods of Rs. 3,400 were purchased and issued on 30th March, 2012 and are included in the closing stock but the entry is not recorded in bought book.
- (3) Outstanding Wages amounted to Rs. 1,200.
- (4) Provide 5% on Sundry Debtors for Bad and Doubtful Debts.
- (5) Goods of Rs. 1,400 are distributed as free samples.
- (6) Depreciate Building at 10% p.a.
- (7) Rs. 1,000 is to be written off as Bad Debts.

[16]

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Total No. of Questions : 8]

[Total No. of Printed Pages : 1

[4373]-201

B. C. A. (Semester - II) Examination - 2013

ORGANISATIONAL BEHAVIOUR

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

-
-
- Q.1)** Explain the different Models of Organisational Behaviour. **[16]**
- Q.2)** What is Behavioural Attitude ? State the functions of Attitude. **[16]**
- Q.3)** Define Motivation. Explain briefly the Mechanism of Work Motivation. **[16]**
- Q.4)** Explain various determinants of Personality. **[16]**
- Q.5)** Define Leadership. What are the different styles of Leadership used in an Organisation ? **[16]**
- Q.6)** State Sources of Stress. Explain the Organisational Strategies to Overcome Stress. **[16]**
- Q.7)** Explain various Sources of Conflicts and its Strategies to Overcome Conflicts. **[16]**
- Q.8)** Write short notes : **(Any Two)** **[8x2=-16]**
- (a) Need and Importance of Total Quality Management
 - (b) Types of Groups
 - (c) Motivation Process

[4373]-201/1

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 6

[4373]-202

B. C. A. (Semester - II) Examination - 2013

ELEMENTS OF STATISTICS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any four of the following :

[4x4=16]

- (a) Define the following terms :
 - (i) Raw Data
 - (ii) Attribute
 - (iii) Classification
 - (iv) Frequency of a Class
- (b) Explain Absolute and Relative Measures of Dispersion.
- (c) Explain the causes of variation in SQC.
- (d) Define the following terms :
 - (i) Deterministic Experiment
 - (ii) Sample Space
 - (iii) Conditional Probability
 - (iv) Independent Events

[4373]-202

1

P.T.O.

- (e) The Intelligence Quotients (I.Q.s.) of 10 boys in a class are given below :

70, 120, 110, 101, 88, 83, 95, 98, 101, 100

Obtain Mean, Median and Modal I.Q. of boys.

- (f) A candidate obtained the following percentages of marks in an examination :

English - 60, Hindi - 75, Mathematics - 63, Physics - 59 and Chemistry - 55.

Find the Candidate's Weighted Arithmetic Mean if weights 1, 2, 1, 3, 3 respectively are allotted to the subjects.

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

[4x4=16]

- (a) State merits and demerits of Mode.
- (b) In how many ways can the letters of the word 'STRANGE' be arranged so that the vowels are always together ?
- (c) Find Median of Wages from the following frequency distribution of Wages in Rs. per week :

Wages (in Rs. per week)	Less than 35	35-38	38-41	41-44	Above 44
No. of Wage Earners	14	62	99	18	7

- (d) Number of permutations of n objects taken 4 at a time is twice the number of permutations of 5 objects taken 3 at a time. Find value of 'n'.
- (e) Following is the frequency distribution of number of students according to the marks scored in certain examination :

Marks	0-19	20-39	40-59	60-79	80-99
No. of Students	18	26	34	12	8

Obtain :

- (i) Class limits of second class.
 - (ii) Class boundaries of third class.
 - (iii) Class width of second class.
 - (iv) Number of students scoring marks more than 60.
- (f) Calculate Standard Deviation and Coefficient of Variation from the following data :

Class	1-3	3-5	5-7	7-9	9-11
Frequency	2	3	5	3	2

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

- (a) There are four 10 km segments to an automobile trip. If the car is driven as follows :

100 km/hr for the first 10 km,

90 km/hr for the second 10 km,

80 km/hr for the third 10 km and

110 km/hr for the fourth 10 km.

Find average speed of the car.

- (b) Compute the Standard Deviation of the two groups combined together from the information given as below :

Group	No. of Items	Average	S.D.
A	450	60	10
B	550	40	8

- (c) Calculate Geometric Mean of the following data :

1, 7, 18, 65, 91, 103.

- (d) Let A and B be the two events defined on sample space Ω . If $P(A) = 0.8$, $P(B) = 0.5$, $P(A \cap B) = 0.2$, then find the probability of occurrence of :
- atleast one of the events
 - none of the events
 - only event A
 - not event B
- (e) What is the Probability that a leap year will contain 53 Thursdays or Fridays ?
- (f) Explain the Methods of Classification.

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

- (a) The Mean Value of the following frequency distribution related with the number of accidents was found to be 1.46 :

Number of Accidents	0	1	2	3	4	5	Total
Number of Days	46	?	?	25	10	5	200

Calculate missing frequencies.

- (b) The Standard Deviation of a distribution of 100 values was Rs. 2. If the sum of squares of actual values was Rs. 3,600, what was the mean of this distribution ?
- (c) Four cards are drawn atrandom from a pack of well-shuffled 52 cards. Find the probability that :
- there is one card of each suit.
 - two cards are red and two cards are black.
- (d) Let A and B be the two events defined on sample space Ω and suppose $P(A) = 0.4$, $P(A \cup B) = 0.7$ and $P(B) = 'P'$. Then,
- for what choice of 'P' are A and B mutually exclusive ?
 - for what choice of 'P' are A and B independent ?
- (e) Explain Population and Sample with an illustration.

- (f) Let A and B be the two events defined on sample space Ω such that, $P(A) = 0.8$, $P(B) = 0.5$ and $P(A \cap B) = 0.45$. Obtain
- $P(B/A)$
 - $P(A'/B')$

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

- (a) (i) The number of defects observed on 10 carpets manufactured are as follows :

3, 4, 5, 6, 3, 3, 5, 3, 6, 2.

Construct the suitable control chart and comment on it. **[06]**

- (ii) State the control limits of np-chart. **[02]**

- (b) (i) In the manufacturing process of an article, \bar{X} and R charts are drawn for certain measurement of the articles. For 20 samples each of size 4, $\bar{X} = 41.20$ and $\sigma = 0.34$.

Compute the control limits of \bar{X} and R Charts. **[06]**

(For given n, $A_2 = 0.729$, $D_3 = 0$, $D_4 = 2.282$)

- (ii) State the addition theorem of probability for three events. **[02]**

- (c) (i) Two workers on the same job show the following results over a long period of time :

	Worker 'A'	Worker 'B'
Mean time of completing the job (in minutes)	30	35
Standard Deviation (in minutes)	6	4

- (1) Which worker appears to be faster in completing the job ? Justify.

- (2) Which worker appears to be more consistent in the time he requires to complete the job ? Justify. **[04]**

(ii) Write down the sample space for each of the following experiments :

- (1) A coin is tossed until head occurs.
- (2) Ten seeds are planted and total number of seeds germinated are recorded after a week.
- (3) A point is randomly selected in the circle with radius 5 cm. and its distance from the centre is noted.
- (4) A two digit number is formed from the digits 4, 5, 6 using each digit only once.

[04]

Seat No.	
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Total No. of Questions : 4]

[Total No. of Printed Pages : 4

[4373]-203

B. C. A. (Semester - II) Examination - 2013

‘C’ PROGRAMMING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

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

[10x2=20]

- (1) Define Pointer to Pointer. Give example.
- (2) What are the limitations of Array ?
- (3) List the ways in which an array is passed to function.
- (4) Give the syntax of Declaring Union.
- (5) Apply Left Shift Operator on the data 0000000011010111 and Shift Data by 5 bits.
- (6) Give syntax and use of ftell().
- (7) List the different modes in which file is opened.
- (8) What is the significance of argv[] ?
- (9) Give the syntax of File Inclusion Directive.
- (10) Define String. Which character is used to terminate a string ?
- (11) List the different types of File.
- (12) How are structure elements accessed ?

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

- (a) What is Dynamic Memory Allocation ? Explain any two functions of Dynamic Memory Allocation.
- (b) Define Structure. What do you mean by Nested Structure ? Explain with example.
- (c) Define File. Explain different operations performed on File.
- (d) Compare Structure and Union with example.
- (e) What is an Array ? How to represent two dimensional arrays in Memory ?

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

- (a) Write a 'C' program to write a macro definition for checking whether a character is alphabet or not.
- (b) Write a 'C' program to store all prime numbers in an array and display this array.
- (c) Write a 'C' program to create a structure containing Student Roll No., Name and Marks. Display student information having marks greater than 60.
- (d) Write a 'C' program to display alternate character in existing file.
- (e) Write a 'C' program to accept n numbers from user. Sort elements in ascending order using Dynamic Memory Allocation.

Q.4) Trace the output and justify : (Any Four) [5x4=20]

- (a)

```
main()  
{  
    int c[] = {2, 8, 3, 4, 4, 6, 7, 5};  
    int j, *p = c, *q = c;  
    for (j = 0; j < 5; j++)
```



```

    {
        printf("%d", *c);
        ++ q;
    }
    for (j = 0, j < 5; j++)
    {
        printf("%d", * p);
        ++ p;
    }
}

```

(b) #define SQR(x) (x * x)

```

int main( )
{
    int a, b = 3;
    a = SQR (b + 2);
    printf("%d\n", a);
    return 0;
}

```

(c) void main()

```

{
    printf("\n %d %d %d", size of('3'), sizeof("3"), size of(3));
}

```

(d) main()

```

{
    char * a[5] = {"GOOD", "BAD", "UGLY", "WICKED", "NICE"};
    printf("%s\n", a[0]);
    printf("%s\n", * (a + 2));
    printf("%c\n", * (a[2] + 2));
    printf("%s\n", a[3]);
    printf("%c\n", * (a[3] + 2));
}

```

```
(e) 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);  
}
```

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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-204

B. C. A. (Semester - II) Examination - 2013

FILE STRUCTURE AND DATABASE CONCEPTS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any four :

[4x4=16]

- (a) What is Attribute ? Explain any 2 types of Attribute with example.
- (b) Explain the Deletion Operation of B+ Tree.
- (c) List capabilities of good DBMS. Explain any two of them.
- (d) Explain Sparse Indexing.
- (e) What is Relational Algebra ? List out the Relational Algebra Operations with its example.

Q.2) Attempt any four :

[4x4=16]

- (a) What is File ? Explain File Structure.
- (b) State different types of relationships that can exist between entity sets with suitable example.
- (c) What is DDL and DML ? Explain any one DDL Commands with example.
- (d) What is Normalization ? Explain its types.
- (e) Differentiate between Generalization and Specialization.

Q.3) Attempt any four :

[4x4=16]

- (a) Enlist various users of DBMS and specify their roles.
- (b) What is Data Independence ? Explain its types.
- (c) Explain Logical and Physical Files.
- (d) Define the terms :
 - (i) Tuple
 - (ii) Super Key
 - (iii) Weak Entity
 - (iv) Domain
- (e) Explain Hierarchical Model with example.

Q.4) Attempt the following :

[16]

Consider the following entities and their relationship :

Movie (mvno, mvname, releaseyear)

Actor (actno, actname)

Movie and Actor are related with many to many relationship.

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

- (a) Insert a row in Actor table.
- (b) Display all actor details of movie 'Dabang'.
- (c) Count all the movie names released in the year 2000.
- (d) Add 'actorage' column to Actor table.
- (e) Display all movies of actor 'Salman Khan'.
- (f) Change the actor name from 'Ranbir' to 'Amir'.

Q.5) Attempt the following :

- (a) In a nursery, the plants are sold to the customers. These plants are flowering and non-flowering only. Nutrients are given to the plant with some quantity. Nutrients includes pesticides, watering and manure :
 - (i) Identify all entities.
 - (ii) Identify all relations.
 - (iii) Draw ERD.

[08]

(b) Consider relational database :

Employee (ename, street, ecity)

Works (ename, cname, salary)

Company (cname, city)

- (i) Find the name of the employees who works for “Bank of India”.
- (ii) Find the names of cities of all employees who works for “Corporation Bank”.
- (iii) Find the list of employees who work in same city where they live.
- (iv) Find the list of companies from Mumbai City.
- (v) Find the list of employees having salary more than 1000.

Write Relational Algebraic Expression for the above.

(Any Four)

[08]

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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4373]-205

B. C. A. (Semester - II) Examination - 2013

COST ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

- (a) At Break-even Point, contribution is equal to fixed cost.
- (b) Marginal Costing is a method to ascertain Cost.
- (c) Operating Costing deals with Costing of Services.
- (d) Fixed Cost per unit remains constant.
- (e) Financial Accounting has been developed out of limitations of Cost Accounting.

(B) Fill in the blanks : [05]

- (a) Abnormal Loss is charged to _____ Account.
- (b) P/V Ratio is the Ratio of _____ to Sales.
- (c) Aggregate of all direct costs is known as _____.
- (d) Financial Accounting is _____ in nature.
- (e) In transport undertaking, the cost unit is _____.

[4373]-205

1

P.T.O.

Q.2) Define the term 'Cost'. Explain various elements of Cost with suitable examples. [15]

OR

Q.2) Define Cost Accounting. State the advantages and disadvantages of Cost Accounting. [15]

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

- (a) Cost Unit and Cost Centre
- (b) Profit Volume Ratio
- (c) Contract Costing
- (d) Features of Process Costing
- (e) Job Costing

Q.4) Prepare a statement of Cost, from the following information relating to Cotton Textiles Ltd., Mumbai, for the year ended 31-3-2012 :

	Rs.
Cost of Direct Materials	2,00,000
Sales	4,00,000
Direct Wages	1,00,000
Office Indirect Materials	5,000
Cost of Special Patterns	40,000
Postage and Telegram	2,000
Bad Debts recovered	250
Factory and Rent Insurance	5,000
Outstanding Chargeable Expenses	2,000
Carriage Outward	2,500
Interest on Loan	2,150
Printing and Stationery	500

Factory Indirect Wages	3,000
Selling on Cost	4,000
Travelling Salesman's Salary	4,000
Work's Indirect Material	1,000
Royalties	8,000
General Works Overheads	2,000
Bad Debts Written-off	1,000

Also calculate the percentage of profits earned to sales. [16]

Q.5) (A) You are given the following data for the year 2012 of Godrej Ltd. :

	Rs.
Sales (1,00,000 Units)	1,00,000
Marginal Cost	60,000
Fixed Cost	30,000

Calculate :

- (a) P/V Ratio
- (b) B.E.P. (Sales - Value)
- (c) Profit when sales amounted to Rs 1,40,000
- (d) Sales to earn a profit of Rs. 15,000 [12]

(B) A factory produces 20,000 units. The budgeted expenses are given below :

	Per Unit
Raw Material	75
Direct Labour	20
Direct Expenses	25
Overheads	15
Fixed Overheads (Rs. 2,00,000)	20

Administrative Expenses (Fixed)	10
Selling Expenses (10% Fixed)	15
Distribution Expenses (25% Fixed)	20
Total Cost per Unit	<u>200</u>

You are required to prepare a budget for 15,000 and 10,000 units. [12]

OR

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

- (a) Material Cost Variance
(b) Material Usage Variance

	Standard			Actual		
	Quantity Kg.	Rate Rs. Per kg.	Amount Rs.	Quantity Kg.	Rate Rs. Per kg.	Amount Rs.
Material X	5	2.00	10.00	4	5.00	20.00
Material Y	3	3.00	9.00	5	3.00	6.00
Material Z	2	4.00	8.00	3	3.00	9.00
Total	10		27.00	9		35.00

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4373]-302

B. C. A. (Semester - III) Examination - 2013

DATA STRUCTURE USING 'C'

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Attempt any eight of the following :

[8x2=16]

- What is Stack ? State the operations of Stack.
- What is Space and Time Complexity ?
- What is Sorting ? State the techniques of Sorting.
- What are the advantages of Linked List over an Array ?
- What is Spanning Tree ?
- What is Self-referential Structure ?
- What is Algorithm ? State its characteristics.
- What Non-primitive Data Structure ?
- What is Polynomial ? How it is represented ?
- What is Adjacency Matrix ?

Q.2) Attempt any four of the following :

[4x4=16]

- Write a function to create Doubly Linked List.
- Explain Linear Search Method with an example.
- Write a 'C' program to sort given elements by using Bubble Sort Techniques.
- Explain DFS with an example.
- What is Queue ? Explain its types in details.

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

- (a) Write a function to add Node at the specified position in Singly Linked List.
- (b) Explain Heap Sort with an example.
- (c) Explain Binary Search Method with an example.
- (d) Explain in brief the functions of Dynamic Memory Allocation.
- (e) Write a 'C' program for Dynamic Implementation of Queue.

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

- (a) Explain Overflow Handling with an example.
- (b) Write a function to delete first node from Singly Linked List.
- (c) Explain different types of Asymptotic Notations in details.
- (d) Sort the following elements by using Quick Sort :
48, 29, 8, 59, 72, 88
- (e) Write a 'C' program to check whether given string is palindrome or not. (Use Stack)

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

- (a) Define the following terms :
 - (i) Balance Factor
 - (ii) Pendant Node
 - (iii) Degree of Node
 - (iv) Cyclic Graph
- (b) Explain BFS with an example.
- (c) Write a 'C' program for addition of two polynomials.
- (d) Explain different types of Recursive Tree Traversing Techniques.
- (e) Write an algorithm for evaluation of postfix expression.

Seat No.	
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Total No. of Questions : 5]

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[4373]-303

B. C. A. (Semester - III) Examination - 2013

SOFTWARE ENGINEERING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[16]

- (a) What is Conceptual System and Physical System ?
- (b) Explain Data Dictionary with example.
- (c) What is Reusability of Software ?
- (d) What is Preventive Maintenance ?
- (e) What are Rules of Interview ?
- (f) What are Symbols of DFD ?
- (g) What is Cyclomatic Complexity ?
- (h) Explain Cohesion with example.
- (i) What is Software Engineering ? What are activities it include ?
- (j) What is Ripple Effect ?

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

[16]

- (a) Explain different types of Coupling.
- (b) Explain Prototyping Model.
- (c) What are characteristics of Software ?
- (d) Differentiate Structured Interview and Unstructured Interview.
- (e) Write a note on SRS.
- (f) Write a note on Structured Chart.

Q.3) (A) Design an Screen Layout for Mark Sheet Format. **[08]**

(B) If customer is within Maharashtra State and has Sales Tax Exemption Certificate no Sales Tax is levied; otherwise 8% Sales Tax is charged on the sales value. If the customer is outside Maharashtra State 4% Central Sales Tax in place of Sales Tax, is charged.

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

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

- (a) Data Validation
- (b) Types of Modules
- (c) White Box Testing
- (d) System Elements
- (e) System Analyst
- (f) Fact Gathering Techniques

Q.5) Case Study : [16]

Consider Nationalized Banking System which providing following facilities :

Opening New Account, Withdrawal, Deposit along with this it should calculate Interest for balanced amount on account. Accountant should provided different Reports to Bank Manager :

- (a) Identify all Entity
- (b) Draw E-R Diagram
- (c) Draw Context Level DFD
- (d) Draw First Level DFD

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Total No. of Questions : 5]

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[4373]-304

B. C. A. (Semester - III) Examination - 2013

MANAGEMENT ACCOUNTING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Explain the term 'Management Accounting'. Discuss the advantages and limitations of Management Accounting. **[16]**

OR

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

Q.2) 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) Average finished goods for a month.
- (4) Credit allowed by suppliers one month.
- (5) Credit allowed to debtors two months.
- (6) Time lag in payment of wages one and half weeks, overheads one month.
- (7) $\frac{1}{4}$ th of the sales are on cash basis.
- (8) Expected Cash Balance Rs. 1,20,000.

Prepare a Statement showing Working Capital requirements to finance of activity of 45,000 units at Output. [16]

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

OR

Q.3) The following are Summarized Profit and Loss A/c. for the year ended 31st March, 2012 and Balance Sheet as on that date of XYZ Ltd. :

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

Particulars	Rs.	Particulars	Rs.
To Opening Stock	10,000	By Sales	1,00,000
To Purchases	55,000	By Closing Stock	15,000
To Gross Profit	50,000		
Total	1,15,000	Total	1,15,000
To Selling and Dist. Expenses	12,000	By Gross Profit	50,000
To Admin. Expenses	15,000		
To Interest	3,000		
To Net Profit	20,000		
Total	50,000	Total	50,000

Balance Sheet as on 31st March, 2012

Liabilities	Rs.	Assets	Rs.
Equity Capital of Rs. 10	1,00,000	Plant and Machinery	30,000
P and L A/c.	20,000	Land and Building	50,000
Bills Payable	15,000	Furniture	20,000
Sundry Creditors	25,000	Inventories	15,000
		Bills Receivable	12,500
		Sundry Debtors	15,000
		Bank	17,500
Total	1,60,000	Total	1,60,000

Calculate :

- (a) Gross Profit Ratio
- (b) Net Profit Ratio
- (c) Operating Ratio
- (d) Working Capital Turnover Ratio [16]

Q.4) The following information is obtained from A. K. Ltd. for the year ended 31st March, 2009 :

	Rs.
Sales (1,00,000 units)	3,00,000
Variable Cost	2,25,000
Fixed Cost	25,000

Calculate :

- (a) P/V Ratio
- (b) Break-even Point Sales Value
- (c) Profit when Sales amounted to Rs. 4,50,000
- (d) Sales to earn a profit of Rs. 80,000 [16]

Q.5) Notes on : (Any Two)

[16]

- (a) Distinction between Financial Accounting and Management Accounting
 - (b) Types of Ratios according to the Nature of Items
 - (c) Causes of Changes in Working Capital
 - (d) Distinction between Fixed Budget and Flexible Budget
-

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[4373]-305

B. C. A. (Semester - III) Examination - 2013

RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS)

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt all :

[16]

- (a) What is RDBMS ? List any four popular RDBMS Products.
- (b) What is Cursor ? What are the types of Cursor ?
- (c) What are the different data types in PL/SQL ?
- (d) What is Recoverable Schedule ?
- (e) Define :
 - (i) Commit
 - (ii) Rollback
- (f) What is Deadlock ?
- (g) Define Starvation.
- (h) List the types of Failure.

Q.2) Attempt any four :

[16]

- (a) Explain difference between DBMS and RDBMS.
- (b) What is Trigger ? Explain it with proper syntax and example.
- (c) List the ACID Properties. Explain the usefulness of each.
- (d) What is Two Phase Locking Protocol ? Explain its two phases.
- (e) Write a note on Storage Types.

[4373]-305

1

P.T.O.

Q.3) Attempt any four :

[16]

- (a) What is Package in PL/SQL ? Explain with example.
- (b) Write a note on Exception Handling.
- (c) Explain problems in Concurrent Execution of Transaction.
- (d) Explain deferred Database Modification Technique with example.
- (e) Define the following terms :
 - (i) Physical Block
 - (ii) Buffer Block
 - (iii) Redo
 - (iv) Undo

Q.4) Attempt any four :

[16]

- (a) Consider the following relational database :
 - Doctor (dno, dname, dcity)
 - Hospital (hno, hname, hcity)
 - Doct_Hosp (dno, hno)Write a function to return count of number of hospitals located in Pune city.
- (b) Consider the following relational database :
 - Book (bno, bname, pubname, price)
 - Author (ano, aname)
 - Book_Author (bno, ano)Define a trigger that restricts insertion or updation of books having price less than 0.
- (c) Consider the following relational database :
 - Customer (cno, cname, ccity)
 - Loan (lno, lamt, no_of_years, cno)Write a procedure to display total loan amount from Pune city.

(d) Consider the following relational database :

Employee (eno, ename, city, deptname)

Project (pno, pname, status)

Employee_Project (eno, pno, no_of_days)

Write a cursor to display departmentwise details of employee working in the department.

(e) Write a package which consist of one procedure and one function. For this consider following relational database :

Movie (mno, mname, releaseyear)

Actor (ano, aname)

Movie_Actor (mno, ano)

(i) Pass movie_number as a parameter to a procedure and display movie details.

(ii) Pass actor_number as a parameter to a function and return total number of movies in which given actor is acting.

Q.5) Attempt any four :

[16]

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

T₁	T₂
Read (X)	Read (Z)
$X = x + 100$	Read (X)
Write (X)	$X = x - z$
Read (Y)	Write (X)
Read (Z)	Read (Y)
$Y = y + z$	$Y = y - 100$
Write (Y)	Write (Y)

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

T₁	T₂
Read (Y)	Read (X)
Read (a)	Read (a)
$Y = y + a$	$X = x + a$
Write (Y)	Write (X)
	Read (Y)
	$Y = y + a$
	Write (Y)

- (c) Following is the list of events in an interleaved execution of set 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, X)
t ₃	T ₃	Lock (A, S)
t ₄	T ₄	Lock (B, S)
t ₅	T ₁	Lock (B, S)
t ₆	T ₃	Lock (D, X)
t ₇	T ₂	Lock (D, S)
t ₈	T ₄	Lock (C, X)

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

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

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

[start_transaction, T_1]

[write_item, T_1 , A, 10]

[commit T_1]

[start_transaction, T_3]

[write_item T_3 , B, 15]

[checkpoint]

[commit T_3]

[start_transaction, T_2]

[write_item T_2 , B, 20]

[start_transaction, T_4]

[write_item, T_4 , D, 25]

[write_item T_2 , C, 30] ← System Crash

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

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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4373]-306

B. C. A. (Semester - III) Examination - 2013

PRINCIPLES OF PROGRAMMING AND ALGORITHM

(Old 2004 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[4x4=16]

- (a) Explain any four Preprocessor Directives.
- (b) Explain Basic Data types in 'C'.
- (c) Write a short note on Bitwise Operator.
- (d) Explain following functions strlen(), getch().
- (e) Explain with example 'Continue' Keyword.

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

[4x4=16]

- (a) Differentiate between Local and Global Variable.
- (b) Write a syntax and usage of 'While' Loop with example.
- (c) What are different types of Parameter of Function ? Explain.
- (d) What is Storage Class ? Explain.
- (e) Write any four Standard 'C' Library functions.

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

- (a) Differentiate between if-else and switch statement.
- (b) What is Ternary Operator ? Explain with example.
- (c) What is a Variable ? Explain Constant Variable.
- (d) What are the advantages of 'C' Language ?
- (e) What 'C' is called Middle Level Language ?

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

- (a) Write a program to display sum of first 'n' even numbers.
- (b) Write a program to accept a number and display factorial of number.
- (c) Write a program to accept a number and check the number is Armstrong Number.
(e.g. $n = 153, 1^3 + 5^3 + 3^3 = 153$)
- (d) Write a program to calculate area of circle.
- (e) Write a program to find maximum of three numbers.

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

- (a)

```
main( )  
{  
    int x = 66;  
    printf("%c", x);  
}
```



```

(b) #include <stdio.h>
    main( )
    {
        int x = 5, y = 2;
        float p, q;
        p = x/y;
        printf("p = %f\n", p);
        q = (float) x/y;
        printf("q = %f \n", q);
    }

(c) main( )
    {
        int a = 5;
        begin:
        if(a)
        {
            printf("%d", a);
            a -- ;
            goto begin;
        }
    }

(d) main( )
    {
        int a = 0, b = 0;
        if (!a)
        {
            b = !a;
            if (b)
            a = !b;
        }
        printf("%d, %d \n", a, b);
    }

```

```
(e) main()
{
    int i = 0, k = 3;
    i += func(k);
    i += func(k);
    i += func(k);
    printf("%d\n", i);
}
func(int k)
{
    static int m = 2;
    m = m + k;
    return m;
}
```

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4373]-401

B. C. A. (Semester - IV) Examination - 2013

NETWORKING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any three :

[3x5=15]

- (a) Explain Connection Oriented and Connectionless Models with its advantages and disadvantages.
- (b) What is NIC ? Explain components and functions of NIC.
- (c) Explain Synchronous and Asynchronous Communication in detail.
- (d) Explain Infrared as Wireless Transmission.

Q.2) Attempt any three :

[3x5=15]

- (a) Define Computer Network. State any goals and applications of Computer Network.
- (b) Explain Intranet and Extranet in detail.
- (c) How Proxy Servers and Firewalls helps in maintaining Network Security ? Explain.
- (d) Differentiate between Co-axial Cable and Twisted Pair Cable.

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

- (a) Explain any two Propagation Methods.
- (b) Explain in detail :
 - (i) Web Server
 - (ii) Search Engines
- (c) Write short note on Modes of Communication.
- (d) Explain Frame Format of IEEE802.4 (Token Bus).

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

- (a) List different types of Topologies. Explain any two Topologies in detail.
- (b) Compare ISO/OSI Reference Model and TCP/IP.
- (c) Explain Active and Passive Hub.
- (d) Explain Bluetooth Architecture.

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

- (a) Source Routing Bridges
- (b) Peer-to-peer LAN
- (c) SAP
- (d) Wireless LAN Architecture
- (e) Wireless Fidelity

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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4373]-402

B. C. A. (Semester - IV) Examination - 2013

VISUAL BASIC

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

- (a) Property used to Disable Label Control.
- (b) Property to set maximum number of characters to be input using textbox.
- (c) Property used to display a read only combo box.
- (d) Property used to Set Timer Control.
- (e) Property used to Set Special Password Character.
- (f) Property used to Set Value of Check Boxes.
- (g) To resize Image Control.
- (h) Property used to count number of item in the listbox control.
- (i) Property used to place a picture on a command batton.
- (j) Property to set job order for the control of the form.

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

- (a) Differentiate between MSG BOX and Input Box.
- (b) Why visual basic is called as GUI Application ?
- (c) Explain briefly ADO Control.
- (d) What are Control Arrays ? Explain with the help of a suitable example.
- (e) Explain data types in VB.

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

- (a) Write a VB program to find the factorial.
- (b) Write VB program to find even numbers from array.
- (c) Write program in VB to check whether given nos. is perfect or not by using msg box.
- (d) Write a program to transfer the selected elements from list 1 to list 2.
- (e) Write a menu driven program for :
 - (i) Area of Circle
 - (ii) Area of Rectangle

Q.4) Attempt the following : (Any Two) [8x2=16]

- (a) Write a VB program to accept the student details from user and store the details into the database (Don't use standard control) student having rollnos, name, class.
- (b) What are procedures and functions in Visual Basic ? Explain with syntax and example.
- (c) What is Event Driven Programming in VB ? Explain with example.

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

- (a) Picture Box
- (b) MDI
- (c) Popup Menu
- (d) Progress Bar
- (e) Data Report

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4373]-403

B. C. A. (Semester - IV) Examination - 2013

INVENTORY MANAGEMENT (SAD)

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) State Sections of Plan.
- (b) What is Reorder Point ?
- (c) What is Carrying Cost ?
- (d) Define Assessment.
- (e) Enlist various Bar Code Symbologies.
- (f) What is Logic Chart ?
- (g) Define Forward Engineering.
- (h) What is Out-sourcing ?
- (i) Define Inventory Management.
- (j) What is Incremental Investment ?

Q.2) Attempt any four of the following :

[4x4=16]

- (a) Explain in detail the Challenges of Inventory Management.
- (b) Explain various Bar Coding Structural Rules.
- (c) Explain the need of Protecting Inventory with the help of example.
- (d) Explain limitations of CASE Tools.
- (e) What is Software Maintenance ? Explain different types of Software Maintenance.

Q.3) Attempt **any two** of the following : **[8x2=16]**

- (a) Define EOQ. Solve following example using EOQ. 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 the carrying cost per unit is Re. 0.50 for one year. Lead time on an order is five days and the company will keep a reserve supply of two day's usage.

Calculate :

- (i) EOQ
 - (ii) The Reorder Point
 - (iii) No. of Orders per annum
 - (iv) Maximum, Minimum and Average Inventory
- (b) What is CASE Tool ? Explain building blocks of CASE with neat diagram.
- (c) Explain Software Reverse Engineering Process with a neat diagram.

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

- (a) Explain Monitoring and Controlling Inventories.
- (b) What is Theft ? Explain different types of Theft.
- (c) Explain the advantages and disadvantages of Weighted Average Cost Method.
- (d) What is Financial Manager's role in Management of Inventory ?
- (e) What is BPR ? Explain objectives of BPR.

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

- (a) IRA
- (b) Legal Duties of Store-keeper
- (c) Emergencies in Organisation
- (d) Safety Stock
- (e) ABC Analysis

Seat No.	
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Total No. of Questions : 6]

[Total No. of Printed Pages : 1

[4373]-404

B. C. A. (Semester - IV) Examination - 2013

HUMAN RESOURCE MANAGEMENT

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

-
-
- Q.1)** What is Human Resource Management ? Explain the scope and importance of HRM. **[15]**
- Q.2)** What is Manpower Planning ? Explain the Internal and External Sources of Recruitment. **[15]**
- Q.3)** Define 'Performance Appraisal'. Explain in detail the Process of Performance Appraisal. **[15]**
- Q.4)** Define 'Organisational Behaviour'. Explain disciplines contributing to Organisational Behaviour. **[15]**
- Q.5)** Explain various Training Methods used to Train Employees. **[15]**
- Q.6)** Write short notes : **(Any Four)** **[20]**
- (a) Wage and Salary Administration
 - (b) Factors influencing Estimation of Human Resources
 - (c) Management Development Programme
 - (d) Fringe Benefits
 - (e) Difference between HRM and Personnel Management
 - (f) Objectives of Performance Appraisal

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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4373]-405

B. C. A. (Semester - IV) Examination - 2013
OBJECT ORIENTED PROGRAMMING USING C++
(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) What is Polymorphism ? List the types of Polymorphism.
- (b) What is Generic Pointer ?
- (c) What is the difference between cin and getline ?
- (d) List any four operators introduced by C++.
- (e) Define :
 - (i) Dynamic Binding
 - (ii) Message Passing
- (f) Give any four special characteristics of Constructor.
- (g) What is Friend Function ?
- (h) Give any four File Mode Parameters.
- (i) What is an Abstract Class ?
- (j) What is the use of read() and write() function in C++ ?

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

- (a) Explain how to define a member function outside a class definition and inside a class definition with the help of suitable example.
- (b) What is Constructor ? Explain Dynamic Constructor with the help of suitable example.
- (c) What is Inline Function ? Explain with suitable example difference between Macro and Inline Function.
- (d) Create a class student having following members :
 - Rollno
 - Name
 - Percentage

Write necessary member function to accept student details and display details along with class obtained depending on percentage.

- (e) Write a C++ program to accept 'n' numbers through command line argument and store all odd numbers and all even numbers into different array and display both array.

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

- (a) Explain with suitable example operator overloading using Friend Function.
- (b) Explain Pure Virtual Function with the help of suitable example.
- (c) Design a C++ base class, Customer(name, phone_number). Derive a class Depositer (accno, balance from customer). Derive a class Borrower (loan_no, loan_amt) from Depositer. Write a necessary member functions to read and display the details of 'n' Borrower.
- (d) Write a C++ program to display number of vowels present in a given file.

- (e) Trace output of the following program and explain it.

Assume there is no syntax error :

```
#include <iostream.h>
#include <math.h>
main( )
{
    cout.precision(3);
    cout << sqrt(4) << "\n";
    cout.precision(2);
    cout << 2.3456 << "\n";
    cout << 3.50012 << "\n";
    cout.width(5);
    cout << 123;
    cout.width(3);
    cout << 45;
} //end of main
```

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

[4x4=16]

- (a) Explain multiple inheritance with the help of suitable example.
(b) Explain use of `setfill()` and `setiosflags()` manipulators with the help of suitable example.
(c) Explain the functions used for manipulation of file pointers.
(d) Consider a C++ class

```
class matrix
{ int a[4] [4];
  public :
  // member functions
}
```

Write a necessary member function to accept and display matrix.
Let m_1 and m_2 are two matrices. Find out $m_3 = m_1 + m_2$ (overload '+' operator).

- (e) Design a C++ class contain member function `display()`. Write a program to count number of times `display()` function is called. (Use static data member)

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

[4x4=16]

- (a) Write a note on Function Templates.
- (b) Write properties of Static Member Function. Explain Static Member Function with the help of suitable example.
- (c) Write a C++ program to sort n integer numbers and n float numbers in ascending order using function overloading.
- (d) Write a C++ program to calculate simple interest amount. Use default value for rate.
- (e) Trace output of the following program and explain it.

Assume there is no syntax error :

```
#include <iostream.h>
```

```
Class base
```

```
{ public :  
    virtual void fun( )  
    { cout << "function of base"; }  
    void run( )  
    { fun(); }  
};
```

```
Class derived : public base
```

```
{ public :  
    void fun( )  
    { cout << "function of derived"; }  
};
```

```
void main( )
```

```
{  
    derived d;  
    d.run();  
}
```

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-501

B. C. A. (Semester - V) Examination - 2013

VB·NET PROGRAMMING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any eight of the following :

[8x2=16]

- (a) Enlist various Form Methods in VB.Net.
- (b) Explain any two properties of Button Control.
- (c) What are different types of Errors in VB.Net.
- (d) Enlist various Validation Server Control.
- (e) Define Delegates in VB.Net.
- (f) State different types of Access Modifiers in VB.Net.
- (g) Define Properties in VB.Net and its types.
- (h) What do you mean by Directives in ASP.Net and enlist various types of Directives.
- (i) Define Namespace in C++.
- (j) Enlist properties of Timer Control.

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

[4x4=16]

- (a) Explain any four advantages of .Net.
- (b) Design GUI and write code for following in VB.Net :
 - Accept one number in textbox
 - Check whether number is Prime or Not.
 - Display Result in Message Box.
- (c) Design GUI and write code for following in VB.Net (ADO.Net) without wizard :
 - Accept student_details like Roll_No, Stud_Name Stud_Birthdate, Stud_Class and save these details in student table.
- (d) Design GUI and write code for following in VB.Net :
 - Accept string in textbox.
 - Reverse string
 - Display reverse string in message box
- (e) Explain Polymorphism in VB.Net.

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

[4x4=16]

- (a) What is .Net Framework ? Explain its Architecture.
- (b) Explain Inheritance and types of Inheritance in VB.Net.
- (c) Explain CTS.
- (d) Design GUI and write code for following :
 - Accept 5 numbers in textbox add to listbox one by one.
 - Find Maximum Number.
 - Print Result in Message Box
- (e) Design GUI and write code for the following (ADO.Net) without wizard :
 - Accept Item details like Item_no, Item_name, Item_rate, Item_quantity and save these details in Item Table.

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

[4x4=16]

- (a) Write a program which uses a function factorial to generate factorial of a number :
- Write a function factorial using console application.
- (b) Design GUI and write code for following :
- Accept 5 Numbers in Listbox
 - Find total and average of Numbers.
 - Print Result in two different Labels.
- (c) Explain following controls :
- Group Box
 - Menu
 - Tree View
 - Progress Bar
- (d) Explain Constructor and its types in VB.Net.
- (e) State difference between ASP and ASP.Net

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

[4x4=16]

- (a) CLR Features
- (b) Data Bindings
- (c) Try-Catch block in VB.Net
- (d) Control Structure in VB.Net (any 2)
- (e) Data Adapter
-

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-502

B. C. A. (Semester - V) Examination - 2013

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) What is Internal Style Sheet ?
- (b) What is the use of location DOM Object ?
- (c) List any four standard HTTP Headers.
- (d) What is the use of <caption> tag ?
- (e) What is an Access Control List ?
- (f) Define Cryptography.
- (g) What is the use of Usemap Attribute ?
- (h) List different Logical Tags ?
- (i) What is Dense Array ? Give an example.
- (j) Define Tampering.

Q.2) Solve any four :

[4x4=16]

- (a) Explain the use of <frameset> tag with an example.
- (b) Write a note on Cyber Jurisprudence.
- (c) Write a JavaScript Code print prime numbers between 1 to 100.
- (d) HTML Code to design following output :

Supplier Name	Product Name	Product Details		Total Price
		Price	Quantity	
Poonam Electronics	Printers	2500	08	20000
	Hard Disk	3000	10	30000
Raj Electronics	Speakers	2800	05	14000
	Scanner	1800	05	9000

- (e) Write HTML and CSS Code to generate the following output :
(Use Inline Style Sheet)

INDIA

- Taj Mahal
- Bibika Makbara
- India Gate
- Maysoure Place

Q.3) Solve any four :

[4x4=16]

- (a) Explain different security functions provided by Windows NT Operating System.
- (b) Explain the use of class attribute in CSS with an example.
- (c) Explain any two Dialogue Boxes used in JavaScript.
- (d) Write an ASP Code to display the details of player (pno, pname, age, game_name) whose age is between 18 and 40.
(Use JavaScript)
- (e) Write an ASP Code to delete customer details (custno, custname, city) who lives in 'Mumbai' city.
(Use JavaScript)

Q.4) Solve any four :

[4x4=16]

- (a) Explain Request Object in ASP.
- (b) Explain Sandboxing Technique.
- (c) Explain Symmetric Key Cryptography.
- (d) Write an ASP Code to display project details (project_no, project_name, duration) in table format on the screen. (Use JavaScript)
- (e) Write an ASP Code to print sum of first and last digit of a given number. (Use JavaScript)

Q.5) Solve any four :

[4x4=16]

- (a) Write a note on <map> tag with proper example.
- (b) Explain Global.asa ?
- (c) What are the advantages of JavaScript ?
- (d) Write HTML Code to design following output :

Ticket Reservation Details

User No. :

No. of Ticket :

Category :

Balcony ▾
Upper
Lower

Amount per Ticket :

Total Amount :

- (e) Write a JavaScript Code to calculate sum of even and odd numbers from an array and display the result on the screen.

Seat No.	
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Total No. of Questions : 7]

[Total No. of Printed Pages : 1

[4373]-503

B. C. A. (Semester - V) Examination - 2013

PRINCIPLES OF MARKETING

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

-
-
- Q.1)** Define Marketing. Explain the importance of Marketing as a Business Function in the Economy. **[16]**
- Q.2)** Define the term Brand. State the advantages of Branding. **[16]**
- Q.3)** What is Consumer Behaviour ? State the factors influencing Consumer Behaviour. **[16]**
- Q.4)** Explain the meaning of Channel of Distribution. State functions of Channel of Distribution. **[16]**
- Q.5)** What is Sales Promotion ? Explain various tools of Sales Promotion. **[16]**
- Q.6)** Define Marketing Organisation. Explain essentials of a Sound Marketing Organisation. **[16]**
- Q.7)** Write short notes : **(Any Four)** **[16]**
- (a) Modern Concept of Marketing
 - (b) Product Life Cycle
 - (c) Importance of Pricing Policies
 - (d) Retailers
 - (e) Objectives at Personal Selling
 - (f) Transportation

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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-504

B. C. A. (Semester - V) Examination - 2013

CORE JAVA

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt all :

[8x2=16]

- (a) Why the main method is declared as public and static ?
- (b) “An applet class can have a constructor.” State whether True / False and justify.
- (c) List any four methods of File Class along with their syntax.
- (d) Give the syntax and use of method getSource().
- (e) What is the purpose of Super Keyword ?
- (f) List any four interfaces used for Event Handling.
- (g) State the purpose of the ‘abstract’ keyword.
- (h) What is the meaning of Statement System.out.println ?

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

- (a) What is Call By Reference ? How Call By Reference of simple data type implemented in Java ? Give suitable example.
- (b) Write a note on Package in Java.
- (c) Explain garbage collection in java along with finalize method.
- (d) Write a program to get a file name from command prompt. Check whether a file by given name exists. If file is a regular file then display various details about that file. But if it is a directory then display the number of files in that directory.
- (e) Write a program in Java to create an abstract class volume. Derive two classes Cylinder and Cone. Calculate volume of both.

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

- (a) What is Layout Manager ? Explain any one in detail.
- (b) Explain how Multiple Inheritance is achieved in Java ?
- (c) What is Adapter Class ? Give suitable example of implementing MouseListener.
- (d) Write a Java program using AWT to print “Welcome TYBCA” in Red colour. When we click on a button the text colour should change in Blue.
- (e) Write a Java program that displays the number of non-vowels in a given word.

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

- (a) What is an Applet ? Explain its Lifecycle.
- (b) Why Java needs Compiler and Interpreter ?
- (c) Write similarities and dissimilarities between Abstract Class and Interfaces.
- (d) Write a Java program to accept e-mail address of a user and throw a user defined exception ‘Invalid E-mail Exception’ if it does not contain '@' symbol.

- (e) Write a program for the following :
- (i) to convert Upper Case string to Lower Case.
 - (ii) to calculate length of the given string.
 - (iii) to compare two strings.

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

[4x4=16]

- (a) What is an Array ? How it differs from Vector ?
 - (b) Explain Inner and Outer Class with suitable examples.
 - (c) Explain different containers used in Swings ?
 - (d) Write a Java program to accept 'n' elements from user and display it in ascending order. (Using Command Line Arguments)
 - (e) Write a Package TYBCA which has two classes Subject and Marks. Subject Class is for accepting Subjects and Marks class is to accept marks. Create a main class which will use package and calculate total marks and percentage.
-

Seat No.	
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Total No. of Questions : 7]

[Total No. of Printed Pages : 1

[4373]-601

B. C. A. (Semester - VI) Examination - 2013

E-COMMERCE

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

-
-
- Q.1)** Define E-commerce. Explain different types of E-commerce. [15]
- Q.2)** Explain benefits of building own Website and different ways of promoting the Website. [15]
- Q.3)** What is Internet ? Explain role of Intranet in B2B Application. [15]
- Q.4)** Explain EDI Model with diagram. Mention advantages and disadvantages of EDI. [15]
- Q.5)** Explain the Process of Electronic Payment System. Brief its advantages and disadvantages. [15]
- Q.6)** Explain the linking objectives to Business Strategies in E-commerce. [15]
- Q.7)** Short notes : **(Any Four)** [20]
- (a) E-cycle
 - (b) Goals of E-commerce
 - (c) Extranet
 - (d) E-cash
 - (e) BAN
 - (f) Banner Exchange

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Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 2

[4373]-602

B. C. A. (Semester - VI) Examination - 2013

MULTIMEDIA SYSTEMS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[8x2=16]

- (a) Hypertext
- (b) Target Audience
- (c) Quantization
- (d) DVD Audio
- (e) Synthesizers
- (f) S-Video
- (g) 8-bit Colour Image
- (h) Animation
- (i) •WAV Files
- (j) PAL

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

- (a) Explain RAID Technology in brief.
- (b) Explain various types of DVD (Based on Siges).
- (c) Explain Multimedia with suitable example of any two applications.
- (d) Define HD Video and HD TV.
- (e) Explain various types of Storyboarding.

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

- (a) Explain General MIDI and its types in detail.
- (b) Define CD Standard. (any four)
- (c) Explain System Independent File Format.
- (d) Define ADC and DAC.
- (e) Explain Megnetic Storage Devices. (any two)

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

- (a) Define Sound Card Basic Components with diagram.
- (b) Explain NTSC and SECAM Television Broadcasting Standard.
- (c) Explain Animation Software Tools. (any four tools)
- (d) Explain any four difference between CD and DVD.
- (e) Define BMP and XBM File Format.

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

- (a) Music Sequencing Notation Tools (any one)
- (b) Audio Files
- (c) Analog V/s. Digital Signal
- (d) Script
- (e) Node, Anchor and Links

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-603

B. C. A. (Semester - VI) Examination - 2013

INTRODUCTION TO SYSTEM PROGRAMMING AND
OPERATING SYSTEM

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[8x2=16]

- (a) Define Logical Address.
- (b) Define Turnaround Time.
- (c) What is Semaphore ?
- (d) What is meant by Multiprocessor System ?
- (e) Define Safe Sequence.
- (f) What is System Call ?
- (g) List various techniques of Free Space Management in File System.
- (h) Define Belady's Anomaly.
- (i) Give the main function of Loaders.
- (j) Define Interrupt.

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

- (a) Differentiate between the Compiler and Interpreter.
- (b) Give the diagrammatic representation of Single Level Directory. Also list out the disadvantages of Single Level Directory Structure.
- (c) Explain PCB with proper diagram.
- (d) What is Critical Section Problem ? Explain the following term in the context of it :
 - (i) Mutual Exclusion
 - (ii) Progress
 - (iii) Bounded Wait
- (e) Calculate Average Turn Around Time and Average Waiting Time for all set of processes using Non-pre-emptive Priority :

Process	Burst Time	Arrival Time	Priority
P ₁	8	2	2
P ₂	5	1	1(high)
P ₃	4	0	3
P ₄	3	3	4

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

- (a) State the role of Medium-term Process Scheduler.
- (b) Explain DMA (Direct Memory Access) with the help of block diagram.
- (c) What will happen if all processes are I/O Bound in System ?
- (d) What do you mean by Processor Share in case of Round-Robin Scheduling ?
- (e) Consider the following page reference string :
6, 4, 5, 1, 2, 6, 5, 4, 5, 3, 4,
The number of frames is 3. Show page trace and calculate page faults for the following page replacement schemes :
 - (i) LRU
 - (ii) FIFO

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

- (a) Explain in detail M.F.T. Job Scheduling.
- (b) What is the purpose of an Operating System ?
- (c) Explain Swapping of two processes using disk as a backing store with diagram.
- (d) Explain File Protection in detail.
- (e) Explain Deadlock Detection in detail.

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

- (a) Explain in brief different services provided by Kernel related to I/O.
- (b) Write a short note on Second Chance Algorithm.
- (c) Assume there are total 200 tracks that are present on each surface of the disk. If request queue is 68, 92, 16, 88, 160, 128, 158, 106 and initial position of the head is 35. Apply SCAN Disk Scheduling Algorithm and calculate total head movement.
- (d) What is Polling and how it is achieved to control more than one device ?
- (e) Consider the following snapshot of a system :

Process	Allocation	Max	Available
	A B C	A B C	A B C
P ₀	2 3 2	9 7 5	3 3 2
P ₁	4 0 0	5 2 2	
P ₂	5 0 4	1 1 0 4	
P ₃	4 3 3	4 4 4	
P ₄	2 2 4	6 5 5	

Answer the following questions using Banker's Algorithm :

- (i) What is the content of Need Matrix ?
- (ii) Is the system in a Safe State ? If yes, give the safe sequence.

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 3

[4373]-604

B. C. A. (Semester - VI) Examination - 2013

ADVANCED JAVA

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

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

[2x8=16]

- (a) Explain types of Statements in JDBC.
- (b) Define a Bean.
- (c) List the Implicit JSP Objects.
- (d) What are the parameters of the doGet() Method ?
- (e) Name the statement types used for executing SQL Query.
- (f) List the classes in the collection Framework.
- (g) What is the purpose of getSession() Method ?
- (h) What is RMI ?
- (i) List the methods used in Thread Life Cycle.
- (j) What is Hash Set ?

[4373]-604

1

P.T.O.

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

- (a) Explain Architecture of JDBC in detail.
- (b) Write a program in Java using servlet for making a registration form which collects name and e-mail address. Send this data to a servlet that displays it.
- (c) What are the advantages of Collection ?
- (d) Explain Thread Synchronization with example.
- (e) Write a program which reads in a series of first names and stores them in a linked list. The program should not allow to store duplicate names.

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

- (a) What are Beans ? Explain its advantages.
- (b) Explain the directives and actions in JSP.
- (c) How interthread communication can be achieved in Java ?
- (d) Write a JDBC program that inserts the following details to employee table having the structure emp_no, emp_name, salary.
- (e) Define a Thread Called MyThread for printing text on command prompt for n number of times. Create 2 Threads and run them. Pass the text and n as a parameter to the thread constructor. Example.
 - (i) First thread prints "I am in TYBCA" for 10 times.
 - (ii) Second thread prints "I like Advance Java" for 20 times.

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

- (a) Difference between Array List and Vector.
- (b) How session tracking is achieved in Java using servlet ?
- (c) Write a JDBC program to delete records from student table whose marks are less than 32.
- (d) What is Stub ? Why Stub is needed ?
- (e) Create a hash table containing student name and percentage. Display the details of the hash table. Also search for a specific student and display percentage of that student.

Q.5) Attempt any four :

[4x4=16]

- (a) What are the features of JSP ?
- (b) Explain Lifecycle of Thread.
- (c) State purpose of following JDBC classes and interfaces :
 - (i) Statement
 - (ii) Connection
 - (iii) Result Set
 - (iv) Driver Manager
- (d) Why RMI Registry is needed ?
- (e) Write a servlet which accepts the user name from HTML Page and returns a message which greets the user.

Seat No.	
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Total No. of Questions : 5]

[Total No. of Printed Pages : 4

[4373]-301

B. C. A. (Semester - III) Examination - 2013

NUMERICAL METHODS

(New 2008 Pattern)

Time : 3 Hours]

[Max. Marks : 80

Instructions :

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

Q.1) Attempt any four of the following :

[4x4=16]

(a) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined by

$$f(x) = 7x + 6, \forall x \in \mathbb{R}.$$

Show that f is bijective function. Find f^{-1} .

(b) Evaluate $\lim_{x \rightarrow \infty} \frac{(x+1)(2x+3)}{(x-5)(7x+10)}$.

(c) Find $\frac{dy}{dx}$, if $y^2 + x^2 = a^2$.

(d) Evaluate $\int \frac{x^3 + 3x^2 + 4}{\sqrt{x}} dx$.

(e) Using Newton Raphson Method find the root of the equation $x^3 - 6x + 4 = 0$ in $(0, 1)$ correct upto four decimals.

(f) Prove that $E^{-1} = 1 - \nabla$.

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

[4x4=16]

(a) Prove that $(1 + \Delta)(1 - \nabla) = 1$.

(b) Find the missing term in the series :

x	1	2	3	4	5
y	2	5	?	17	26

(c) Using following table, find $f(23)$:

x	5	10	15	20	25	30
f(x)	3	78	203	378	603	878

(d) Use Lagrange's Interpolation Formula to find $f(1)$ with help of following table :

x	0	1	2	3
f(x)	6	-	2	3

(e) State the normal equations to fit the quadratic polynomial $y = a + bx + cx^2$ passing through n points $\{(x_i, y_i) / i = 1, 2, \dots, n\}$.

(f) Use the method of least square to fit the straight line $y = a + bx$ to the following data :

x	0	1	2	3
y	2	5	8	11

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

[4x4=16]

(a) Compute the value of $\int_1^2 \frac{dx}{x}$ using Trapezoidal Rule and by taking $h = 0.25$.

(b) A curve is given by the points of the table given below :

x	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
y	23	19	14	11	12.5	16	19	20	20

Calculate the area bounded by the curve, the x-axis and $x = 0$, $x = 4$ lines.

(Use Simpson's $\frac{1}{3}$ rd rule)

- (c) Find first derivative of the function tabulated below at point $x = 1.5$:

x	1.5	2.0	2.5	3.0	3.5	4.0
y	3.375	7.000	13.625	24.000	38.875	59.000

- (d) Derive the formula to find $\frac{dy}{dx}$ by using Newton's Forward Interpolation Formula.
- (e) Solve $\frac{dy}{dx} = 1 + y^2$ by Picard's Method with initial condition $y(0) = 0$, upto $y^{(3)}$.
- (f) Given $\frac{dy}{dx} = x^3 + y$; $y(0) = 1$ compute $y(0, 2)$ by Euler's Method.
(Take $h = 0.1$)

Q.4) Attempt any two of the following :

[8x2=16]

- (a) Solve the following LPP Graphically :

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

Subject to :

$$5x + y \geq 10$$

$$2x + 2y \geq 12$$

$$x + 4y \geq 12$$

$$x, y \geq 0$$

- (b) Find IBFS for following TP by using VAM Method :

		Destinations					a_i
		D_1	D_2	D_3	D_4	D_5	
Origin	O_1	2	11	10	3	7	4
	O_2	3	4	7	2	1	8
	O_3	3	9	4	8	13	9
	b_j	3	3	4	5	6	

- (c) Solve the following assignment problem :

		Jobs				
		1	2	3	4	5
Men	A	2	9	2	7	1
	B	6	8	7	6	1
	C	4	6	5	3	1
	D	4	2	7	3	1
	E	5	3	9	5	1

Q.5) Attempt any two of the following :

[8x2=16]

- (a) The population of a certain town is given below. Find the rate of growth of population in 1941 :

x (year)	1931	1941	1951	1961	1971
Population in '000	40.62	60.80	79.95	103.56	132.65

- (b) The velocity of a train which starts from rest is given by the following table :

Time (min.)	2	4	6	8	10	12	14	16	18	20
Velocity (miles/hr)	10	18	25	29	32	20	11	5	2	0

Find the total distance covered in 20 minutes.

- (c) (i) What do you mean 'Unbalanced Transportation Problem' ? Explain how to balance Unbalanced Transportation Problem ?
- (ii) Explain the terms Solution, Feasible Solution and Optimal Solution of a LPP.