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**[5167]-2**

**M.C.M. (II Sem.) EXAMINATION, 2017  
DATA STRUCTURES AND ALGORITHMS  
(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

- N.B. :-** (i) All questions are compulsory.  
(ii) State your assumptions clearly, if any.  
(iii) Write appropriate structure definitions wherever necessary.  
(iv) Figures to the right indicate full marks.

1. (a) Convert the following Infix form to Postfix form (any two) : [8]  
(i)  $((a+b)/c)*(d+(e-f)/g)$   
(ii)  $a+b-(c*(d+e)-f)$   
(iii)  $(a+b)*(c-d)/e*f$ .
- (b) Evaluate the following postfix form (any one) : [7]  
(i)  $ABC+*CBA-+*$   
where  $A=1, B=2, C=3$   
(ii)  $AB-C*DEF+*/$   
where  $A=5, B=3, C=2, D=4, E=1, F=2$ .  
Show the contents of stack at each step in a tabular form.
2. Answer any three of the following : [15]  
(a) Write ANSI 'C' function to add node in singly linked list of integers.  
(b) Write enqueue( ) and dequeue( ) functions for circular queue implemented as linked list.

P.T.O.

- (c) Write ANSI 'C' function to count non-leaf nodes of Binary Search Tree.
- (d) Write ANSI 'C' function for checking stack empty and stack full conditions for stack implemented as an array.

3. Answer any *three* of the following : [15]

- (a) Consider a message :

COORDINATION

Draw Huffman's tree for the message. What kind of tree is Huffman tree ?

- (b) Sort the following numbers using bubble sort :

12, 0, 20, -8, -5

Show all the steps in sorting.

- (c) Define the following terms :

- (i) Stack overflow
- (ii) Generalized linked list
- (iii) Acyclic graph
- (iv) Compound node
- (v) Strictly binary tree.

- (d) Consider declaration

int A[10][20];

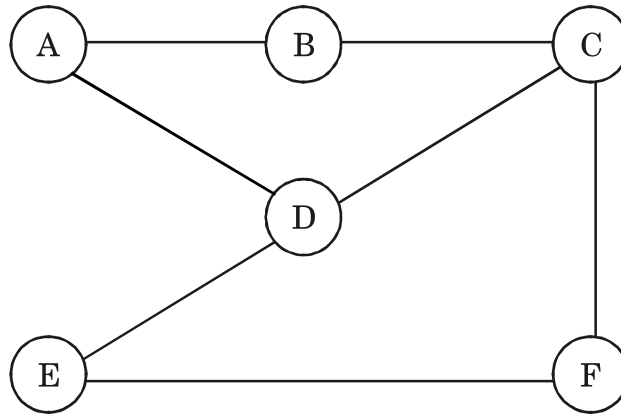
Compute row major and column major address of an element A[6] [10] when base address is 200.

4. (a) Answer any *two* of the following : [10]

- (i) Write ANSI 'C' function for level order traversal of binary tree.
- (ii) Write ANSI 'C' function to print the values stored in doubly linked list of integers.
- (iii) Construct an AVL tree for following tokens piyush : Farhan, chinmay, anirudha, jayesh.

- (b) Write short note on (any one) : [5]
- (i) Symbol tables
  - (ii) Data structures.

5. Answer using the following graph :



- (i) Adjacency matrix representation. [3]
- (ii) Adjacency list representation. [3]
- (iii) Generate output of DFS algorithm, if starting vertex is A. [4]

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**[5167]-2A**

**M.C.M. (Second Semester) EXAMINATION, 2017**

**206 : OBJECT ORIENTED DESIGNING**

**(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Q. No. 1 and Q. No. 7 are compulsory.

(ii) Answer any *four* from the remaining.

(iii) Mention assumptions, if necessary.

1. (A) Draw a use case diagram and class diagram for **On-line Examination Enrollment System** for a Management Institute. [15]
  - The system should allow students to enroll students based of year and syllabus determined by the system.
  - The system should have a provision for Backlog of 2 subjects per semester.
  - As an added feature system should have provision for Class Improvement. State your assumptions explicitly
2. What is Inheritance ? Explain various types of Inheritance with example. [10]
3. Draw an Activity Diagram for On-line JOB Portal. [10]
4. (a) Draw a Sequence Diagram for On-line Ticket Booking System for a Bus. [5]  
(b) Compare between SSAD and OOAD. [5]

P.T.O.

- 5.** Draw a state transition diagram for balance enquiry through ATM.  
Check for card validity and date. [10]
- 6.** Explain the various phases of RUP in details. [10]
- 7.** Write short notes on (any *three*) : [15]
- (a) OMT
  - (b) Design Pattern
  - (c) Object Persistence
  - (d) Test Cases.

Total No. of Questions—7]

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**[5167]-6**

**M.C.M. (IV Sem.) EXAMINATION, 2017  
MULTIMEDIA AND WEB DESIGNING  
(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

- N.B. :-** (i) Question Nos. 1 and 7 are compulsory.  
(ii) Answer any 4 from the remaining questions.  
(iii) Neat diagrams carry marks.

1. (a) Explain built-in objects in ASP. [10]  
(b) Explain difference between XML and HTML. [5]
2. (a) What is multimedia ? Explain components of multimedia. [5]  
(b) Explain MIDI messages. [5]
3. (a) Write HTML code to draw table : [5]

A	C	D	
1	2	3	4
	5	6	7
8	9	10	11
12		13	14

- (b) Explain loop statements in Java Script. [5]

P.T.O.

4. (a) Explain colour models. [5]  
(b) Explain 1-bit and 8-bit images. [5]
5. Design interface for accepting id, name, DOB, passwd, from user. Checks following validations on submit and show error messages to user. If data is valid then transfer control to insert.asp page : [10]  
(a) id : Not null, Numeric  
(b) name : Not null  
(c) passwd : password length should be greater than 8 characters.
6. Create a cookie to store user name and login time and display total time used by the user when he clicks logout. [10]
7. Write short notes on (any *three*) : [15]  
(a) Analog and digital signal  
(b) Image file data types  
(c) Array object in ASP  
(d) XSLT  
(e) Style sheets.

Total No. of Questions—7]

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**[5167]-12**

**M.C.M. (First Semester) EXAMINATION, 2017**

**102 : 'C' PROGRAMMING AND DATA STRUCTURE**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

- N.B. :—** (i) Question No. 1 is compulsory.  
(ii) Solve any *five* questions from the remaining.  
(iii) Figures to the right indicate full marks.

1. (A) Find and explain the output of the following programs. Assume suitable header files : [12]

```
(a) put reverse(int);
void main( )
{
    int no=5;
    reverse(no);
}
put reverse(int no)
{
    if(no==ϕ)
        return ϕ;
    else
        printf("%d", no);
    reverse(--no);
}
```

P.T.O.



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

```
(c) void main( )
{
    char str1[20]="Hello",str2[20]="world";
    printf("%s", strcpy(str2, strcat(str1, str2)));
}
```

```
(d) void main( )
{
    enum days{MON=1, TUE, WED=6, THU, FRI, SAT};
    printf("%d,%d,%d,%d,%d,%d", MON, TUE, WED, THU,
                                                FRI, SAT);
}
```

(B) Explain the following (any *two*) : [8]

- (a) Stack
- (b) Loop Statements in C
- (c) File handling functions.

**2.** Write a program to display first 20 numbers of fibonancii series on the screen. [10]

3. Write a program to accept single line text from the user and the program should display the number of each vowel in a given text. [10]
4. Write a recursive function which receives the two numbers and return the integer division without using division operator. [10]
5. Write a program accept name and telephone number of 30 people. Sort them on name in ascending order and display in tabular form. [10]
6. Write a program to accept file name from the user and count the number of alphabets, digits and special characters present in the file. [10]
7. Write a program to accept the 10 numbers and one more constant number from the user. Display the counts that how many numbers from the array are less than, greater than and equal to the constant. [10]

Total No. of Questions—6]

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**[5167]-13**

**M.C.M. (First Semester) EXAMINATION, 2017**

**SOFTWARE ENGG. WITH UML**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question No. 1 is compulsory.

(ii) Answer any *three* from the remaining.

(iii) Mention assumptions made for solving case study.

1. A computer based library system that will handle the book-keeping aspects of a library and provide user browsing facilities. The library contains both books and journals. It may have several copies of the same book. Some of the books are for short-term loans only. All other books may be borrowed by any library member for 3 weeks. Only members of staff may borrow journals. Member of the library can normally borrow upto 6 items at a time, but members of staff may borrow upto 12 items at a time. New books and journals arrive regularly and some time disposed of; the catalogue needs to be updated. The current year's journals are sent away to be bound at the end of each year.

(a) Draw ERD. [10]

(b) Draw DFD. [8]

(c) Report Layout. [7]

P.T.O.

2. Explain Rational Unified Process (RUP). [10]
3. What is Software Requirement Specification (SRS) ? Explain different components of SRS. [10]
4. Draw a use case diagram of ATM. Make suitable assumption. [10]
5. Draw state transition diagram for online question system. Seller will add the item in the list for the bid. Timer will be set for the bidding. During the bidding time, buyer will bid for the item. If bid amount is more than seller's minimum expected amount then highest bid will be accepted otherwise bidding will be restarted by resetting the bid time. [10]
6. Write short notes on (any *three*) : [15]
  - (a) Explain waterfall model in detail.
  - (b) Explain methods and message.
  - (c) Differentiate between SSAD and OOAD.
  - (d) Explain Association and Link Relationships.

Total No. of Questions—7]

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**[5167]-14**

**M.C.M. (First Semester) EXAMINATION, 2017**

**104-DATABASE MANAGEMENT SYSTEM**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question No. 1 is compulsory.

(ii) Solve any 5 from remaining.

(iii) Make necessary assumptions wherever required.

(iv) Figures to the right indicate full marks.

1. (A) The management of Sahyadri hospital has decided to computerize their operations. The following information is provided by the management. There are resident, full time and consulting doctors, with various specializations. Consulting doctor visits the hospital at fixed time every day or some days of the week. The visiting charge varies from doctor to doctor. A patient is admitted into a room which has certain category and having fixed charge per day. While admitting patients into hospital their main cause of admission is recorded. Draw Entity Relationship diagram for the above case and convert it into tables. [10]

P.T.O.

(B) Using the following details of railway reservation form, design normalized table structure upto 3 NF : [10]

Train No.

Ticket No.

Train Name

Railway Zone

Journey Date

Class

Number of Seats

Station From

Station To

Boarding At

Sr. No.

Passenger Name

Gender

Age

Concession Amount

Concession Description

Total Amount

**2.** Explain the following terms : [10]

(1) Super key

(2) Candidate key

(3) Primary key

(4) Unique key

(5) Alternate key.

- 3.** (a) Explain shadow paging. [5]  
(b) Explain failure classification. [5]
- 4.** Explain any *one* concurrency control protocol. [10]
- 5.** (a) Explain mandatory and role based access control. [5]  
(b) Explain state transition diagram of transaction. [5]
- 6.** Explain any *five* fundamental operation of relational algebra with proper example. [10]
- 7.** Write short notes on (any *two*) : [10]  
(1) Database users  
(2) Data warehouse  
(3) DML commands.

Total No. of Questions—6]

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**[5167]-21**

**M.C.M. (Management Faculty) (II Sem.) EXAMINATION, 2017**

**201 : BUSINESS APPLICATION AND ERP TOOLS**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question Nos. 1 and 6 are compulsory

(ii) Attempt any *three* from the remaining.

1. Explain process of customer order processing—from Order Acknowledgement to Dispatch and Invoicing with the help of first level DFD. Draw format of INVOICE. [20]
2. Explain FIFO and LIFO methods with example. [10]
3. What is purpose of P and L ? Draw format of P and L statement. [10]
4. How employee leave accounting is done ? Explain with example. [10]
5. Explain ERP implementation cycle in detail. [10]

P.T.O.



**6.** Write short notes on (any *four*) :

[4×5=20]

(a) Labour Efficiency

(b) Market Segments

(c) Ratio Analysis

(d) PF and Gratuity

(e) Post Implementation Review of ERP Packages

(f) EOQ.

Total No. of Questions—7]

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**[5167]-22**

**M.C.M. (II Sem.) EXAMINATION, 2017**

**104 : PRINCIPLES AND PRACTICES OF MANAGEMENT AND  
ORGANIZATIONAL BEHAVIOUR**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question Nos. 1 and 7 are compulsory.

(ii) Attempt any 4 from the remaining.

(iii) Figures to the right indicate full marks.

1. Explain the various organizational structures in brief. [15]
2. Do you feel Maslow's Hierarchy of needs is an appropriate way of looking at human needs in an organization ? Justify. [10]
3. Define management. Discuss various types of managers in brief. [10]
4. Discuss the contributions made by F. W. Taylor and Henry Fayol to the study of management. [10]
5. Define group. Differentiate between formal and informal group. [10]

P.T.O.

**6.** Explain leadership with its various styles in brief. [10]

**7.** Write short notes on (any *three*) : [15]

(a) Theory X Vs. Theory Y

(b) Johari window

(c) Team Building

(d) Decision-making environment

(e) Managerial functions.

Total No. of Questions—8]

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**[5167]-24**

**MCM (Second Semester) EXAMINATION, 2017**

**204 : Java Programming**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question No. 1 is compulsory

(ii) Solve any **6** from the remaining.

(iii) Figures to the right indicate full marks.

1. Solve the following : **(10)**
  - (1) What is thread priority ?
  - (2) What is Exception ?
  - (3) What is Object ?
  - (4) What is use of static keyword ?
  - (5) List any *four* methods if java.io.File class.
  
2. Define class called Computer. Define subclasses of Computer called desk top and laptop. Accept details of 3 categories. Show accepted information by overriding display method (Define at least *three* attributes in each class. Assume suitable data). **[10]**
  
3. Accept a number from user and find if it is prime number or not. **[10]**
  
4. Create class called sports Accessories with attributes AccID, Description, Quantity, rate, used In Game. Accept details of 10 accessories from user and store it in array of objects. Display details of all accessories used in game “Cricket”. **[10]**

P.T.O.

5. Write a class called MyString, if user passes null value through its constructor it should fire an user defined exception “NotAString Exception”. [10]
6. Write a Java application to copy the contents of two files in a third file. [10]
7. Write Java application to display right scrolling banner. [10]
8. Write notes on (any *two*) : [10]
  - (a) Abstract class
  - (b) Why Java is called object oriented language ?
  - (c) Anonymous class.

Total No. of Questions—7]

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**[5167]-32**

**M.C.M. (Third Semester)**

**EXAMINATION, 2017**

**302-NT : BASICS OF NETWORK TECHNOLOGIES**

**Paper Code 302 A**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question Nos. 1 and 7 are compulsory.

(ii) Attempt any *three* questions from the remaining.

1. (a) Explain steps for installing Linux Server from CDs. [10]  
(b) Explain features of various types of Windows 2003 Servers. [10]
2. Explain various mail protocols. [10]
3. Explain functioning of HUBS, Switches and Routers. [10]
4. Explain Star and Ring Topologies with advantages and disadvantages. [10]
5. Explain steps for configurnig DHCP server on Windows 2003 Server. [10]
6. Explain any *five* file management commands in Linux. [10]

P.T.O.

7. Write short notes on (any *four*) :

[4×5=20]

- (1) Intranet and Internet
- (2) Wireless 802.11a and 802.11g
- (3) Types of Modems
- (4) Active Directory in Windows
- (5) Packages in Linux
- (6) Internet Information Services (IIS).

Total No. of Questions—7]

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**[5167]-34**

**M.C.M. (III Semester) EXAMINATION, 2017**

**304 : NT SYSTEM ADMINISTRATION AND**

**SERVER INTEGRATION**

**(Specialization-III)**

**(2012 PATTERN)**

**Time : 3 Hours**

**Maximum Marks : 70**

- N.B. :—**
- (i) Question Nos. 1 and 7 are compulsory.
  - (ii) Answer any *three* questions from the remaining.
  - (iii) Figures to the right side indicate full marks.
  - (iv) Draw neat diagram wherever necessary.

1. Explain steps in installing Windows 2003. Also explain post-installation configuration. [20]
2. Explain default directories in Linux. [10]
3. Explain services in Linux. Explain how services are selected for start up in Linux. [10]
4. Explain steps for implementing web services using IIS in Windows Server 2003. [10]
5. Explain intallation steps for Fedora core operating system in Graphical Mode. [10]

P.T.O.



- 6.** What is Active Directory ? Explain steps to implement active directory and domain controller in Windows Server 2003. [10]
- 7.** Write short notes on (any *four*) : [20]
- (a) Packages in Linux
  - (b) Windows dot Net Frame
  - (c) Distributed and centralized O.S.
  - (d) Features of Windows 2008 Server
  - (e) Role of DNS Server.

Total No. of Questions—6]

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**[5167]-35**

**M.C.M. (Third Semester) EXAMINATION, 2017  
QUALITY CONTROL AND SOFTWARE TESTING  
(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

- N.B. :—** (i) Question No. 1 is compulsory.  
(ii) Solve any *four* questions from the remaining.  
(iii) Figures to the right indicate full marks.

1. (a) What is system testing ? What does it ? [4]  
(b) Write test cases for winding machine. [10]
2. Explain 'V' model of software testing. [14]
3. Explain task of software configuration management. [14]
4. What is meant by testing environment ? Explain different factors of testing environment. [14]
5. Explain Risk Management. Explain Risk Management in detail. [14]
6. Write short notes on (any *two*) : [14]
  - (1) COTS
  - (2) Formal Technical Review
  - (3) Integration Testing.

Total No. of Questions—6]

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**[5167]-36**

**M.C.M. (Semester III) EXAMINATION, 2017**

**303-ST : SOFTWARE TESTING PROCESSES**

**AND DOCUMENTATION**

**(Software Testing Specialization—I)**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question Nos. 1 and 6 are compulsory.

(ii) Solve any *three* from the remaining.

1. (a) What is Software Testing ? Explain Software Testing Process in detail with neat diagram. [10]  
(b) Explain V concept of testing in detail. [4]
2. (a) Differentiate Structural and Functional testing. [7]  
(b) Explain White Box Vs. Block Box Testing. [7]
3. What are various factors affecting the Software Testing Process ? Explain acquitted software and various challenges faced by testers for testing acquitted software. [14]

P.T.O.

4. Explain Tester's Workbench. Explain various test tools required during complete test work process. [14]
5. Write a detailed test plan for testing an e-commerce application. (Make necessary assumptions.) [14]
6. Write short notes on (any *two*) : [2×7=14]
- (a) Internal Control Models
  - (b) Testing Security Techniques
  - (c) COTS Testing.

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**[5167]-37**

**M.C.M. (Third Semester) EXAMINATION, 2017**

**304-ST : SOFTWARE TEST PLANNING AND DOCUMENTATION**

**(Software Testing Specialization-III)**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :-** (i) Question No. 7 is compulsory  
(ii) Solve any 5 from the remaining.

1. What is defect in testing ? Explain defect management in detail. [12]
2. What is user acceptance testing ? Explain acceptance test execution. [12]
3. Define test report. Explain run charts and control charts. [12]
4. Explain erroneous test cases and stress test cases. [12]
5. Define test plan. Explain characteristics of software being developed. [12]

P.T.O.

6. Discuss pre requisites of test planning. [12]

7. Write short notes on (any *two*) : [5×2=10]

(a) Assumptions in test plan

(b) Test script

(c) Histogram.

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**[5167]-38**

**M.C.M. (Third Semester) EXAMINATION, 2017  
SOFTWARE DEVELOPMENT SPECIALIZATION  
302-SD : Program and Design with ASP.NET  
(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

- N.B. :—** (i) Question No. 1 is compulsory.  
(ii) Solve any *four* questions from remaining.  
(iii) Figures to the right indicate full marks.

1. Draw and explain .Net Framework in detail. [10]
  
2. Explain range validators, regular expression validators and comparison validators in detail. [15]
  
3. Design a form and write code to :  
(i) Add new record  
(ii) Delete selected record  
(iii) Edit selected record  
(iv) Use gridview control to display records.  
Make use of disconnected architecture. Name of Table-stud (Studid, name, qualification, percentage, date of birth). [15]
  
4. Explain any five login controls in detail. [15]

P.T.O.

- 5.** (a) Write a program and steps to create and diploy ASP.NET webservice. [7]
- (b) Explain the concept of creating and applying themes with suitable example. [8]
- 6.** Explain the following controls (any *three*) : [3×5=15]
- (1) Image control
  - (2) File upload control
  - (3) Drop down list control
  - (4) Tree view control.
- 7.** Write short notes on the following (any *three*) : [3×5=15]
- (1) Linq in ASP.NET
  - (2) Exception handling in ASP.NET
  - (3) WCF
  - (4) XML Repeater Control.



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**[5167]-40**

**M.C.M. (Third Semester) EXAMINATION, 2017**

**ADVANCED JAVA**

**(Specialization-III)**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question Nos. 1 and 7 are compulsory  
(ii) Solve any 4 from the remaining.

1. Solve the following : [15]
  - (i) Write life cycle methods of servlet.
  - (ii) Explain any *three* JSP actions.
  - (iii) Write socket and server socket class constructor.
  - (iv) Statement to create and read a cookie for the field qualification.
  - (v) Write a code to call stored procedure using JDBC.
2. Write JDBC code to display all details of students belonging to MCM course. [10]
3. Write Java Programs to implement multithreaded chat application. [10]
4. Write servlet code to accept information for students registering for sports event. [10]
5. Write HTML page to accept information of a customer opening an account in a bank. Write a JSP page to display information in tabular format. [10]

P.T.O.

6. Write a program to accept a string from the client. The server will check if the string is a palindrome or not and send response. [10]
7. Write short notes on (any *three*) : [15]
- (a) JDBC drivers
  - (b) RMI architecture
  - (c) Error handling in JSP
  - (d) JSTL.

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**[5167]-41**

**M.C.M. (IV Sem.) EXAMINATION, 2017**

**401 : CURRENT TRENDS IN IT**

**(2012 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 70**

**N.B. :—** (i) Question Nos. 1 and 7 are compulsory

(ii) Attempt any *three* from the remaining.

(iii) Support your answers with relevant examples and diagram.

(iv) Figures to the right indicate full marks.

1. A reputed institute of management want to start MCA programme only for working students. Institute is interested in having online admission process, fee payment process, teaching learning process and online examination process. Suggest various models of e-learning and find out best model for their requirements. [15]
2. Explain Electronic Payment Systems in brief. [15]
3. What is cloud computing ? Explain the platform as a service (PaaS). [15]
4. Explain Electronic Document Management (EDM) with their needs and appropriate example. [15]
5. Social networking sites are the addiction of era. Discuss it with the various security issues with example. [15]

P.T.O.

- 6.** Explain how E-commerce can change Indian business scenario. Explain B2B, B2C concepts. Name any *five* E-commerce sites. [15]
- 7.** Write short notes on (any *two*) : [10]
- (i) Cloud computing
  - (ii) Computer hacking
  - (iii) M-commerce
  - (iv) Mobile shopping