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**M.C.A. (Part – II) (Semester – IV) (Old) Examination, 2017  
(Commerce and Management Faculty)  
ADVANCED JAVA PROGRAMMING**

Day and Date : Wednesday, 29-11-2017  
Time : 2.30 p.m. to 5.30 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and 7 are **compulsory**.  
2) Solve **any two** questions from Q. No. 2, 3, and 4.  
3) Solve **any one** question from Q. No. 5 and 6.  
4) Figures to the **right** indicate **full** marks.

1. Choose the correct answers : **(1×14=14)**

- 1) If a jsp is to generate a xml page, what attribute of page directive it should use ?
  - a) contentXML
  - b) generateXML
  - c) typeXML
  - d) contentType
- 2) Which of the following is true about request scope ?
  - a) Object created with request scope are accessible only from the page in which they are created
  - b) Object created with request scope are accessible only from the pages which are in same session
  - c) Object created with request scope are accessible only from the pages which are processing the same request
  - d) Object created with request scope are accessible only from the pages which reside in same application
- 3) Which of the following attribute is used to mark a page as error processing page ?
  - a) isErrorPage
  - b) errorPage
  - c) exception
  - d) exceptionPage



- 4) Which of the following is true about isThreadSafe Attribute ?
  - a) The isThreadSafe option marks a page as being thread-safe
  - b) If you set the isThreadSafe option to false, the JSP engine makes sure that only one thread at a time is executing your JSP
  - c) By default, all JSPs are considered thread-safe
  - d) All of the above
- 5) Which of the following is true about <c:forEach > tag ?
  - a) The <c:forEach > exists as a good alternative to embedding a Java for, while, or do-while loop via a scriptlet
  - b) The <c:forEach > is used to iterate over a list of items in jsp
  - c) Both of the above
  - d) None of the above
- 6) Which of the following is not a valid attribute of a page directives ?
  - a) Language
  - b) Extend
  - c) Export
  - d) Import
- 7) Config is instance of which class ?
  - a) javax.servlet.ServletContext
  - b) javax.servlet.ServletConfig
  - c) javax.servlet.Context
  - d) javax.servlet.Application
- 8) What type of servlets use these methods doGet(), doPost(), doHead, doDelete(), doTrace() ?
  - a) Generic Servlets
  - b) HttpServlets
  - c) All of the above
  - d) None of the above
- 9) Which cookie it is valid for single session only and it is removed each time when the user closes the browser ?
  - a) Persistent cookie
  - b) Non-persistent cookie
  - c) All the above
  - d) None of the above
- 10) Which services are provided to EJB components by the EJB container ?
  - a) Transaction support
  - b) Persistence support
  - c) Naming support
  - d) All mentioned above
- 11) Which session bean maintain their state between client invocation but are not required to maintain their state across server crashes or shutdowns ?
  - a) Stateful Session Bean
  - b) Stateless Session Bean
  - c) Singleton Session Bean
  - d) None of the above



- 12) Struts supports which of these model components ?
  - a) JavaBeans      b) EJB              c) CORBA              d) None of the above
- 13) We need to write the controller code self, if we change the controller code, we need to recompile the class and redeploy the application this is a disadvantage of which MVC architecture ?
  - a) MVC 1 Architecture              b) MVC 2 Architecture
  - c) All of the above              d) None of the above
- 14) Which configuration files are used in Struts ?
  - a) ApplicationResources.properties
  - b) Struts-config.xml
  - c) All the above
  - d) None of the above

- 2. Answer the following : (2×7=14)
    - a) Uses of Java beans in JSP pages.
    - b) What is error handling ? How it is used and useful in JSP ?
  - 3. Explain the following with examples : (2×7=14)
    - a) Design pattern.
    - b) Java RMI classes and Interfaces.
  - 4. Explain the following with examples : (2×7=14)
    - a) Thread safe servlets.
    - b) EJB and its type.
  - 5. Explain the following with examples : (2×7=14)
    - a) HTTP response and request in Java.
    - b) E-Commerce security.
  - 6. Discuss application design with MVC with an example. 14
  - 7. Write a short notes (**any two**) : 14
    - a) Beans persistence and introspection
    - b) Struts
    - c) JSP Directives.
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**M.C.A. Commerce (Part – II) (Semester – IV) (Old) Examination, 2017  
OPTIMIZATION TECHNIQUES**

Day and Date : Saturday, 9-12-2017  
Time : 2.30 p.m. to 5.30 p.m.

Total Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.  
2) Attempt **any two** questions from Q. No. 2, to Q. No. 4.  
3) Attempt **any one** question from Q. No. 5 and Q. No. 6.  
4) **All** questions carry **equal** marks.

1. A) Select the correct alternative : **14**
- 1) Game theory is concerned with
    - a) How production can be managed at least cost
    - b) How individuals make decisions taking into account the actions of others
    - c) Managing a financial portfolio to minimize risk
    - d) None of the above
  - 2) Linear programming is a
    - a) Constrained optimization technique
    - b) Technique for economic allocation for limited resources
    - c) Mathematical technique
    - d) All of these
  - 3) A \_\_\_\_\_ state is the normal and stabilized operating condition of the queuing system.
    - a) Balanced
    - b) Constant
    - c) Steady
    - d) Usual
  - 4) Customer behavior in which customer moves from one queue to another in a multiple channel situation is \_\_\_\_\_.
    - a) Bulking
    - b) Reneging
    - c) Jockeying
    - d) Alternating
  - 5) The method used for solving assignment problem is \_\_\_\_\_.
    - a) MODI
    - b) Hungarian
    - c) North west corner
    - d) None of these
  - 6) In two-phase method \_\_\_\_\_ variable is never considered fore-entry into the basis.
    - a) Surplus
    - b) Artificial
    - c) Slack
    - d) None of these
  - 7) The  $Z_j$  row in a simplex table for maximization represents.
    - a) Gross profit
    - b) Net profit
    - c) Profit per unit
    - d) Constraints



B) State **true** or **false** :

- 1) When the optimal solution is found, all slack and surplus variables have a value of zero ?
- 2) The two objective functions (Maximize  $5X + 7Y$ , and Minimize  $-5X - 7Y$ ) will produce the same solution to a linear programming problem.
- 3) A customer who does not switch between waiting lines is called a patient customer.
- 4) In crashing the project duration of non-critical activity is reduced.
- 5) A feasible solution to an LP problem must satisfy all of the constraints simultaneously.
- 6) Event is the point in time that marks the beginning or ending of an activity.
- 7) First come first served is priority queue discipline.

2. Solve the LP problem by using graphical method. 14

$$\text{Min } Z = -x_1 + 2x_2$$

$$\text{Subject to } -x_1 + 3x_2 \leq 10$$

$$x_1 + x_2 \leq 6$$

$$x_1 - x_2 \leq 2$$

$$x_1, x_2 \geq 0$$

3. Find the basic feasible solution of the following transportation problem by Least Cost Method (LCM) and VAM Method. Also find the optimal transportation plan. 14

	Available					
	W1	W2	W3	W4	W5	
F1	7	6	4	5	9	40
F2	8	5	6	7	8	30
F3	6	8	9	6	5	20
F4	5	7	7	8	6	10
Required	30	30	15	20	5	100

4. Solve the following problem using the Big-M Method. 14

$$\text{Max } Z = 3x_1 - x_2$$

$$\text{Subject to } 2x_1 + x_2 \leq 2,$$

$$x_1 + 3x_2 \geq 3$$

$$x_2 \leq 4$$

$$x_1, x_2 \geq 0$$



5. A) For what value  $\lambda$ , the game with following payoff matrix is strictly determinable ? 7

		<b>Player B</b>		
		<b>B<sub>1</sub></b>	<b>B<sub>2</sub></b>	<b>B<sub>3</sub></b>
<b>Player A</b>	<b>A<sub>1</sub></b>	$\lambda$	6	2
	<b>A<sub>2</sub></b>	-1	$\lambda$	-7
	<b>A<sub>3</sub></b>	-2	4	$\lambda$

B) Write short note on :

7

- i) Game
- ii) Advantages and limitation of LPP
- iii) Comparison between PERT and CPM.

6. The time estimates (in weeks) for activities of a PERT network are given below : 14

Activity	Time estimates (in weeks)		
	Optimistic (t <sub>o</sub> )	Most likely (t <sub>m</sub> )	Pessimistic (t <sub>p</sub> )
1 – 2	1	1	7
1 – 3	1	4	7
1 – 4	2	2	8
2 – 5	1	1	1
3 – 5	2	5	14
4 – 6	2	5	8
5 – 6	3	6	15

- a) Draw a project network and identify all the paths through it.
- b) Determine the expected project length.
- c) Calculate the standard deviation and variance of project length.



7. A) A project schedule has the following characteristics :

7

Activity	Preceding Activities	Duration (days)
A	–	4
B	–	7
C	–	6
D	A, B	5
E	A, B	7
F	C, D, E	6
G	C, D, E	5

Draw the network and find project completion time.

B) Four new machines M1, M2, M3, M4 are to be installed in a machine shop. There are five vacant places A, B, C, D and E available. Because of limited space, machine M2 cannot be placed at C and M3 cannot be placed at A.  $C_{ij}$ , the assignment cost of machine  $i$  to place  $j$  in Rs. is shown below.

7

	A	B	C	D	E
M1	4	6	10	5	6
M2	7	4	–	5	4
M3	–	6	9	6	2
M4	9	3	7	2	3

Find the optimal assignment schedule.

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**M.C.A. (Part – III) (Semester – V) Examination, 2017  
(Commerce and Management Faculty)  
UNIX INTERNAL (Old)**

Day and Date : Monday, 11-12-2017  
Time : 2.30 p.m. to 5.30 p.m.

Max. Marks : 70

- Instructions :** 1) Q. No. 1 and 7 are **compulsory**.  
2) Solve **any two** questions from Q. No. 2, 3 and 4. Solve **one** question from Q. No. 5 and 6.  
3) Figure to the **right** indicate marks to a question or sub question.

1. Choose correct alternative : **14**
- 1) The UNIX file system is created like a \_\_\_\_\_ structure having a single root node, written as “/”.  
a) Node                      b) Tree                      c) Queue                      d) Graph
  - 2) The old process which creates new process is called  
a) Shell                                      b) Parent process  
c) Child process                              d) None of above
  - 3) \_\_\_\_\_ allows the flow of data to be passed between a reader and writer process.  
a) I/O redirection    b) Terminal    c) Pipe                      d) None of above
  - 4) \_\_\_\_\_ block usually contains a small program known as bootstrap program.  
a) Boot block                                      b) Super block  
c) Data block                                      d) Inode list
  - 5) When a process gets executed, it puts its entry in kernels process table, when kernel realizes this it allocates a block of memory called as  
a) u table                                      b) process table  
c) pre-process region table                      d) none of above





- 6) A process in user mode wants to send signal to other process by using kill () system call, this signal is concerned with
- a) TRACING of execution of program
  - b) Process in user mode
  - c) Process induced exception
  - d) Termination of process
- 7) \_\_\_\_\_ are the entities, which inform the process/processes about occurrence of asynchronous events.
- a) Pipe
  - b) I/O indirection
  - c) Signals
  - d) None of above
- 8) The term \_\_\_\_\_ means a terminal from where user “logs in” into the system.
- a) Control terminal
  - b) Actual control terminal
  - c) Indirect terminal
  - d) Direct terminal
- 9) The stream head module will remain in memory and will serve for all instances of stream’s open () for different devices, that’s why we call it as
- a) Stream head pair
  - b) Stream tail pair
  - c) Driver queue pair
  - d) Generic
- 10) The \_\_\_\_\_ function allows a process to send a signal to itself.
- a) Kill
  - b) Raise
  - c) Alarm
  - d) Abort
- 11) \_\_\_\_\_ occurs when two processes are each waiting for resources that the other has locked.
- a) Locking
  - b) Sharing
  - c) Deadlock
  - d) None of above
- 12) In UNIX system, the only way to create a new process is by the \_\_\_\_\_ system call.
- a) sbrk ()
  - b) exec ()
  - c) dup ()
  - d) fork ()
- 13) The agency that sits between the user and the UNIX system is called the
- a) logic
  - b) profile
  - c) shell
  - d) erxc
- 14) The interface to the kernel is a layer of software called the system calls
- a) Operating system
  - b) System calls
  - c) Shell
  - d) None of above



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|--|----|
| 2. a) Explain Memory Layout of C program.                                  | 7  |
| b) Explain three type of buffering.  | 7  |
| 3. a) Explain <i>popen</i> functions in standard I/O library.              | 7  |
| b) Write the Memory Management Process.                                    | 7  |
| 4. a) Explain signal handling.   | 7  |
| b) Discuss about different process in UNIX.                                | 7  |
| 5. Explain the UNIX architecture with block diagram.                       | 14 |
| 6. Write a note on locks. What is difference between swapping and paging ? | 14 |
| 7. Explain IPC's message queue in detail with example.                     | 14 |
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**MCA (Commerce) (Semester – V) (Old) Examination, 2017**  
**ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS**

Day & Date : Tuesday, 28-11-2017

Total Marks : 70

Time : 10.30 a.m. to 1.30 p.m.

**Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.  
2) Solve **any 2** from Q. 2 to Q. 4.  
3) Solve **any 1** from Q. 5 and Q. 6.

1. State **true or false**. **(7×2=14)**
    - 1) Knowledge base consist of fact and rules.
    - 2) Logical connectives is used to construct the complex sentences.
    - 3) Knowledge about “*how to do something*” is called Procedural knowledge.
    - 4) Prolog is used as for the AI application.
    - 5) Semantics of propositional logic is used to compute the truth of any sentence.
    - 6) MYCIN expert system related with Laywer Field.
    - 7) AI means man can work like computers.
  2. What is NLP ? Explain the steps of NLP in details. **14**
  3. Attempt the following. **(7×2=14)**
    - A) Define and explain AI in details.
    - B) Compare procedure knowledge with declarative knowledge.
  4. What is learning and reasoning explain in details. **14**
  5. Explain in details Predicate Logic and Proposition Logic. **14**
  6. Explain the following heuristic search methods. **14**
    - 1) Generate and test
    - 2) Hill climbing.
  7. Write short note on. **14**
    - 1) Depth first search.
    - 2) Breadth first search.
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**M.C.A. (Commerce) (Semester – V) (Old) Examination, 2017  
EMERGING TRENDS IN INFORMATION TECHNOLOGY**

Day and Date : Monday, 4-12-2017  
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.  
2) Solve **any 2** Q. from Q. 2 to Q. 4.  
3) Solve **any 1** Q. from Q. 5 and Q. 6.  
4) **All** questions carry **equal** marks.

1. Choose the correct alternative : (7×2=14)

- 1) Rosenblatt developed \_\_\_\_\_ ANN model.  
a) Perceptron    b) Mc-Colles    c) Bohem    d) Jim
- 2) Synapses is connected to other neurons through  
a) *Neurons*    b) *Axon*    c) *Denrits*    d) *Soma*
- 3) Any layer between the input and the output layers is called is  
a) *Input*    b) *Hidden layer*    c) *Output*    d) *None*
- 4) Embedded system is uses \_\_\_\_\_ for processing.  
a) Microprocessor    b) Action  
c) Embedded    d) All of above
- 5) Face book uses \_\_\_\_\_ software to help automate user tagging in photograph.  
a) Facial recognition    b) DNA  
c) Finger-print    d) Password
- 6) Dr. Lotfi Zadeh introduced the concept of  
a) Alan    b) Raman  
c) Set theory    d) Fuzzy logic
- 7) Conversion of fuzzy set into crisp set called as  
a) Process    b) GUI  
c) Fuzzification    d) Defuzzify

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2. Attempt the following. (7×2=14)  
A) Explain the Architecture of ANN.  
B) What is Biological Neuron ?
3. Attempt the following. (7×2=14)  
A) What is learning ? Explain different learning strategies.  
B) Explain the McCulloch-Pitts Model.
4. Define set and explain the following points. 14  
Crisp set and fuzzy set with its operations and its applications.
5. Define biometric and explain following technologies. 14  
1) Finger print  
2) Hand geometry.
6. Explain the different recent trends in embedded system ? 14
7. Write short note on (**any 2**). (7×2=14)  
1) Application of embedded system.  
2) Palm devices.  
3) Fuzzification.
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**M.C.A. (Commerce) (Semester – V) (Old) Examination, 2017  
ADVANCED INTERNET TECHNOLOGY**

Day and Date : Wednesday, 6-12-2017  
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and 7 are **compulsory**.  
2) Solve **any two** questions from Q. No. 2, 3 and 4. Solve **any one** question from Q. No. 5 and 6.  
3) Figures to the **right** indicate **marks** to a question or **sub** question.

1. Choose the correct alternatives :

14

- 1) PHP files have a default file extension of
  - a) .html
  - b) .xml
  - c) .php
  - d) .ph
- 2) Which version of PHP introduced Try/catch Exception ?
  - a) PHP 4
  - b) PHP 5
  - c) PHP 5.3
  - d) PHP 6
- 3) What does the min mean ?
  - a) Minimised version
  - b) Miniature
  - c) Minimised parameters
  - d) Minimum value
- 4) Which function can be used to move the pointer to the previous array position ?
  - a) last ()
  - b) before ()
  - c) prev ()
  - d) previous ()
- 5) Which of the following statements invoke the exception class ?
  - a) throws new Exception ();
  - b) throw new Exception ();
  - c) new Exception();
  - d) new throws Exception();
- 6) The date() function returns \_\_\_\_\_ representation of the current date and/or time.
  - a) Integer
  - b) String
  - c) Boolean
  - d) Float





2. Solve following questions : 14
    - a) Explain the methods GET and POST.
    - b) Explain any five tag of html5.
  
  3. Solve the following : 14
    - a) Explain Selectors in details.
    - b) Explain Ajax Events in details.
  
  4. Answer the following : 14
    - a) Explain Traversing methods in jQuery.
    - b) Explain Include( ) and Required ( ) in PHP.
  
  5. Write PHP code to Upload the images/videos to the database and display the uploaded images/videos on browser. 14
  
  6. Explain Content Management System in details. 14
  
  7. Write short notes on (**any two**) : 14
    - a) Multiple Column Layout
    - b) Custom Exceptions
    - c) Benefits to JOOMLA.
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**M.C.A. (Commerce) – III (Semester – V) (Old) Examination, 2017**  
**OBJECT ORIENTED ANALYSIS AND DESIGN**

Day and Date : Friday, 8-12-2017  
Time : 10.30 a.m. to 1.30 p.m.

Max. Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.  
2) Attempt **any two** questions from Q. 2 to Q. 4.  
3) Attempt **any one** question from Q. 5 to Q. 6.  
4) Figures to the **right** indicate **full** marks.

1. A) Choose the right option. 7
- 1) The fact that the same operation may apply to two or more classes is called as
    - a) Inheritance
    - b) Polymorphism
    - c) Encapsulation
    - d) Multiple classification
  - 2) Object Oriented Software Engineering was given by
    - a) Booch
    - b) Jacobson
    - c) Rumbaugh
    - d) Ritcher
  - 3) \_\_\_\_\_ diagrams describe software components and their dependencies to each others.
    - a) Deployment
    - b) Component
    - c) Collaboration
    - d) Object
  - 4) Multiplicity is the same as what concept for an ERD.
    - a) Relationship
    - b) Attribute
    - c) entity
    - d) Cardinality
  - 5) \_\_\_\_\_ are part of the range of extensibility mechanism provided by UML.
    - a) Stereotypes
    - b) Events
    - c) Triggers
    - d) State
  - 6) A \_\_\_\_\_ is the UML equivalent of a programming concept variously known as associative arrays, maps, dictionaries.
    - a) Association
    - b) Qualified association
    - c) Link
    - d) Events
  - 7) The act of defining one class as a refinement of another is called
    - a) Specialization
    - b) Generalization
    - c) Inheritance
    - d) Multiple inheritance



1. B) Identify the following statements either **true** or **false**. **7**
- 1) By default, variables are private and methods are public.
  - 2) OODBMS ensures that in the event of failure the recovery process enforces consistency in database status after a transaction is terminated by force externally.
  - 3) Usually the methods are declared after its variables in the class body.
  - 4) A state chart diagram shows method of execution on receipt of message and activities.
  - 5) Sequence diagrams and collaboration diagrams are very difficult to select classes and objects.
  - 6) Once actors and their interface requirements are identified, the use of sequence and collaboration diagrams is necessary to identify the interaction sequence and objects that collaborate in the use case activities.
  - 7) Usually the methods are declared after its variables in the class body.
2. Answer the following. **(2×7=14)**
- a) Compare objects and classes.
  - b) Explain composition and aggregation in OOAD classes with an example.
3. Answer the following. **(2×7=14)**
- a) Draw a sequence diagram online shopping cart.
  - b) Explain any 2 approaches for identifying classes in a class diagram with an example.
4. Answer the following. **(2×7=14)**
- a) What is polymorphism ? Explain with suitable example.
  - b) Explain OMT with suitable example.
5. Answer the following. **(2×7=14)**
- a) Compare SSAD and OOAD.
  - b) Explain the features of object oriented analysis.
6. Answer the following. **(2×7=14)**
- a) Explain the concept of Inheritance with suitable example.
  - b) Use Case diagram of Online Library Management System.
7. Explain in detail all the Concepts in UML. **14**