M.SC. (I.T.) (PART-II)
Software Testing & Information Security
(DEC - 2018)

Q.P. Code 11073

e Hours] **[Total Marks: 75]**

Please check whether you have got the right question paper.

N.B:
1. All questions are compulsory.
2. Answers to the two sections must be written in same answer book and should be submitted together
3. Write answers to same questions together
4. Mixing of sub-questions is not allowed

SECTION I

Q.1 A) Explain how to select the appropriate testing tools. 06
B) What is testing policy? Explain the criteria involved in testing policy. 07

OR

Q.1 A) How to select software development project team? 06
B) Explain the do procedure/workbench (with block diagram) of Off- the-shelf software. 07

Q.2 A) What are verification and validation? Explain with examples. 06
B) List and explain any four test factors. 07

OR

Q.2 A) List and explain the components of application fit. 06
B) List and explain the concerns regarding OTSS. 07

Q.3 A) Explain the program phase testing in detail. 06
B) What is difference between testing techniques and tools? 06

OR

Q.3 A) What are the concerns during testing client/server systems? 06
B) Write a short note on structural system testing techniques. 06

SECTION - II

Q.4 A) Who is computer criminal? Explain different types of computer criminal. 06
B) Explain various non-malicious program errors. 07

OR

Q.4 A) What are malicious codes? Explain targeted malicious codes. 06
B) What is meant by vulnerabilities? Explain in details the various categories of vulnerabilities 07

Q.5 A) Explain security methods of operating systems. 06
B) What is multilevel database'? How security can be applied to such database. 06

OR

Q.5 A) What is sensitive data? What are the factors that make a data sensitive? 06
B) Explain the following: 06
1) Fence 2) Segmentation

Q.6 A) Write a detailed note on VPN (Virtual Private Network). 06
B) Explain the following: 06
1) Session Hijacking 2) Man In Middle Attack

OR

Q.6 A) Explain the factor that should be considered when developing security plan. 06
B) Explain the following 06
1) Patent 2) Copyright

M.SC. (I.T.) (PART-II)
Artificial Intelligence and Robotics
(DEC - 2018)

Q.P. Code: 51094

[Total Marks: 75]

Please check that you have got the correct question paper.

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

SECTION – I

1.

a. Write a lisp code that computes a factorial of a number. Explain the execution of the program. **7**

b. Explain the use of putprop, get, remprop and member with example. **6**

OR

1.

a. What is predicate calculus? Explain components of predicate calculus with example. **7**

b. Give comparison between logic based intelligence and agent based intelligence. **6**

2.

a. Consider the List L1{A,B,C,P,Q,R} and L2 {M,N,O,P,R}. And give the output for the following: **7**

i. (set-Intersection L1 L2)
ii. (reverse(cdr L2))
iii. (caddr L2)
iv. (Length(cons 'A L1))
v. (equal L2 L1)

b. Explain the different common signal functions in detail. **6**

OR

2.

a. What is Fuzzy set? Give comparison between fuzzy set and non-fuzzy set **7**

b. What is crossover? Explain with suitable example the multiple-point crossover operator with even-numbered cross point. **6**

3.

a. Explain the Subsethood theorem. And apply the subsethood for $X=R^2$ A(2/5, 1/3) B(6/7,3/4). **6**

b. Explain the concept of biological neuron with neat diagram and compare it with the Artificial neural network. **6**

OR

3.

a. Give comparison between supervised and unsupervised learning **6**

b. What is mutation? Show the effect of mutation over schema with an example. **6**

[TURN OVER]

Q.P. Code: 51094

SECTION II

4.

a. What is Robotics? What are three laws of Robotics? What are the goals of AI and Robotics? **7**

b. Explain screw transformations. Show that inverse screw transformation is again a screw transformation. **6**

OR

4.

a. Enumerate the different applications of Robots. **7**

b. Explain Cartesian co-ordinate and Cylindrical co-ordinate robots. **6**

5.

a. Explain the following statement: "Inverse Kinematics is not unique". **6**

b. Compute the joint variable vector $q = [q_1 \ q_2 \ q_3 \ q_4]^T$ for the tool configuration vector of SCARA robot, where $w(q) = [203.4 \quad 662.7 \quad 557.0 \quad 0 \quad 0 \quad -1.649]^T$ **6**

OR

5.

a. Enumerate the factors on which the work volume of a robot depends. Show the workspaces of different types of robots. **6**

b. Define inverse kinematics. Give the relation between direct and inverse kinematics. **6**

6.

a. What are moments? What are invariant moments? How are they made invariant to scaling, translation and rotation? Illustrate with examples. **6**

b. Differentiate between NC automation and hard automation. **6**

OR

6.

a. How does moment of inertia of the robot affect the control and dynamic performance of a robot? **6**

b. What are moments? How are they used in shape analysis of objects? **6**

M.SC. (I.T.) (PART-II)
Elective I - Parallel Processing & Distributed Computing
(DEC - 2018)

Q.P. Code: 51090

ime: 3 hours) **[Total Marks: 75]**

Please check that you have got the correct question paper.

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

SECTION – I

1.
a. Write a short note on types of operating systems. **7**
b. Write a short note on different types of dependencies. **6**

OR

1.
a. Explain different ways of loop-splitting for a sequential array. **7**
b. What are UMA and NUMA? **6**

2.
a. Write a short note on systolic architectures. **7**
b. Explain the parallel tree-sort algorithm using example. **6**

OR

2.
a. Explain tree-sort algorithm with example. **7**
b. Write a short note on cache coherence. **6**

3.
a. Write a short note on message passing programming (MPP). **6**
b. Explain the method of convolution on loosely coupled multiprocessors. **6**

OR

3.
a. What is cyclic allocation? How it can be used in embarrassingly parallel problem? **6**
b. Write a short note on memory hierarchy. **6**

[TURN OVER]

Q.P. Code: 51090

SECTION II

4.		
a.	What is distributed system? Explain different forms of transparency.	**7**
b.	What is distributed object system? Explain the implicit binding with local reference.	**6**
	OR	
4.		
a.	Give an example implementation of an object reference that allows a client to bind to a transient remote object.	**7**
b.	Give the comparison between uniprocessor and multiprocessor system.	**6**
5.		
a.	What is clock synchronization? Explain any two clock synchronization algorithms.	**6**
b.	Outline an algorithm for migrating an object in DCOM to another server	**6**
	OR	
5.		
a.	Explain the working of 2 phase commit protocol. Also compare it with 3 phase commit protocol.	**6**
b.	Explain the distributed algorithm of mutual exclusion.	**6**
6.		
a.	What is Fault Tolerance system? Explain the different types of failures.	**6**
b.	Give a straightforward way how capabilities in Amoeba can be revoked.	**6**
	OR	
6.		**6**
a.	What is an IDL? Why is it useful the interfaces of an object in an Interface Definition Language?	**6**
b.	Explain the architecture of Network File System.	

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M.SC. (I.T.) (PART-II)
Multimedia Systems & Convergence of Technologies & Java Technology
(DEC - 2018)

Q.P. Code :11882

[Time: 3 Hours] **[Marks:75]**

Please check whether you have got the right question paper.

N.B:
1. **All** questions are **compulsory**.
2. Answers to the two sections must be written in same answer book and should be submitted together
3. Write answers to same questions together
4. Mixing of sub-questions is not allowed.

SECTION-I

Q.1 (A) Write a short note on multimedia communication for healthcare. **06**
(B) Explain real time multimedia system architecture with the help of block diagram. **07**

OR

Q.1 (A) Explain a three sensor RGB color video camera with a block diagram. **06**
(B) Explain digital representation of sound with appropriate diagram. **07**

Q.2 (A) Discuss the barriers to the widespread use and effects of authoring and presentation system. **06**
(B) Explain the concept of HDTV. What are the problems faced to put it into practice? **07**

OR

Q.2 (A) Write a short note on QMF format. **06**
(B) What is XIE? Explain with diagram. **07**

Q.3 (A) Explain the action of client using multimedia services to perform distributed multimedia action. **06**
(B) Write a short note on Media Broadband Services (MBS) **06**

OR

Q.3 (A) Define the following terms **06**
(i) Multimedia
(ii) Continuous media
(iii) Hypermedia.
(B) Write a short note on: **06**
(i) Sequential coding
(ii) Progressive coding

SECTION- II

Q.4 (A) Explain ByteStream Class. **06**
(B) Write a code to copy characters from one file to other file. **07**

OR

Q.4 (A) Write note on object oriented middleware **06**
(B) Write java code to accept and store employee information using PreparedStatement. **07**

Q.5 (A) State and explain different RPC paradigms. **06**
(B) Write short note on java applet. **06**

OR

Q.5 (A) Explain Client, Servers, Managers and Agents. **06**
(B) Write note on CORBA. **06**

[P.T.O]

Q.P. Code :11882

Q.6 (A) Explain form object in JavaScript. **06**

(B) Explain thread lifecycle. **06**

OR

Q.6. (A) Write short note on java servlet. **06**

(B) Explain the steps involve in implementing JDBC. **06**
