

M.SC. (I.T.) PART-II
Software Testing and Information
Security (P-I) (JUNE - 2019)

(Time: 3 hours)

[Total Marks: 75]

Please check that you have got the correct question paper.

- N. B.: (1) All questions are compulsory.
 (2) Makes 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. Compare the following 7
 1. Static testing & Dynamic testing
 2. Manual testing & Automated Testing
 b. Explain how to select appropriate testing tools. 6
 OR
 1.
 a. What are the objective of appointing a tool managers? List three steps used by the manger to manage the use of IT tools. 7
 b. “Too little testing is a crime. Too much testing is sin.” Discuss 6
 2.
 a. Write a short note on V- Concept of testing. 7
 b. State & explain any four test factors in details 6
 OR
 2.
 a. Explain the program phase testing in detail. 7
 b. List & explain the component of application fit. 6
 3.
 a. Explain the testing process of Rapid Application Development (RAD). 6
 b. With the help of the workbench explain the testing process of testing a client server system. 6
 OR
 3.
 a. Explain the PDCA strategy / concept used in software development process. 6
 b. What are advantages and disadvantages of COTS? How will you test it? 6

[TURN OVER]

SECTION II

4. a. List and explain different types of viruses. **7**
b. With suitable example explain how we can provide user authentication. **6**
OR
4. a. Explain the various types of computer criminals. **7**
b. Explain the terms vulnerabilities, threats & controls with respect to internet security. **6**
5. a. What are the attacks on passwords? Explain password selection criteria. **6**
b. What is fragmentation and explain why fragmentation is used? **6**
OR
5. a. What makes network vulnerable? Explain the architecture of network security control. **6**
b. Explain different designs for multilevel secure database. **6**
6. a. List & explain the characteristics of good security plan. **6**
b. Write a short note on copyright, patent & trade secret. **6**
OR
6. a. Explain the following in detail. **6**
 1. Session hijacking
 2. Man-in-middle Attack
b. What is meant by contingency planning? What are the various measures to be taken after the crisis occur? **6**

M.SC. (I.T.) PART-II
Artificial Intelligence and
Robotics (P-II)
(JUNE - 2019)

(Time: 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. | Explain in brief the historical development of artificial intelligence. | 7 |
| b. | Explain SETQ and LET w.r.t. LISP. | 6 |
| | OR | |
| 1. | | |
| a. | What is Internal representation? State the characteristics of Internal representation. | 7 |
| b. | What is predicate calculus? Explain components of predicate calculus with example. | 6 |
| 2. | | |
| a. | Explain how to define and use recursive functions in LISP. | 7 |
| b. | Explain how strings can be used in LISP. | 6 |
| | OR | |
| 2. | | |
| a. | Write a short note on SUBSETHOOD theorem. | 7 |
| b. | Explain the different common signal functions in detail. | 6 |
| 3. | | |
| a. | Explain the concept of biological neuron with neat diagram and compare it with the Artificial neural network. | 6 |
| b. | Explain the various stages of a KDD process. | 6 |
| | OR | |
| 3. | | |
| a. | State the various applications in Genetic Algorithms. | 6 |
| b. | Explain forward chaining and backward chaining. | 6 |

SECTION II

- 4. a. Name and explain with diagrams all the lower kinematic pairs. State those that cannot be used in an actuated robot joint with reasons. **7**
- b. The relative position and orientation of the axes of two successive joints be specified by two link parameters. Explain. **6**

OR

- 4. a. Explain the Screw Transformation matrix. What is a screw pitch? **7**
- b. What are homogenous co-ordinates? Define Homogenous Co-ordinate Transformation matrix. Explain the sub-matrices involved in this matrix. **6**

- 5. a. Write a short note on:
 - i. SCARA robots
 - ii. Robot programming**6**
- b. Write the inverse kinematic algorithm for the five axes spherical co-ordinate robot. **6**

OR

- 5. a. Explain the role of Tool Configuration vector in inverse kinematics of robots. **6**
- b. Explain the Bounded Deviation Algorithm for a straight line motion and its basic principle. **6**

- 6. a. What are moments? How are they used in shape analysis of objects? **6**
- b. Explain the merits of NC, CNC machines and robots used in industrial automation **6**

OR

- 6. a. Write a short note on control problems due to robot moments of inertia. **6**
- b. Write a short note on Robot dynamics. **6**

M.SC. (I.T.) PART-II
Intelligent Systems and Neural
Networks and Fuzzy Systems

(Time: 3 hours)

(P-III) (JUNE - 2019)

[Total Marks: 75]

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SECTION – I

1.
a. What are intelligent systems? Explain **7**
b. Write a short note on AI. Mention its applications. **6**
OR
1.
a. Explain how utility-based agent is different than goal-based agent? Compare the Characteristics of utility-based and goal-based agent. **7**
b. Explain the structure of an intelligent system. **6**
2.
a. What is UNIFICATION? Explain working of unification with examples. **7**
b. State and explain the A* algorithm in brief. **6**
OR
2.
a. State steps required for converting every sentence of first order logic to equivalent CNF sentence. **7**
b. Write a note on Dempster-shafer's belief networks theory. **6**
3.
a. Describe Quantifiers with their uses. **6**
b. Write a short note on Thinking Humanly – a cognitive model approach. **6**
OR
3.
a. Write a note on multi-layered feed forward network. **6**
b. Compare the characteristics between prior probability and conditional probability. **6**

SECTION II

4.
a. Describe the McCulloch and Pitts models of neuron. **7**
b. Write a note on “Methods of steepest descend-LMS”. **6**
OR
4.
a. Explain the least mean square algorithm. **7**
b. Explain error correction learning. **6**
5.
a. Explain the error correction mechanisms. **6**
b. Explain Fuzzy Logic with one example. **6**
OR
5.
a. What are MLP networks? How are they different from RBF Network? **6**
b. State and explain Boltzmann learning mechanism. **6**
6.
a. What is perceptron and mention perceptron convergence theorem. **6**
b. Write a short note on membership functions in fuzzy logic. **6**
OR
6.
a. Explain any 2 architectures of neural networks. **6**
b. What are the salient features of Boltzmann learning rule? Explain. **6**

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

3 hours)

(P-IV) (JUNE - 2019)

[Total Marks: 75]

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SECTION – I

1.
 a. Explain Multimedia, Contiguous Media and Hypermedia. **7**
 b. Explain the time varying aspects of multimedia. **6**

OR

1.
 a. Explain Subtractive and additive color mixing. **7**
 b. Explain compression techniques with the help of neat block diagram. **6**

2.
 a. Write a short note on QOS. **7**
 b. List and explain barriers to the widespread use and success of authoring and presentationsystem. **6**

OR

2.
 a. Write a short note on the BISDN referencemodel. **7**
 b. Write a short note onQMFformat. **6**

3.
 a. Explain HDTV, ATV and EDTV. **6**
 b. Explain speech production, perception and synthesis. **6**

OR

3.
 a. Define color fringing, jitter and flag waving. **6**
 b. Write a short note on common intermediate format. **6**

SECTION II

- 4. a. Write a source code in Java to demonstrate package. **7**
- b. What is Exception? Explain any six Exception Classes. **6**
- OR**
- 4. a. What is Applet? Give comparison between applet and applications. **7**
- b. Write a program in Java to copy contents of one file to another. **6**
- 5. a. What is interface? Compare interface and class. **6**
- b. Explain how Vectors are different from Array. **6**
- OR**
- 5. a. Explain MIB in detail. **6**
- b. Write short note on Serialization. **6**
- 6. a. Explain the servlet life cycle in details. **6**
- b. Write a short note on CORBA. **6**
- OR**
- 6. a. Write short note on Enterprise Java Beans. **6**
- b. Explain Sessions in Servlet. **6**