

- 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) What is regression testing? Explain in details. 6
(B) Explain with examples the concept of “test factors” and “test phases”. 7
- OR**
- Q.1** (A) Write difference between Dynamic testing and Static testing. 6
(B) Explain the concept of verification and validation with examples. 7
- Q.2** (A) Explain the do procedures/workbench (with block diagram) of Off-the-shelf software. 6
(B) Write a short note on functional and structural testing. 7
- OR**
- Q.2** (A) What is the objective behind appointing a tool manager. Explain the steps involved in the tool manager’s workbench for managing testing tools. 6
(B) With the help of workbench explain the process of testing a web based system. 7
- Q.3** (A) Explain the testing process of Rapid Application Development (RAD). 6
(B) List and explain the criteria for testing policy. 6
- OR**
- Q.3** (A) Explain the PDCA strategy/concept used in the software development process. 6
(B) Explain the economics of testing with the help of “testing cost curve”. 6

SECTION – II

- Q.4** (A) Define the following: i) Copyright 6
ii) Patents
(B) Why do we need security? What are the factors to be considered before implementing a security model? 7
- OR**
- Q.4** (A) What is meant by Contingency planning? What are the various measures to be taken after the crisis occur? 6
(B) What is Denial of Service? Explain the various attacks that lead to DOS. 7
- Q.5** (A) What is meant by covert channels? What are the various ways to implement covert channels? 6
(B) Write a note on IPSec. 6
- OR**
- Q.5** (A) Explain briefly the various homes for viruses. 6
(B) What are the different types of Firewalls. 6

- Q.6 (A) Describe various File protection mechanisms. 6
- (B) Explain the concepts of Access control list (ACL) and Access Control Matrix 6

OR

- Q.6 (A) Explain various memory protection mechanisms used in operating systems 6
- (B) Describe briefly password selection criteria. 6

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M.Sc (IT) (Part-II)
Artificial Intelligence & Robotics
(OCT-16)

QP Code : 76238

(3 Hours)

[Total Marks: 75]

N.B.

1. All questions are compulsory.
2. Answers to the two sections must be written in the same answer books and should be submitted together.
3. Write answers to same question together.

SECTION – I

- Q 1. a Distinguish the characteristics of abduction and deduction with suitable example. 6
b What is predicate calculus? Explain components of predicate calculus with example. 6

OR

- Q 1. a What is Internal Representation? Explain its properties with an example. 6
b Explain the use of putprop, get, remprop and member with example. 6
- Q 2. a What is Elitism? State and explain importance of Elitism. Explain how schema is performing role in deciding elitism. 6
b "Bivalent creates paradoxes" Discuss. 7

OR

- Q 2. a Apply the subethood theorem for $x = \mathbb{R}^2$. where $A(2/3, 1/5)$, $B(4/5, 1/3)$. 6
b What is crossover? Explain with suitable example the multiple-point crossover operator with even-numbered cross point. 7
- Q 3. a Compare and contrast between online and offline performance derived by De Jong model. 6
b Explain the concept of biological neuron with neat diagram and compare it with the Artificial neural network. 7

OR

- Q 3. a Explain forward chaining and backward chaining. 6
b Give the outline of Genetic Algorithm. 7

SECTION – II

- Q 4. a Explain any three types of grippers with diagrams. 6
b What is template matching? How robotic theory does helps for the same? 6

OR

- Q 4. a The relative position and orientation of the axes of two successive joints be specified by two link parameters. Explain. 6
b Define Workspace Envelope. Explain different types of envelopes. 6

Contd...

- Q 5. a Write the inverse kinematic algorithm for the five axes spherical co-ordinate robot. 6
b Prove that the rotation of a frame A about an arbitrary axis by an angle α is a combination of fundamental rotations. 6

OR

- Q 5. a List and explain merits and demerits of configuration space and GVD methods of gross motion planning methods. 6
b Explain the work space analysis of a Rhino XR-3 robot. 6
- Q 6. a What are the control problems due to robot's Moment of Inertia? Explain. 6
b Write a short note on method of qualifying uncertainty in task planning. 7

OR

- Q6. a What influence does moment of inertia have on robot planning and implementations? Explain. 6
b Explain gross motion and fine motion planning techniques. 7
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M.Sc (IT) (Part-II)
Elective I – Intelligent Systems &
Neural Networks & Fuzzy
(OCT-16)

QP Code : 76373

(3 Hours)

Total Marks: 75

- 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) What are intelligent systems? Explain. 6
(B) Write a short note on First-order logic. 7
OR
Q.1 (A) Why planning is considered as most essential part of IS ? Comment. 6
(B) What is an expert system shell? 7
Q.2 (A) Write a short note on A* algorithm. 6
(B) State and explain the minimax algorithm. 7
OR
Q.2 (A) Write a note on Bayesian network. 6
(B) Differentiate between supervised and unsupervised learning. 7
Q.3 (A) Write a short note on uncertainty. 6
(B) Write about various applications of intelligent systems 6
OR
Q.3 (A) Describe Quantifiers with their uses. 6
(B) Explain “knowledge and reasoning” in context to intelligent agents. 6

SECTION – II

- Q.4 (A) Explain multilayered feed-forward neural network. 6
(B) Write a short note on NLP. 7
OR
Q.4 (A) Differentiate between single-layer and multi-layered network. 6
(B) Write a note on LMS. 7
Q.5 (A) Explain Boltzmann machine. 6
(B) What are fuzzy sets? 6
OR
Q.5 (A) Write a note of McCulloch and Pitts model of neurons. 6
(B) State and explain any 3 signal functions. 6
Q.6 (A) What is back propagation neural network? 6
(B) State and explain perceptron convergence theorem. 6
OR
Q.6 (A) Explain competitive learning with real world example. 6
(B) Write a note on membership functions in fuzzy logic. 6

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M.Sc (IT) (Part-II)
Elective II – Multimedia Systems &
Convergence of
Technologies and Java Technology
(OCT-16)

QP Code : 76514

(3 hours)

[Total Marks: 75]

- 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

- Q 1. a Explain: Multimedia, Continuous media and Hypermedia. 6
b Explain the time varying aspects of multimedia. 6

OR

- Q 1. a Explain subtractive and additive colour mixing 6
b With the help of a neat block diagram explain compression techniques. 6
- Q 2. a Explain the transform coding technique with example. 6
b Write a short note on common intermediate format. 6

OR

- Q 2. a Explain the objectives of JPEG. 6
b Write a short note on bitstream architecture. 6
- Q 3. a Explain snap back time, frame rate and aspect ratio. 6
b Explain the problems that multimedia is facing in personnel and technology 7

OR

- Q 3. a Define multimedia interchange. Explain the technical issues addressed in the design of multimedia interchange 6
b Explain real time multimedia system architecture with the help of block diagram 7

SECTION – II

- Q 4. a What is the use of synchronized keyword? Explain with example how methods are synchronized. 6
b Write a program in Java to copy contents of one file to another. 6

OR

- Q 4. a What is Exception? Explain any six Exception classes. 6
b Write a program in Java to demonstrate user defined exception. 6

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- Q 5. a What is bean? Explain the steps involved in creating a calculator bean. 6
b Write a note on Remote Procedure Call Paradigm. 7

OR

- Q 5. a Explain Fetch Store paradigm. 6
b Write a note on Object Serialization. 7

- Q 6. a What are the different types of borders in JFC? 6
b What necessitates Java Security? Explain. 7

OR

- Q6. a What is Cassette? Explain Instrument cassette. 6
b What is Socket? What are needed to create a TCP Socket? Which are the well known TCP ports and services? 7