

Reference Text book-

[artificial-intelligence-agent-behaviour-i.pdf](#)

Read- Page 7 to 8-Behaviour

Question 1

How do you understand the behaviour?

Page 9+10-Continuum of agent

Question 2

Compare reactive agent & cognitive agent

Page 11-Emergence, self organization, adaptivity, evolution

Question 3

What is complex system?

Page 14-Code defining

Question 4

Express code defining the state machine model.

Page 15-Finite state machine

Question 5

Sketch the behaviour of Net Logo Code 6.1 converted to a finite state machine.

Page 19 + 20 Stigmergy & Swarm Intelligent

Question 6

Define Stigmergy & Swarm Intelligent.

Page 21+22-Implementing behaviour of turtle agent in Net Logo

Question 7

How does the behaviour of agent specify?

Page 23+24+25 Net Logo Code 6.2

Question 8

Sketch the Net Logo Code 6.2 converted to a finite state machine.

Question 9

Write the coding for Net Logo Code 6.2 converted to a finite state machine.

Page 27- 31 Event model

Question 10 (Page 27)

Explain event stream processing

Page 32+33 Boids Model

Question 11 Sketch hierarchy of motion behaviours used for the Boids model.

Page 39+40 +41 Follow & avoid model

Question 12- Write the coding for follow & avoid model

Page 42 to 44 Flocking with Obstacles model

Question 13. Explain Flocking with Obstacles model.

Page 47 Important concepts of Behaviour

Question 14. What are the Important concepts of Behaviour.

Page 50 Communication, information & language

Question 15. Define communication

Page 54 Communication via communities of agents

Question 16 Explain the important aspects of human communication.

Page 55+ 56+57 Language change model

Question 17. Express the coding for language change model.

Page 59+60 Communication T T Model

Question 18- Explain Communication T T Model

Additional Reading

Page 61 to 68

Page 74 Entropy & Information

Question 19 Define entropy & write the equation

Page 96-Search

Question 20- Define Search & explain search behaviour.

Page 98+ 99 Search problems

Question 21 What are search problems.

Additional Reading Page 101 to 105+ Page 109

Page 118 Informed search

Question 22 When does informed search occur?

Additional Reading Page 119+120

Page 125+126 Local search & optimization

Question 23 Explain Hill Climbing

Page 138+139 - Knowledge

Question 24. How does knowledge define?. Explain knowledge & knowledge based system

Page 140 Design principles for knowledge based systems

Question 25. Express the design principles of knowledge based systems.

Page 144+145 Different types of knowledge

Question 26. What is declarative knowledge?

Additional Reading Page 146 to 150

Page 152 Knowledge Engineering+ Page 97 Representing knowledge using maps

Question 27. What is knowledge engineering?

Additional Reading Page 159 to 168

Page 181 to 184 Knowledge & reasoning using frames

Question 28 What is frame & explain two types of frames?

Page 189+190 Knowledge & reasoning using decision trees

Question 29. Write the algorithm for rules based converted into a decision tree.

Page 199+200 Intelligence

Question 30. What is intelligence?

Page 202 Description of intelligence

Question 31. Describe the behaviour of intelligence

Additional Reading Page 203+204

Page 206 to 208 Artificial Intelligence Systems

Question 32. Provide two examples of artificial intelligence system.

Page 209 to 211 Design objectives for artificial intelligence

Question 33. What are the good design objectives for artificial intelligence?

Additional Reading Page 216 to 220. Page 223 to 226 , Page 231

ICT 305

Professional Programming (1) C++/ C#

Reference Text book-

[c-1-introduction-to-programming-and-the-c-language.pdf](#)

Page 14 to 17 Introduction to C#

Question 1 Write the classic Hello World Program

Page 18 to 19 - a program on a screen that can print information about a book

Question 2 Write a program on a screen that can print information about a book.

Additional Reading :Page 20 Creation of project

Page 21 to 26 Study the variables

Question 3- Write a program to calculate the sums of two numbers and print the result.

Page 27+28 Console program

Question 4-Write a program to calculate the perimeter and area of circle.

Page 29 Product calculation

Question 5. Write a program to calculate the total price excluding VAT & including VAT.

Page 30 +31 Date & Time

Question 6 Write a program that calculates date & time.

Additional Reading

Page 31 to 33

Page 34 to 38 Program Control

Question 7 Write a program that the user can enter two integers & then print two numbers in ascending order.

Additional Reading Page 39 to 41

Page 42 to 44 While Statement

Question 8. Write the program to calculate the sum of the positive numbers less than 100.

Page 45+46 For statement

Question 9 Write the program to calculate the sum of positive integers

Page 47 Do Statement

Question 10 Write the program that prints the names of the corresponding days of the week.

Additional Reading Page 50 to 54

Page 55 to 57 Strings

Question 11 Write the program to express the class string.

Page 62+63 Arrays

Question 12 Write the program that creates two arrays with elements of type int & print them.

Additional Reading Page 64+65

Read Page 70 to 72 Object Oriented Programming

Page 73 to 77 Classes

Question 13 Write a program that simulate the throwing of two coins.

Additional Reading Page 78 to 80

Read Page 81 to 87 Design of classes

Question 14. Write a program that stimulates the throwing of 5 cubes until they are all alike.

Page 88 to 92 Methods

Question 15 Write a class program

Question 16 Write a program that represents a point in a co-ordinate system.

Additional Reading Page 93 to 98

Page 100 to 101 Inheritance

Question 17 Write a program that defines the point in a co-ordinate system.

Additional Reading Page 102 to 108

Page 122 to 123 Interfaces

Question 18 Write a program that defines a point.

Additional Reading Page 123 to 128.

Additional Reading

Chapter 15 Static Members

Chapter 16 More about arrays

Read Page 143 to 149 Types

Read Page 151 to 152 Enum

Read Page 153 to 156 Struct

Read Page 190 to 191 Collection Classes

Page 192 to 194 List

Question 19. Write a program that creates a list of string.

Page 199 to 200 Stack

Question 20. Create a program that creates a stack of integers and place 8 numbers on the stack.

Read Page 222 to 224 Text files

Read Page 231 to 234 Binary file

Reference Text book-

[object-oriented-programming-using-c-sharp.pdf](#)

Page 20 to 22 Object oriented programming principle

Question 1. Explain object oriented programming

Page 23 to 25 Software Implementation

Question 2 . Write the procedure to implement the software

Page 26 Running Java Program

Question 3. Write the procedure to run the JAVA program.

Page 27+28 . NET Platform

Question 4. Explain .NET Platform

Page 31 UML

Question 5. What is UML?

Page 32+33 UML Class Diagram

Question 6. Sketch UML Class Diagram

Read Page 36 to 46 UML Syntax

Question 7. Sketch the followings

- (a) Aggregation (b) Composition (c) Inheritance

Read Page 47 to 49 UML Class Diagram notation

Page 50 to 53 UML Package Diagram

Question 8. Explain UML Package diagram

Page 56+ 57 UML Object Diagram

Question 9. Sketch the example of UML Object diagram.

Page 58 UML Sequence Diagram

Question 10. Sketch the sample of UML sequence diagram.

Page 60 to 65 Inheritance & method over riding

Question 11. Sketch UML Class diagram for Book / Magazine Publication

Page 70+ 71 Constructor

Question 12. What is constructor?

Page 72 Constructor Rules

Question 13. Sketch Super class & Sub class relationship diagram.

Page 74 to 76 Control access to private instance variables

Question 14. Write the coding for book order program.

Additional Reading Page 77 to 82 Abstract class, Object class

Page 84 to 89 Object role & importance of polymorphism

Question 15. What is polymorphism ?

Page 90 to 93 Cash Till

Question 16. Write CashTill program.

Page 96 Interfaces

Question 17. Explain interface in C Programming.

Read Page 108 to 112 Overloading

Read Page 113 to 126 Object oriented software analysis & design

Page 128 to 131 Generic method

Question 18. Write the program to find the highest student in student class

Additional Reading Page 141 to 152 Bank account program

Additional Reading Page 166 to 175 C# Development tools

ICT 404	Professional Programming (3) Java
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Reference Text book-

[object-oriented-programming-using-java.pdf](#)

Page 127 to 133 Java Development Tools

Question 1 Describe the followings

- (a) Compilation (b) Interpretation (c) the JRE (d) The JDK

Page 133to 136 Eclipse / Net beans

Question 2 Explain (a) Eclipse (b) Netbeans

Read- Page 137 Developing graphical interface using Netbeans

Read Page 141 to 144 Java doc tool

Page 146 Creating & using exception

Question 3. If NULL return is not protected, what will happen to the program?

Question 4, Sketch the banking program made up of three classes.

Page 149 Kinds of exceptions

Question 5. Explain running time exception.

Page 150 Extending the exception class

Question 6 . Write the code created for new class

Page 151+152 Throwing exception

Question 7. Write the code created for throwing exception

Page 153 Catching exception

Question 8 Write the code created for catching exception

Notes

- Computer and Network/ Introduction to Computer Networks.doc
- Computer and Network/ Network Administration.doc
- Computer and Network/ Computer Networking.doc
- Computer and Network/ Embedded System.doc

Other References

- D016TheoryNotes
- D021+D022

Theory Questions & Answers

- Computer and Network/ Introduction to Computer Networks.doc

Q1. What are the Characteristics of a Computer Network?

Q2.Sketch Client/Server Networking

Q3.Write the systematic procedure how to create a computer network

- Computer and Network/ Network Administration.doc

Q4. Describe the function of the computer Network Administrator.

Q5. How do you understand the network performance management.

Q6.Explain the network planning methodology.

Q7.What is capacity management

- Computer and Network/ Computer Networking.doc

Q8. Explain the Virtual private network

Q9.How will you provide the network security?

Q10.What is packet switching?

Q11.What is TCP/ IP?

Q12.Explain (a) Cloud storage & (b) Intercloud.

- Computer and Network/ Embedded System.doc

Q13.What is embedded system?

Q14.Explain the reliability of embedded system

Q15.What is Preemptive multitasking or multi-threading?

Q16.What is embedded operating system

Q17.Explain Z domain analysis

Q18.Describe filed programmable gate array.

Q19.Explain FPGA design & application

Q20.Describe multicore design

Q21.Explain memory allocation

Q22.What is Microcontroller-based System-on-a-Chip?

Project

Refer D016StudyGuide and take the practical practice on Network.

Write a technical report on your computer network practical project. This is an open ended question & you can take any parameter of your choice such as numbers of computers. Types of service provided, use of appropriate operation system, use of appropriate protection software etc.

ICT 406

Professional Practice (2) Website

Theory notes

- D10WebDesignNotes

Project work

Refer the website www.highlightcomputer.com as an example and design a website for a topic of your choice .

Upload the web site to any paid or free web hosting & provide the link