B.C.A. 6th Semester (Only Reappear)

Examination, December - 2024

OBJECT TECHNOLOGIES AND PROGRAMMING USING JAVA

Paper -BCA-307

Time allowed : 3 hours] *[Maximum marks : 80*

Note : ***Question No. 1 is compulsory.*** *Attempt* ***five*** *questions in total, the* ***first being compulsory*** *and select* ***one*** *question from each unit.*

1. Write a short note on the following :

(a) Data Abstraction and Encapsulation. 2

(b) Applications of OOPs 2

(c) Java Virtual Machine 2

(d) Abstract Classes 2

(e) Throw and throws keyword 2

(f) CLASSPATH in Java 2

(g) Stream Classes 2

(h) String Buffer classes 2

Unit - I

2. (a) Differentiate between Procedure-oriented and Object-oriented Languages. 8

(b) What are Object-oriented Language? What are their main Benefits and applications? 8

3. Define the following terms: 4×4=16

(a) Abstraction

(b) Inheritance

(c) Polymorphism

(d) Encapsulation

Unit - II

4. (a) Why is Java more suitable than other languages? Explain its essential features. 10

(b) What are control statements in JAVA? Write a program to show the use of the For loop. 6

5. Describe the following in Java :

(a) Data types 4

(b) Method Overloading 4

(c) Method Overriding 4

(d) Constructors 4

Unit - III

6. (a) What do you mean by exceptions? How can they be handled in Java? What are the advantages of using an exception-handling mechanism in a program? Illustrate with example. 8

(b) Explain User-defined Exceptions with the help of the program. 8

7. (a) What are Abstraction and Abstract classes in OOPs? How we can achieve abstraction in Java? Explain using a suitable example. 8

(b) What are Java packages? How are they accessible? 8

Unit - IV

8. (a) Explain the concept of multithreading. How can a thread be created? Explain with the help of a program. 8

(b) What do you mean by thread priority? Write a program to implement thread priority. 8

9. (a) What is an I/O stream in Java? Explain reading and writing in files with Java code. 8

(b) Explain String operations in Java. 8

BCA 6th Semester (Only Re-appear)

Examination, December–2024

ARTIFICIAL INTELLIGENCE

Paper-BCA-308

Time allowed : 3 hours] *[Maximum marks : 80*

Note : *Attempt five questions in all selecting at least one question from each unit.* ***Question No.1 is compulsory.*** *All questions carry equal marks.*

1. Explain the following :

(a) Importance of AI

(b) Problem space.

(c) Syntactic processing

(d) Representing instances

(e) Uses of expert system

(f) Representing simple facts in logic

(g) Constraint satisfaction

(h) Learning by taking advice

8×2=16

Unit-I

2. Explain the AI (Artificial Intelligence) and its related field in detail. Also explain AI techniques in detail. 16

3. Explain the following in detail :

   (a) Hill Climbing 8

   (b) Issues in the design of the search problem 8

Unit-II

4. Explain the following in detail :

   (a) Computable function and predicate

   (b) Various approaches used in knowledge representation 8

5. What do you mean knowledge representation? What are the characteristics of a knowledge representation system? Explain how can inheritable knowledge be represented? 16

Unit-III

6. (a) What is natural language processing? Also explain semantic processing in detail. 8

   (b) What is Learning? Explain rote learning and explanation based learning in detail. 8

7. Explain the following in detail :

   (a) Learning in problem solving 8

   (b) Discourse and pragmatic processing 8

Unit-IV

8. What is Knowledge? Explain the concept of representing using domain specific knowledge in detail. 16

9. (a) What is an Expert System? What are the different applications of expert systems? 8

(b) Explain the concept of expert system shells in detail. 8

BCA 6th Semester (Only Re-appear)

Examination, December–2024

INTRODUCTION TO .NET

Paper-BCA-309

Time allowed : 3 hours] *[Maximum marks : 80*

Note : (i) Attempt **five** questions in all by selecting **one** question from each unit. **Question No.1 is compulsory.**

(ii) All questions carry equal marks.

1. (a) What is function overriding?

(b) Why C# is more object-oriented?

(c) What are abstract classes?

(d) What are control constructs in C# ?

(e) What is automatic memory management?

(f) What is metadata in .NET?

Unit-I

2. (a) What is Visual-Studio.Net? Enumerate its capabilities for C# application development.

(b) What are web forms? What are their salient features? What are the components of a web form? Illustrate their working.

3. Explain the following :

   (a) .NET Framework

   (b) Namespaces in .NET

Unit-II

4. (a) What are Class Libraries in C# ? Illustrate.

   (b) What is C#? How it is different from Java? Explain.

5. Explain the following :

   (a) Data types in C#

   (b) Boxing and Unboxing

Unit-III

6. (a) What are various data access methods? Which data access method is used in .NET and why? Illustrate its benefits over other methods.

   (b) What is a method in C#? How a method is invoked in C#? What is the significance of writing main method in different ways? Also give two examples where method overloading is applied.

7. Explain the following :

   (a) Operator precedence & associativity

   (b) for and foreach loops

Unit-IV

8. (a) What do you understand by exception handling in C#? What are the major tasks involved in handling exceptions? What are the exceptions that occur commonly in C# programs?

(b) Answer the following :

(i) Why is proper ordering of catch blocks necessary in C#?

(ii) What happens when an exception is caused in an inner try block of a nested try block?

(iii) How exception-handling mechanisms can be used for debugging a program?

9. Explain the following :

(a) Sealed classes and methods

(b) Interfaces in C#