C 81565

(Pages : 2)

Name.....

Reg. No.....

FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION, APRIL 2020

Computer Science and Engineering

CS/IT 14 404—OBJECT ORIENTED PROGRAMMING IN JAVA

Time : Three Hours

Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 *marks.*

1. What is Java ? Explain the features of Java
2. List out the decision making statements available in Java. Explain with example.
3. Define interface. Write the syntax for implementing an interface in a class.
4. Define the final variable and final methods.
5. Write a program to define two threads. One thread will print 1 to 10 no whereas other will print 10 to 1 nos.
6. What is the difference between the File and Random Access File classes.
7. Describe about database programming.
8. Explain types of drivers used in JDBC.
9. What is bytecode in Java ? Mention its advantages.
10. What is difference between object-oriented programming language and object-based programming language ?

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 *marks.*

11 (a) Explain the data types available in Java.

Or

(b) Write a program to perform the following functions using classes, objects, constructors and destructors where essential :

(a) Get as input the marks of 5 students in 5 subjects. (4 marks)

(b) Calculate the total and average. (7 marks)

(c) Print the formatted result on the screen. (4 marks)

12 (a) What is package ? What are the benefits of package ? Explain Java API packages.

Or

(b) Develop a java code to implement the interface concept for finding the sum and average of given N numbers.

13. (a) Explain Reader stream classes and Writer stream classes.

Or

(b) Explain the thread state, thread properties and thread synchronization

14. (a) Explain two-tier and three tier architecture with examples.

Or

(b) With an example explain Remote Method Invocation.

[4 × 15 = 60 marks]

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FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION, APRIL 2020

Computer Science and Engineering

CS/IT 14 403—DATA STRUCTURES AND ALGORITHMS

Time : Three Hours Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 *marks.*

1. Explain in detail about Arrays.
2. Compare space and time complexities.
3. Give the prefix and postfix form of the following given expression :
   (i) (A – B * C – D) / (E + F).
   (ii) ((A + B) * C – (D – E) ^ (F + G)).
4. What are the applications of linked list ?
5. Draw the binary tree for the expression. A – B * C / D.
6. What do you mean by Threaded Binary Tree ?
7. Compare BFS and DFS with examples.
8. What is the basic idea of Shell sort ? Explain with an example.
9. Explain the conditions of circular queue.
10. What are the advantages of using Binary search ?

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 *marks.*

11. (a) Explain the various asymptotic notation used for calculating time and space complexities.

Or

(b) Explain the working of recursive algorithm with an example.

Turn over

12. (a) Write an algorithm that takes the first node in a linked list, Reverse it and return the first node in the resulting linked list without recursion and with recursion.

Or

(b) Write the algorithm for converting infix expression to postfix expression. Convert the following infix expression to postfix using stack.

(A – (B + C)) * D) + $ (E + F).

13. (a) Explain the Prim's and Kruskal's algorithm with suitable example.

Or

(b) What is binary search tree ? Construct a binary search tree by inserting the following data sequentially 45, 32, 70, 67, 21, 95, 92, 40.

14. (a) Given input (371, 323, 173, 199, 344, 679, 989) and hash function $h(x) = x \bmod 10$, Show the resulting. (i) Separate Chaining ; (ii) Closed hashing using linear probing, quadratic probing, and double hashing $h^2(x) = 7 - (x \bmod 7)$.

Or

(b) Sort the following numbers using : 5, 2, 12, 13, 4, 9, 15, 25,3. (i) Bubble Sort ; and (ii) Selection Sort.

(4 × 15 = 60 marks)

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FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION, APRIL 2020

Information Technology Engineering

IT 14 406—DIGITAL DATA COMMUNICATION

Time : Three Hours Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 *marks.*

1. Write short notes on signal propagation delay.
2. Compare synchronous and asynchronous transmissions.
3. What are cyclic codes ? Mention its usage.
4. Differentiate digital and analog transmission with examples.
5. What do you mean by circuit switched networks ?
6. What is multiplexing ?
7. Draw the structure of a switch.
8. Explain the need for error control with an example.
9. Compare character oriented and bit oriented protocols.
10. Explain the features of Internet.

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 15 *marks.*

11. (a) Explain in detail about internet protocol standards.

Or

(b) Discuss different transmission media.

Turn over

12. (a) Elaborate in detail on cyclic codes and hamming codes.

Or

(b) Explain various data compression techniques.

13. (a) Explain in about virtual circuit networks and telephone networks with neat diagrams.

Or

(b) Explain the various spread spectrum techniques with examples.

14. (a) Describe the function of data link layer in detail.

Or

(b) Explain in detail about protocols for noiseless channel.

(4 × 15 = 60 marks)

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FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION, APRIL 2020

Computer Science and Engineering

CS/IT 14 405—SYSTEMS PROGRAMMING

Time : Three Hours Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 *marks.*

1. Describe the characteristics of VAX architecture.
2. With suitable example explain Load on call.
3. Compare machine dependent and machine independent loaders
4. Explain the basic functions of a loader.
5. Explain with example any five macro calls.
6. What is machine independent macro ? Explain its features.
7. Differentiate parallel and distributed systems.
8. Explain the basic principles of operating systems.
9. State the difference between time sharing and real time systems.
10. Write notes on services of operating system.

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*
Each question carries 2 *marks.*

11. a) Describe the algorithm of pass 1 and pass 2 of Simple SIC assembler.

Or

b) Explain the system software machine architecture

12. a) Discuss the design of absolute loader.

Or

b) Compare loaders and linkers with example.

Turn over

13. a) Explain single pass algorithm of macro processor.

Or

b) Discuss about the structure of macro definition table (MDT) and argument list array (ALA) with the help of example.

14. a) Explain the different types of operating system in detail.

Or

b) Explain the concept of batch processing, multiprogramming and time sharing in detail with examples.

(4 × 15 = 60 marks)