TDC Odd Semester (CBCS) Exam., 2018

B. Voc (Information Technology)

(3rd Semester)

Course No. : BVO-GE–301

(Environmental Science)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. What are greenhouse gases? How greenhouse gases lead to global warming? 3+11=14

2. Define pollution. Describe the impact of air pollution on ecosystem and human health. 3+11=14

UNIT—II

3. What is eutrophication? How does it pollute water? Add a note on remedies of eutrophication. 3+5+6=14

4. Describe the impact of water pollution on human health. 14

UNIT—III

5. What is land degradation? Describe the consequences of land degradation on agro-ecosystems. 3+11=14

6. What are agrochemicals? Describe the effect of pesticide pollution on environment and human health. 3+11=14

UNIT—IV

7. What is ionizing radiation? Describe the effect of ionizing radiation on human health. 3+11=14

8. Write short notes on the following : 7+7=14

(a) E-waste disposal

(b) Occupational health hazards

UNIT—V

9. What is EIA? Describe the procedure for reviewing EIA. 6+8=14

10. Write short notes on the following : 6+8=14

(a) Environmental Protection Act, 1986

(b) ISO Certification

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TDC Odd Semester (CBCS) Exam., 2018

B. Voc (Information Technology)

(3rd Semester)

Course No. : BVO-GE-302

(Data Structure)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer *any* **one** question from each Unit

UNIT—I

1. *(a)* What do you mean by array? Write an algorithm to insert an element at the end of an array. 2+4=6

(b) Compare between array and linked list with a suitable example. 5

(c) Consider the linear arrays $A(5:50)$, $B(-5:10)$ and $C(15)$. Find the number of elements in each array. 3

2. *(a)* Define linked list. Compare between singly and doubly linked lists. 4

(b) What do you mean by linear and non-linear data structures? What is abstract data type? 2+1=3

(c) Suppose base (A) = 300 and W = 4 words per memory cell for A. Find the address of $A[12]$, $A[20]$ and $A[65]$. 3

(d) How can we dynamically allocate a multidimensional array? Explain with an example. 4

UNIT—II

3. *(a)* Discuss the different applications of stacks and queues. 7

(b) Briefly explain priority queue and circular queue. 7

4. *(a)* Define a stack. What are its main operations? Write an algorithm to insert an element into a stack. 7

(b) Write an algorithm to implement queue using linked list. 7

UNIT—III

5. *(a)* What is binary tree? What do you mean by complete binary tree? What is threaded binary tree? Explain threaded binary tree with an example. 8

(b) What is AVL tree? Explain how balance is restored when an insertion into an AVL tree puts a node out of balance. 6

6. *(a)* Discuss about the various types of traversals that can be performed in a binary tree with an example. 9

(b) Inorder and preorder of a tree are given below :

Inorder : *D H B E A F C I G J*
Preorder : *A B D H E C F G I J*

Construct the binary tree. 5

UNIT—IV

7. Write an algorithm for binary search. Show the steps to search the element 44 from the following elements stored in an array : 7+7=14

12, 15, 20, 30, 38, 44, 52, 60

8. Write an algorithm for insertion sort. Show the steps to sort the following numbers using bubble-sort algorithm : 7+7=14

40, 60, 50, 33, 55, 11, 23

UNIT—V

9. *(a)* Define graph. Explain the breadth first search and depth first search in a graph. 2+7=9

(b) Define adjacency matrix and adjacency list. 5

10. *(a)* Define hashing. Explain the various types of hash functions with example. 8

(b) Discuss about collision resolution strategies. 6

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TDC Odd Semester (CBCS) Exam., 2018

B. Voc (Information Technology)

(3rd Semester)

Course No. : BVO-GE–303

(Introduction to Java Programming)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer *any* **one** question from each Unit

UNIT—I

1. *(a)* Write down the basic features of Java program. 7

(b) Define Java variables with examples. Write the rules for naming Java variable. 7

2. *(a)* Explain Java Virtual Machine (JVM) with diagram. 8

(b) Define the following terms : 6

(i) Type casting

(ii) Variable declaration and initialization

UNIT—II

3. What do you mean by object in Java? What are the different ways to create an object in Java? Explain any two of them with example. 1+5+8=14

4. What is constructor in Java? When is a constructor in Java program? Explain different types of constructor with examples. 2+2+10=14

UNIT—III

5. *(a)* Distinguish between exceptions and errors. How many types of exceptions are there in Java? Explain them. 2+5=7

(b) What is multithreading? What are the advantages of multithreading? How can threads be created in Java? 2+2+3=7

6. With a code segment, explain the following methods : 7+7=14

(a) isAlive ( )

(b) join ( )

UNIT—IV

7. *(a)* What is Applet in Java? What are its advantages and limitations? 1+5=6

(b) What is applet life cycle? Mention all the phases of applet life cycle. Define any two applet life cycle methods with syntax. 1+3+4=8

8. *(a)* What is AWT in Java? How many packages of AWT are commonly used in creating GUI? Mention the name of the packages and explain. 1+1+6=8

(b) Draw the hierarchy of Java AWT classes and define any *three* of the following : 1½+(1½×3)=6

(i) Container

(ii) Window

(iii) Panel

(iv) Frame

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UNIT—V

9. *(a)* Explain JDBC. 6

(b) Write in detail the steps to connect any Java application with database using JDBC. 8

10. *(a)* What do you mean by event handling? Explain the two key participants of delegation event model. What are the required steps involved in event handling? 2+3+3=8

(b) Write the registration methods of the following (any *six*) : 6

(i) Button

(ii) Menu item

(iii) Text field

(iv) Text area

(v) Check box

(vi) Choice

(vii) List

(viii) Combo box

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