2020 - 23

Full Marks : 70

Time : 3 hours

Answer from **both** the Groups as directed.

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The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP- A

Answer any *four* questions :   10 × 4

1. What is internet ? What are the applications of internet ?

2. Write about Internet Domains, Domain registration, Transmission Control Protocol.

3. What are the advantages of javascript ? What are the main purpose of using javascript for the websites.

4. What is data types ? What are the different data types supported in javascript ? Write a program in javascript for displaying your name with the help of Variable.

5. Write about the html and XML. What are the difference between html and XML. Also Write XML and html programs for displaying any messages.

6. Write about jsp and what are the different types of jsp tags, discuss all jsp tags with examples.

7. What is PHP ? What are its features and applications ? Discuss about loopy of the PHP.

8. Write short notes on :

(a) SGML

(b) XHTML

(c) Web Server

GROUP - B

Answer *all* questions :　　　3 × 10

9. What is TCP / IP ?

10. Write about function in javascript.

11. What do you mean by type casting in javascript?

12. What is page directive in jsp ?

13. Write about some string functions of PHP.

14. How internet is useful in education ?

15. Write about the dynamic web pages.

16. Write about web browser.

17. What is tag and attribute in html ?

18. Write about the structure of XML program.

VUG (5)—BCA (C-5002)

2020-23

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Answer from **both** the Sections as directed.

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SECTION–A

Answer any *four* questions of the following :

10 × 4

1. Write the asymptotic notations used for best case, average case and worstcase analysis of algorithms and write an algorithm for finding maximum element of an array perform best, worst and average case complexity with appropriate order notations.

2. Explain detail about Merge Sort. Illustrate the algorithm with a numeric example. Provide complete analysis of the same.

3. What is Divide and Conquer technique ? Explain Max-Min algorithm and analyse.

4. Define spanning tree. Write Kruskal's algorithm for finding minimum cost spanning tree. Describe how Kruskal's algorithm is different from Prim's algorithm for finding minimum cost spanning tree.

5. Compare the various programming paradigms such as divide-and-conquer, dynamic programming and greedy approach.

6. Write Kruskal's Algorithm to find minimum spanning tree. Apply Kruskal algorithm to find minimal spanning tree for the following graph :
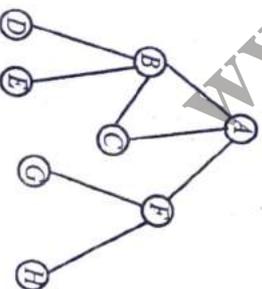
7. Solve the following recurrence using the Master method

   (i) $T(n) = 3T\left(\dfrac{n}{4}\right) + n \log n$

   (ii) $T(n) = 2T\left(\dfrac{n}{2}\right) + n$

8. Trace how Depth First Search Traverses the following Graph when starting at node A

(4)

SECTION–B

Answer *all* questions of the following : 3×10

9. What is an algorithm ?

10. What is asymptotic time complexity ?

11. What are the advantages of Merge sort over the quick sort algorithm ?

12. What is the Minimal Spanning tree ? What are its advantages ?

13. Explain the time complexity of binary search.

14. State the time complexity of Bubble sort.

15. What is BST ?

16. What are the applications of BFS ?

17. Explain Hashing.

18. Define recurrence relation.

VUG(5)-BCA(C-5002)

Hz-500

2020 - 23

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SECTION - A

Answer any *four* questions of the following :

$$5 \times 2 = 10$$

1. What is user and group in Linux? Explain the related commands for changing ownership and group.

2. Write about the operations that can be performed on both directories and file.

(2)

3. What command is used for translating characters? Also explain its options with examples.

4. What information is presented when the following commands are entered?

(a) cmp

(b) diff

(c) comm

(d) cut

(e) paste

5. Write a shell program for counting characters, words and line?

6. What are the system variable used by "awk"?

7. Explain file system of Linux OS.

(3)

SECTION - B

Answer **all** questions of the following: 2 × 10

8. What is kernel ?

9. Define types of shell.

10. Define vi Editor and explain its modes.

11. Brief about the commands used in the vi Editor.

12. What is grep? How it is useful ?

13. How does an "eval" command works.

14. Explain how talk command works?

15. Explain how write command works?

16. Explain3 Awk built in variable names.

17. Explain System Call.

VUG (5)—BCA (C-5004)

2020-23

Full Marks : 70

Time : 3 hours

Answer from **both** the Sections as directed.

The *figures* in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

SECTION–A
Answer any *four* :   10 × 4

1. What is error ? Write about Absolute, Relative and percentage error ?

2. Find a real root of $x^3 - 2x - 5 = 0$ by Bisection method.

3. Find by Newton-Raphson method of $x^3 - 3x + 1 = 0$.

(*Turn Over*)

4. Evaluate $\int_0^6 \dfrac{dx}{1+x^2}$ by trapezoidal rule.

5. Evaluate $\int_0^5 \dfrac{dx}{4x+5}$ by Simpson's 1/3rd rule.

6. Apply R-K method order four to find y when $x = 0.2$ given that $\dfrac{dy}{dx} = x + y$ and $y = 1$ where $x = 0$.

7. Given the values

x	5	7	11	13	17
$f(x)$	150	392	1452	2366	5202

   evaluate $f(9)$ by Newton's divided difference formulae.

8. Solve by Jacobi's iteration method the equations are

$$20x + y - 2z = 17$$
$$3x + 20y - z = -18$$
$$2x - 3y + 20z = 25$$

SECTION–B

Answer *all* questions :   3 × 10

9. What is General error formula ?

10. What is Iteration method ?

11. What is Interpolation ?

12. What is divided difference ?

13. What is Taylor's series ?

14. Write R-K 2nd order method.

15. What is Gauss Seidel method ?

16. Write Lagrange's Interpolation.

17. What Backward Differences ?

18. Evaluate $\Delta \tan^{-1} x$.

2020 - 23

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in their own words as far as practicable.

GROUP- A

Answer any *four* questions :   10 × 4

1. Explain the purpose of Software Testing.
   What are the criterion for stopping the testing?

2. Explain the different phases of SDLC with a
   neat and clean diagram.

3. Explain Spiral model and its different quadra-
   nts with diagram.

4. What is a bug life cycle ? What are the different stages of a bug life cycle.

5. Explain Test Case format with examples.

6. Explain bug report with defect reporting format.

7. Explain the major difference between Black Box testing and White Box testing.

8. Explain the different testing levels used in software development.

GROUP - B

Answer *all* questions :   3 × 10

9. What are the advantages of Waterfall Model ?

10. What are the purpose of performing Build Verification test.

11. Why is integration testing harder than unit testing?

12. What's the most important characteristics of a Tester ?

13. Why is Ad-hoc testing useful ?

14. Explain why alpha testing and beta testing is useful.

15. Differentiate between Verification & Validation.

16. Explain when do we perform load testing and stress testing.

17. What is the necessity of SDLC ?

18. What is the use of basic path testing ?