R7259	Sub. Code
	9BS3C1

B.Voc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Software Development

FUNDAMENTALS OF OPERATING SYSTEMS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is booting?
2. What is the use of operating system?
3. What is Inter-process communication?
4. How will you avoid Dead Lock?
5. What is variable partition?
6. What is paging?
7. Define threat.
8. What is meant by virus?
9. What is a file?
10. What is the use of pwd command?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What is a kernel? Explain.

Or

(b) Write short notes on operating system functions.

12. (a) Explain the shared memory model.

Or

(b) Give the reasons for dead lock occurrence.

13. (a) Elaborate on fixed partitioning in memory management.

Or

(b) Give a brief note on segmentation mechanism.

14. (a) What are the various requirements of windows based GUI?

Or

(b) List and explain the different types of attacks.

15. (a) What are the advantages of using UNIX operating system?

Or

(b) Explain the file system of UNIX.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give a detailed account on the architecture of UNIX.

17. What are the different dead lock strategies followed by operating system? Explain.

18. Explain in detail the paging mechanism for memory management.

19. Elaborate on encryption and decryption.

20. Discuss in detail about any ten basic commands in UNIX.

———————

R7260	Sub. Code
	9BS5C1

B.Voc. DEGREE EXAMINATION, NOVEMBER – 2022

Fifth Semester

Software Development

PROGRAMMING WITH JAVA

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Multithreading in Java?
2. Enumerate the rules for creating Identifier in Java.
3. What are objects? How are they created from a class?
4. When do, a class "Final", can be declared?
5. Define Local and Remote applets.
6. What is the purpose of Applet Tag?
7. What is a difference between Multiprocessing and multithreading?
8. Define Exceptions.
9. Describe the classification of Java stream classes.
10. Write the format to create a file, using stream classes in Java.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Elucidate with neat sketch the structure of Java program.

Or

(b) Find errors, if any, in the following declaration statements.

(i) Int *x* (ii) double = p, q (iii) final int TOTAL

(iv) long int m (v) character C1

12. (a) Write short notes on method overloading with suitable example.

Or

(b) Write a Java program, to illustrate static members.

13. (a) Discuss about the Applet class with suitable program.

Or

(a) Explain briefly about events and listeners.

14. (a) Write a Java program to illustrate custom exceptions.

Or

(b) Discuss in brief about extending the thread class.

15. (a) Write short notes on output stream classes.

Or

(b) Explain briefly about JDBC-ODBC connection.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about, decision making and looping statements in Java with suitable program.

17. Discuss in detail about, strings in Java with appropriate programs.

18. Explain the methods in the Graphics class with example.

19. Write a Java program, to illustrate dead lock prevention using threads.

20. Elucidate, about Data Input stream and Data output stream classes for file handling in Java.

———————

R7261	Sub. Code
	9BS5E2

B.Voc. DEGREE EXAMINATION, NOVEMBER – 2022

Fifth Semester

Software Development

DISCRETE MATHEMATICS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. Let $A = \{2,4,6,10,16,22\}$ which of the following statements are true?

   (a) $\{10,4\} \subseteq A$ (b) $\{2,4,5\} \subseteq A$

2. How will you represent set operations?

3. Define connectives.

4. What are well formed formulas?

5. List down the operations on relations.

6. Let R and S be the relations on $\{1,2,3,4\}$ given by

   $R = \{(1,1), (1,2), (2,3), (3,1), (3,3), (3,4), (4,3)\}$

   $S = \{(1,2), (1,3), (2,1), (3,3), (4,4)\}$

   Find $R \cup S$.

7. What do you mean by finite state automata?

8. What is a regular expression?

9. Prove: If a Graph G has exactly two vertices which has (odd vertices), then there is a path between these two vertices.

10. State down the properties of trees.

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Use Venn diagram to prove

$$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$$

Or

(b) Briefly explain the principle of Inclusion – exclusion.

12. (a) Find the truth table for the formula

$$\alpha = (P \vee Q) \to \left((R \vee P) \wedge \left(\neg R \vee Q\right)\right)$$

Or

(b) Construct the truth table for the formula,

$$\alpha = (P \to (Q \to R)) \to ((P \to Q) \to (P \to R))$$

13. (a) Let $A = \{1,2,3,4\}$; $B = \{a,b,c\}$;

$R = \{(1,a)(2,b)(3,c)(4,a)\}$;

$S = \{(1,b), (2,c), (3,a), (4,a)\}$ find $R \cup S$, $R \cap S$, $R - S$

$S - R$, $\sim R$ *and* $R \cup (\sim S)$.

Or

(b) Represent the relation $R = \{(1,2),(1,3),(1,4),(2,3),(4,4)\}$ by a digraph.

14. (a) Represent finite automation M, for $M = \{Q, \Sigma, 8, q_0, F\}$ by its state diagram and state table.

Or

(b) State Nondeterministric finite automation and language accepted by non deterministic finite automation.

15. (a) Prove that "A Graph G is regular if it is k-regular for some positive integer k".

Or

(b) Write short notes on properties of Trees.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. If A,B,C are any three sets, draw the venn diagram for $A \cap (B \cup C)$, $A \cup (B \cap C), A' \cap B' \cap C'$,

$(A - B) \cup (B - C) \cup (A - C)$ and

$(A - B) \cup (B - C) \cup (C - A)$.

17. Show that $\alpha = \neg(p \vee Q \vee \neg R) \wedge ((R \to P) \vee (R \to Q))$ is a contradiction.

18. Represent the following relations in $\{1,2,3,4\}$ by their matrices and digraphs.

(a) aRb if $a \leq b$

(b) aRb if $a = b$

(c) aRb if $a \mid b$

(d) aRb if $a + b = 4$

(e) aRb if $a - b$ is odd.

19. Construct a finite automation equivalent to the regular expression.

$$(0+1)^*(00+11)(0+1)^*$$

20. Prove that : In a complete graph k_n with n vertices, n being odd, there are $(n-1)/2$ edge disjoint Hamiltonian circuits.
