R0585	Sub. Code 9BS5C1

B.Voc. DEGREE EXAMINATION, NOVEMBER – 2023

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. Write down the various Logical Operators of Java.
2. Write the general syntax of *'for'* loop.
3. Define class.
4. What is meant by inheritance?
5. Write the syntax of Applet tag.
6. What is use of the method drowArc?
7. Give any one major difference between error and exception.
8. List the states of thread in its life cycle.
9. Expand ODBC.
10. What is the main usage of output stream?

Part B (5 × 5 = 25)

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

11. (a) Write a java program to find out whether the given year is leap or not.

Or

(b) Write a brief note on history of java.

12. (a) Explain the concept of method overloading with an example.

Or

(b) Write a java program to store and display the marks of ten students.

13. (a) Write an applet code to draw a circle on the screen.

Or

(b) Explain any two event listeners of AWT.

14. (a) Write a java program to demonstrate the usage of threads.

Or

(b) Explain any two methods of thread class.

15. (a) Elaborate the usage of Data Output stream.

Or

(b) Explain any two Reader class with examples.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a java program to design a simple calculator.

17. Explain the abstract methods and class with suitable examples.

18. Illustrate various things about AWT.

19. Write a java program to explain the concept of exception handling.

20. Write detailed note on Input and Output stream classes.

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R0586	Sub. Code
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B.Voc. DEGREE EXAMINATION, NOVEMBER – 2023

Fifth Semester

Software Development

Elective : OPTIMIZATION TECHNIQUES

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List the features of operations Research Approach.
2. What do you mean by Linear Programming model?
3. Define feasible solution.
4. What is Assignment problem?
5. What is simplex method in Linear programming?
6. What are the limitations of graphical method?
7. Define CPM.
8. What is PERT Analysis?
9. What do you mean by No Passing Rule in Job sequencing?
10. Define Johnson's Algorithm, for "n" jobs through machines.

Part B (5 × 5 = 25)

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

11. (a) Write down the format to illustrate mathematical formulation of the primal and dual simplex problem.

Or

(b) List the rules involved in solving the problem by using simplex method.

12. (a) Solve the LPP using Least cost cell method.

	D1	D2	D3	D4	
A1	3	1	7	4	300
A2	2	6	5	9	400
A3	8	3	3	2	500
	250	350	400	200	1200

Or

(b) Explain the Hungarian method of solving an Assignment problem.

13. (a) Solve the following LPP graphically.

Minimise $z = 3x + 4y$

S.T.C : $x + 2y \leq 8,\ 3x + 2y \leq 12,\ x \geq 0,\ y \geq 0.$

Or

(b) What are the steps involved in solving Linear Programming Problem? Explain briefly.

14. (a) Discuss about the basics of PERT Analysis with suitable example.

Or

(b) Draw a network diagram for a project given in a table.

Activity	A	B	C	D	E	F	G	H
Immediate Predecessor	–	A	B	A	D	C,E	D	D

Activity	I	J	K	L
Immediate Predecessor	H	H	F,H	G,J

15. (a) Solve, Job sequencing for "n" jobs and two machines A and B, with all jobs processed in the order AB.

Or

(b) Determine the sequence in which the below jobs should be processed a as to minimize the total processing time.

Job	Machine A	Machine B
1	6	3
2	2	7
3	10	8
4	4	9
5	11	5

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

Answer any **three** questions.

16. Use simplex method to solve the following.

Maximize $50x_1 + 60x_2$

S.T $2x_2 + x_2 + x_3 = 300$; $3x_1 + 4x_2 + x_4 = 509$;

$4x_1 + 7x_2 + x_5 = 812$; $x_1, x_2, x_3, x_4, x_5 \geq 0$.

17. Use the Assignment Method to solve the following:

Job	Machine			
	1	2	3	ai
1	5	7	9	i
2	14	10	12	1
3	15	13	16	1
bj	1	1	1	

18. Use graphical method to solve the following LP problem.

Maximize $z = 2x_1 + x_2$

S.T contraints

(a) $x_1 + 2x_2 \leq 10$, (b) $x_1 + x_2 \leq 6$,

(c) $x_1 - x_2 \leq 2$. (d) $x_1(-)2x_2 \leq 1$ and $x_1, x_2 \geq 0$.

19. Discuss in detail about PERT Analysis, and explain key differences between PERT and CPM.

20. Elucidate briefly on the steps involved in Johnson's Rule for Job sequencing.

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