R0129	Sub. Code
	2MS1C1

M.Voc. DEGREE EXAMINATION, NOVEMBER – 2023

First Semester

Software Development

PROGRAMMING WITH JAVA

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following questions by choosing the correct answer

1. What component is used to compile, debug and execute the java programs? (CO1, K1)

   (a) JRE (b) JIT

   (c) JDK (d) JVM

2. What is Truncation in Java? (CO1, K2)

   (a) Floating-point value assigned to a Floating type

   (b) Floating-point value assigned to an integer type

   (c) Integer value assigned to floating type

   (d) Integer value assigned to an Integer type

3. What is the extension of complied java classes? (CO2, K2)

   (a) .txt (b) .js

   (c) .class (d) .java

4. Which of these keywords is used to define interfaces in Java? (CO2, K2)

(a) intf (b) Intf

(c) interface (d) Interfaces

5. Which of these packages contains the exception Stack Overflow in Java? (CO3, K3)

(a) java.io (b) java.system

(c) java.lang (d) java.util

6. Which of these keywords are used for the block to be examined for exceptions? (CO3, K3)

(a) check (b) throw

(c) catch (d) try

7. Which of these methods of class String is used to check whether a given object starts with a particular string literal? (CO4, K4)

(a) starts With() (b) ends With()

(c) Starts() (d) ends()

8. Which of these methods is a part of Abstract Window Toolkit (AWT)? (CO4, K4)

(a) display() (b) paint()

(c) drawstring() (d) transient()

9. Which of these is a protocol for breaking and sending packets to an address across a network? (CO5, K5)

(a) TCP/IP (b) DNS

(c) Socket (d) Proxy Server

10. What is the attribute of java bean to specify scope of bean to have single instance per Spring IOC? (CO5, K5)

(a) prototype (b) singleton

(c) request (d) session

Part B (5 ×5 = 25)

Answer **all** the following questions not more than 500 words each.

11. (a) Explain the java special features. (CO1, K1)

Or

(b) Recall different types of operators in java with example. (CO1, K2)

12. (a) Explain about Exception handling in java (CO2, K2)

Or

(b) Compare throw class and final class. (CO2, K2)

13. (a) Identify the following concepts: (i) Suspend (ii) Resume (CO3, K3)

Or

(b) Construct life cycle of a thread (CO3, K3)

14. (a) Examine string handling features in java. (CO4, K4)

Or

(b) Compare various features of graphics and text in applet. (CO4, K4)

15. (a) Explain the socket and proxy servers. (CO5, K5)

Or

(b) Construct the concept of java beans with API

(CO5, K5)

Part - C

$(5 \times 8 = 40)$

Answer **all** the following questions not more than 1000 words each.

16. (a) Explain various control statements in java with example. (CO1, K1)

Or

(b) Describe about data types and arrays in java with example. (CO1, K2)

17. (a) Explain the concept of Inheritance in java with example. (CO2, K2)

Or

(b) Classify packages and interfaces in java (CO2, K2)

18. (a) Develop the various thread priorities with example. (CO3, K3)

Or

(b) Identify inter thread communications in java. (CO3, K3)

19. (a) Categorize various AWT classes working with frames. (CO4, K4)

Or

(b) Classify the AWT controls and layout managers. (CO4, K4)

20. (a) Explain the design pattern for events in java beans. (CO5, K5)

Or

(b) Explain the concept of TCP/IP and net addresses. (CO5, K5)

R0130	Sub. Code
	2MS1C2

M.Voc. DEGREE EXAMINATION, NOVEMBER – 2023

First Semester

Software Development

SOFTWARE ENGINEERING

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. What are the features of Software Code? (CO1, K1)

   (a) Simplicity (b) Accessibility

   (c) Modularity (d) All of the above

2. Define Agile scrum methodology. (CO1, K1)

   (a) project management that emphasizes incremental progress

   (b) project management that emphasizes decremental progress

   (c) project management that emphasizes neutral progress

   (d) project management that emphasizes no progress

3. What are the types of requirements? (CO2, K3)

   (a) Availability (b) Reliability

   (c) Usability (d) All of the mentioned

4. A ———— builds the class-based model using requirements elicited from the customer. (CO1, K1)

   (a) Software engineer or an analyst

   (b) Tester

   (c) Architect

   (d) Network engineer

5. Design develops a representation of ————. (CO2, K3)

   (a) Model

   (b) Testing

   (c) Requirement Analysis

   (d) None of the mentioned above

6. Which web app attribute is defined by the statement : "The quality and aesthetic nature of content remains an important determinant of the quality of a WebApp"? (CO3, K2)

   (a) Availability (b) Data driven

   (c) Content sensitive (d) Continuous evolution

7. Which of the following term describes testing? (CO3, K2)

   (a) Finding broken code

   (b) Evaluating deliverable to find errors

   (c) A stage of all projects

   (d) None of the mentioned

8. Which of the following is not a software testing generic characteristics? (CO2, K1)

   (a) Different testing techniques are appropriate at different points in time

   (b) Testing is conducted by the developer of the software or an independent test group

   (c) Testing and debugging are different activities, but debugging must be accommodated in any testing strategy

   (d) None of the mentioned

9. Cost and schedule are a part of (CO2, K1)

(a) Product Metrics (b) Process Metrics

(c) Project Metrics (d) All of the mentioned

10. Which one is not a risk management activity? (CO2, K2)

(a) Risk assessment (b) Risk generation

(c) Risk control (d) None of the mentioned

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Summarise challenges of computer software. (CO1, K2)

Or

(b) List the activities of Process Framework. (CO2, K3)

12. (a) Identify the principles of different process models proposed for software engineering work. (CO2, K3)

Or

(b) List the practice steps required to establish for an understanding of software requirements. (CO1, K3)

13. (a) Classify the characteristics of a well-formed design class. (CO3, K4)

Or

(b) Examine the significance of "Graphic Design Issues" in Aesthetic Design. (CO2, K1)

14. (a) Outline the theory of McCall's Quality Factors. (CO4, K4)

Or

(b) Interpret the Server-Side issues in configuration testing. (CO2, K2)

15. (a) Explain how effective problem decomposition can lead to better project management. (CO5, K5)

Or

(b) Compare significance of "Reactive Risk Strategies" and "Proactive Risk Strategies". (CO2, K3)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Outline the framework activities for software engineering. (CO1, K2)

Or

(b) Illustrate team structure depends on the management style of your organization. (CO2, K2)

17. (a) Identify the concept of scenario-based modelling. (CO2, K3)

Or

(b) Solve one example of nonfunctional requirements and explain their significance in the development process. (CO3, K4)

18. (a) Interpret the issues of User interface Design. (CO3, K4)

Or

(b) How to generate the Web App architecture? (CO2, K3)

19. (a) Explain the fundamental concept of software testing. (CO4, K2)

Or

(b) Examine the concept of Integration Testing. (CO3, K1)

20. (a) Explain the process and challenges of "Scheduling for WebApp and Mobile Projects". (CO5, K5)

Or

(b) Assess how effective the risk management can positively impact a software project. (CO3, K3)

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R0131	Sub. Code
	2MS1G1

M.Voc. DEGREE EXAMINATION, NOVEMBER – 2023

First Semester

Software Development

DIGITAL ELECTRONICS AND COMPUTER SYSTEM ARCHITECTURE

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** the following objective questions by choosing the correct option.

1. The decimal equivalent of the binary number $(1001.0101)_2$ is (CO1, K1)

   (a) 9.3125 (b) 8.1241

   (c) 9.2341 (d) 9.1124

2. Find the binary equivalent of $(13.375)_{10}$ (CO1, K1)

   (a) $(1101)_2$ (b) $(1001)_2$

   (c) $(0101)_2$ (d) $(1111)_2$

3. The Boolean expression $X = (A + B)(C + D)$ represents (CO2, K3)

   (a) Two ORs ANDed together

   (b) Two ANDs ORed together

   (c) 4-input AND gate

   (d) a 4-input OR gate

4. In boolean algebra, the OR operation is performed by which properties (CO2, K3)

(a) Associative Properties

(b) Commutative Properties

(c) Distributive properties

(d) All of the mentioned

5. The truth table for an S-R flip-flop has how many VALID entries? (CO2, K4)

(a) 1 (b) 2

(c) 3 (d) 4

6. In S-R flip-flop, if Q = 0 the output is said to be ————————. (CO2, K4)

(a) Set

(b) Reset

(c) Previous State

(d) Current State

7. The small extremely fast, RAM's all called as ————————. (CO3, K2)

(a) Heaps

(b) Accumulators

(c) Stacks

(d) Cache

8. What is computer organization? (CO3, K1)

(a) structure and behaviour of a computer system as observed by the user

(b) structure of a computer system as observed by the developer

(c) structure and behaviour of a computer system as observed by the developer

(d) All of the mentioned

9. RTN stands for ———————— (CO2, K2)

(a) Register Transfer Notation

(b) Register Transmission Notation

(c) Regular Transmission Notation

(d) Regular Transfer Notation

10. The number successful accesses to memory stated as a fraction is called as ————————. (CO1, K1)

(a) Access rate

(b) Success rate

(c) Hit rate

(d) Miss rate

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Do the following conversions: (CO2, K1)

    (i) eight-bit 2's complement representation of $(-23)_{10}$

    (ii) The decimal equivalent of $(00010111)_2$ represented in 2's complement form.

    Or

    (b) Find (CO3, K2)

    (i) the excess-3 equivalent of $(237.75)_{10}$ and

    (ii) the decimal equivalent of the excess-3 number 110010100011.01110101

12. (a) State Commutative and Associative Law. (CO2, K1)

    Or

    (b) Write sum-of-products Boolean expressions for (i) a two-input AND gate (ii) a two-input NAND-gate (CO3, K2)

13. (a) Outline the R-S Flip flop with proper Illustration. (CO4, K2)

    Or

    (b) Write brief notes on Asynchronous Counter. (CO4, K3)

14. (a) List down the various Register types for the Computer. (CO3, K1)

    Or

    (b) Explain with example Two address Instructions and Three Address Instructions. (CO3, K1)

15. (a) Explain on Logical shift micro operations. (CO4, K2)

Or

(b) Differentiate PROM and EPROM. (CO4, K3)

Part C $(5 \times 8 = 40)$

Answer **all** the questions not more than 1000 words each.

16. (a) Find the solution for the following: (CO1, K2)

(i) Write the excess-3 equivalent codes of $(6)_{10}$, $(78)_{10}$ and $(357)_{10}$, all in 16-bit format.

(ii) Determine the Gray code equivalent of $(10011)_2$ and the binary equivalent of the Gray code number 110011.

Or

(b) Explain with neat illustration truth table of gates. (CO2, K3)

17. (a) Using Karnaugh maps, write the minimized Boolean expressions for the output functions of a two-output logic system whose outputs Y1 and Y2 are given by the following Boolean functions. (CO4, K4)

$$Y_1 = \overline{A} \cdot B \cdot \overline{C} + A \cdot \overline{B} \cdot \overline{C} + A \cdot B \cdot C + \overline{A} \cdot \overline{B} \cdot \overline{C}$$

$$Y_2 = \overline{A} \cdot \overline{B} \cdot C + A \cdot B \cdot \overline{C} + \overline{A} \cdot \overline{B} \cdot \overline{C} + A \cdot \overline{B} \cdot C + A \cdot B \cdot C$$

Or

(b) Explain in detail on Half and Full Adders. (CO1, K5)

18. (a) Describe in detail on J-K flip flop and D-Flip flops with neat illustration. (CO1, K6)

Or

(b) Outline with neat sketch the registers and shift register for parallel load. (CO2, K3)

19. (a) Interpret the Instruction formats with example. (CO3, K2)

Or

(b) Explain in detail on Stack Organization. (CO1, K3)

20. (a) State Logical shift micro operations. (CO2, K4)

Or

(b) Describe in detail on various instructions codes. (CO1, K5)

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R0132	Sub. Code
	2MS1G2

M.Voc. DEGREE EXAMINATION, NOVEMBER – 2023

First Semester

Software Development

MATHEMATICAL LOGICS FOR SOFTWARE DEVELOPMENT

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. Which of the following option is true? (CO1, K1)

   (a) If the Sun is a planet, elephants will fly

   (b) 3 +2 = 8 if 5-2 = 7

   (c) 1 > 3 and 3 is a positive integer

   (d) -2 > 3 or 3 is a negative integer

2. Which of the following bits is the negation of the bits "010110"? (CO1, K1)

   (a) 111001 (b) 101101

   (c) 101001 (d) 111111

3. A graph is a set of points, called? (CO1, K3)

   (a) Nodes (b) Edge

   (c) Fields (d) Line

4. Number of edges incident with the vertex V is called? (CO2, K3)

(a) Degree of a Graph

(b) Handshaking Lemma

(c) Degree of a Vertex

(d) None of the above

5. Which of the following matrix having only one column and multiple rows? (CO1, K3)

(a) Diagonal Matrix (b) Row Matrix

(c) Column Matrix (d) None of the above

6. Which algorithm uses the previous outputs for finding the new outputs? (CO3, K4)

(a) Dynamic Programming Algorithm

(b) Divide and Conquer Algorithm

(c) Brute Force Algorithm

(d) Binary Tree

7. Consider a set of 18 samples from a standard normal distribution, We square each sample and sum all the squares. The number of degrees of freedom for a Chi Square distribution will be? (CO3, K5)

(a) 17 (b) 18

(c) 19 (d) 20

8. What is the mean of a Chi Square distribution with 6 degrees of freedom? (CO3, K5)

(a) 4 (b) 12

(c) 6 (d) 8

9. Two unbiased coins are tossed. What is the probability of getting at most one head? (CO2, K6)

(a) 3/4 (b) 1/6

(c) 1/3 (d) ½

10. In a discrete probability distribution, the sum of all probabilities is always? (CO2, K4)

(a) 1 (b) 0

(c) Undefined (d) Infinite

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Describe the Atomic and Compound Statements with suitable example (CO4, K1)

Or

(b) List down all the set operations. (CO4, K2)

12. (a) Explain the representation of Undirected Graph with illustration. (CO3, K2)

Or

(b) Summarize Traversing in Binary Tree. (CO3, K3)

13. (a) Find the optimal solution using North West Corner Rule. (CO1, K1)

		Destination				
		D1	D2	D3	D4	Supply (S_i)
Source	O1	3	1	7	4	250
	O 2	2	6	5	9	350
	O 3	8	3	3	2	400
Demand (D_j)	200	300	350	150		

Or

(b) Solve the following TP using the least cost cell method (CO1, K2)

		Destinations			
		Kanpur	Pune	Delhi	Supply
Sources	Jaipur	4	5	1	40
	Udaipur	3	4	3	60
	Mumbai	6	2	8	70
	Demand	70	40	60	170

14. (a) List down the types of Chi-Square Test. (CO4, K5)

Or

(b) A data set consists of eight (x, y) pairs of numbers. (CO4, K4)

$(0,12)\,(4,16)\,(8,22)\,(15,28)$
$(2,15)\,(5,14)\,(13,24),\,(20,30)$

Plot the data in a scatter diagram.

15. (a) Explain on Addition and Multiplication Law of Probabilities. (CO5, K1)

Or

(b) Two dice are tossed once. Find the probability of getting an even number on first dice or a total of 8. (CO5, K2)

Part C $(5 \times 8 = 40)$

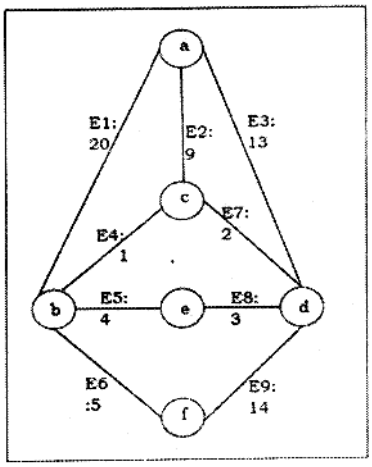
Answer **all** questions not more than 1000 words each.

16. (a) Prove that $X \oplus Y \cong (X \wedge \sim Y) \vee (\sim X \wedge Y)$. (CO1, K2)

Or

(b) Prove that the statement $(p \to q) \leftrightarrow (\sim q \to \sim p)$ is a tautology. (CO1, K2)

17. (a) Find minimum spanning tree for the following graph G using Kruskal's algorithm. (CO1, K3)



Or

(b) Prove that complete graph K_4 is planar. (CO2, K2)

18. (a) Check optimality of the basic feasible solution given below by using MODI method. (CO1, K1)

(Destinations)

(Sources)	A	B	C	Supply
P	4	5	1(40)	40
Q	3(40)	4	3(20)	60
R	6(30)	2(40)	8	70
Demand	70	40	60	170

Or

(b) Solve the following assignment problem. Cell values represent cost of assigning job A, B, C and D to the machines I, II, III and IV. (CO2, K3)

Machines

Jobs	I	II	III	IV
A	10	12	19	11
B	5	10	7	8
C	12	14	13	11
D	8	15	11	9

19. (a) A data set consists of nine (x,y) pairs of numbers:

(8,16) (10,4) (12,0) (14,4) (16,16)
(9,9) (11,1) (13,1) (15,9)

(i) Plot the data in a scatter diagram,

(ii) Based on the plot, explain whether the relationship between x and appears to be linear or not linear. (CO1, K4)

Or

(b) A six-sided die is rolled 120 times. Determine he expected frequency column. Then, conduct a hypothesis test to determine if the die is fair. The data in given table are the result of the 120 rolls. (CO2, K5)

Face Value	Frequency
1	15
2	29
3	16
4	15
5	30
6	15

20. (a) State Addition and Multiplication Probability theorem. (CO1, K4)

Or

(b) A bag I contains 4 white and 6 black balls while another Bag II contains 4 white and 3 black balls. One ball is drawn at random from one of the bags, and it is found to be black. Find the probability that it was drawn from Bag I. (CO2, K3)

———————