

Booklet Serial No.

Signature Invigilator

Maulana Azad National Urdu University
Master of Computer Applications (MCA)
Entrance Test – May 2026
Question Paper cum Answer Script

Hall Ticket No.

OMR Serial No.

Time: 2hrs

Maximum Marks: 100

INSTRUCTIONS FOR CANDIDATES

1. Candidate should write their Hall Ticket number and OMR serial number on the space provided above. Candidate should not write their Name, Hall Ticket number and OMR Serial Number at any other place.
2. This booklet contains **(36)** pages. The Candidate should check the booklet before taking the Test. In case of any discrepancy, a new booklet may be provided by the Invigilator.
3. The question booklet contains 100 Multiple Choice Questions. For each question there are four options, (A), (B), (C), (D). The candidate is required to choose the correct answer and darken the circle with blue / black ballpoint pen in the OMR sheet against the corresponding answer.
4. The candidate will get one mark for each correct answer in the OMR sheet. If the candidate does not bubble the correct answer against the corresponding question number in the OMR sheet, they will not get marks.
5. If the candidate bubbles more than one circle in OMR Sheet for any question, marks shall not be awarded for the question.
6. There are no Negative marks.
7. At the end of Entrance Test, candidates are allowed to take their question booklet.

1. The roots of the equation $x^2 - 5x + 6 = 0$ are:
(A) 1,6 (B) 2,3
(C) -2,-3 (D) 0,6
2. If the discriminant is zero, the roots are:
(A) Real and distinct (B) Complex
(C) Real and equal (D) Irrational
3. If $f(x) = x^3 - 1$, then $f(1) =$:
(A) 0 (B) 1
(C) -1 (D) 2
4. If $x - 2$ is a factor of $x^3 + ax^2 + bx + 4$, then:
(A) $8 + 4a + 2b + 4 = 0$ (B) $8 + 2a + 2b + 4 = 0$
(C) $8 + 4a + 2b + 4 \neq 0$ (D) $f(2) = 0$
5. If a polynomial has degree n , maximum number of zeros is:
(A) n (B) $n - 1$
(C) $n + 1$ (D) Infinite
6. The sum of the first 20 terms of an AP: 3, 7, 11, is:
(A) 820 (B) 840
(C) 860 (D) 880
7. If 7 is the 3rd term and 15 is the 7th term of an AP, find the first term:
(A) 1 (B) 2
(C) 3 (D) 4
8. The common ratio of GP: 81, 27, 9, is:
(A) 3 (B) -3
(C) $1/3$ (D) $-1/3$
9. Sum of first n terms of GP is:
(A) $a(1 - r^n)/(1 - r)$ (B) $n(a + r)$
(C) $a + nr$ (D) $a(r^n - 1)$

10. If $\log_{10} 1000 = x$, then:
(A) 2 (B) 3
(C) 4 (D) 1
11. If $\log x + \log(x - 1) = \log 6$, then $x =$:
(A) 6 (B) 5
(C) 4 (D) 3
12. The modulus of $3 + 4i$ is:
(A) 5 (B) 7
(C) 25 (D) 1
13. $(1 + i)^2 =$
(A) -1 (B) 2
(C) -2 (D) $2i$
14. If $\log 2 = 0.3010$, then $\log 8 =$:
(A) 0.9030 (B) 0.6020
(C) 1.2040 (D) 0.3010
15. If $z = 1 + i$, then $|z|^2 =$:
(A) 1 (B) 2
(C) 3 (D) 4
16. If mode = 10 and mean = 8, then median is:
(A) 9 (B) 8
(C) 10 (D) 7
17. The mean of the first n natural numbers is:
(A) $n/2$ (B) $(n + 1)/2$
(C) n (D) $(n - 1)/2$
18. Find the missing value if the mean of 4, 6, x , 10 is 7:
(A) 6 (B) 7
(C) 8 (D) 9

19. $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$
- (A) 1 (B) -1
(C) ∞ (D) 0
20. A function is continuous at $x = a$, if:
- (A) LHL = RHL (B) Limit exists
(C) $f(a)$ exists (D) All of these
21. If $y = x^2$, then $\frac{dy}{dx} =$:
- $\frac{d}{dx}(x^2) = 2x$
- (A) x (B) $2x$
(C) x^2 (D) 1
22. Derivative of $\sin x$ is:
- (A) $\cos x$ (B) $-\cos x$
(C) $\sin x$ (D) $-\sin x$
23. The slope of the tangent to the curve at a point is:
- (A) Integration (B) Limit
(C) Derivative (D) Function value
24. If $y = x^3$, find $\frac{dy}{dx}$ at $x = 2$:
- (A) 16 (B) 12
(C) 10 (D) 6
25. $\int x dx = \frac{x^2}{2} + C$
- (A) x^2 (B) $2x$
(C) x (D) $x^2/2 + C$
26. $\int \cos x dx =$
- (A) $\sin x + C$ (B) $-\sin x$
(C) $\cos x$ (D) $-\cos x$

27. $\int_0^1 x \, dx =$
 (A) 1 (B) $\frac{1}{2}$
 (C) 0 (D) 2
28. $\int \frac{1}{x} dx =$
 (A) $\log x + C$ (B) $\frac{1}{x}$
 (C) x (D) e^x
29. Slope of the line joining (1,2) and (3,6) is:
 (A) 1 (B) 2
 (C) 3 (D) 4
30. Two lines are perpendicular if
 (A) $m_1 = m_2$ (B) $m_1 m_2 = 1$
 (C) $m_1 + m_2 = 1$ (D) $m_1 m_2 = -1$
31. Radius of circle $x^2 + y^2 = 25$ is:
 (A) 25 (B) 10
 (C) 5 (D) 15
32. Length of diameter if radius is 7:
 (A) 7 (B) 14
 (C) 21 (D) 49
33. Vertex of a parabola $y^2 = 4ax$ is:
 (A) (a,0) (B) (0,a)
 (C) (a,a) (D) (0,0)
34. Standard equation of an ellipse:
 (A) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ (B) $x^2 + y^2 = a^2$
 (C) $xy = a$ (D) $y^2 = 4ax$

35. Slope of a vertical line is:
(A) 0 (B) 1
(C) ∞ (D) -1
36. $1 + \cot^2 \theta =$
(A) $\sec^2 \theta$ (B) $\operatorname{cosec}^2 \theta$
(C) $\tan^2 \theta$ (D) $\sin^2 \theta$
37. Height of the tower when the angle of elevation is 30° and the distance is 10 m:
(A) $10/\sqrt{3}$ (B) $10\sqrt{3}$
(C) 5 (D) 20
38. If $\sin \theta = \frac{3}{5}$, then $\cos \theta$ is:
(A) $\frac{3}{5}$ (B) $-\frac{4}{5}$
(C) $\frac{3}{4}$ (D) $\frac{4}{5}$
39. If $A + B = B + A$, then matrices satisfy:
(A) Associative law (B) Commutative law
(C) Distributive law (D) Identity law
40. The inverse of a matrix exists if the determinant is:
(A) 0 (B) 1
(C) Non-zero (D) Negative
41. Cramer's rule is applicable when the determinant is:
(A) Zero (B) Non-zero
(C) Negative (D) Positive
42. Number of ways to arrange 5 distinct objects:
(A) 5 (B) 25
(C) 120 (D) 60

43. Value of 5P_2 :
- (A) 10 (B) 20
(C) 5 (D) 25
44. Value of 5C_2 :
- (A) 10 (B) 20
(C) 5 (D) 15
45. Number of combinations of 4 items taken 2 at a time:
- (A) 6 (B) 12
(C) 8 (D) 4
46. Probability of an event lies between:
- (A) -1 and 1 (B) 0 and 1
(C) 0 and ∞ (D) $-\infty$ and ∞
47. If $A \subseteq B$, then:
- (A) All elements of B are in A (B) All elements of A are in B
(C) $A = B$ (D) None
48. If $A \cap B = \emptyset$, then the sets are:
- (A) Equal (B) Universal
(C) Subsets (D) Disjoint
49. If SKY = TLZ, then EARTH = ?
- (A) FBSUI (B) FBSIU
(C) GCTVI (D) FCRUI
50. If $12 = 144$, $13 = 169$, then $15 = ?$
- (A) 200 (B) 225
(C) 250 (D) 210
51. The Internet is:
- (A) A single computer (B) A network of networks
(C) A software (D) A database

52. The protocol used for web browsing is :
- (A) FTP (B) TCP
(C) SMTP (D) HTTP
53. Which device connects a computer to the internet?
- (A) Printer (B) Scanner
(C) Modem (D) Keyboard
54. Which protocol is used for sending emails?
- (A) FTP (B) SMTP
(C) HTTP (D) TCP
55. Which protocol is used for file transfer?
- (A) HTTP (B) SMTP
(C) FTP (D) IP
56. A web browser is used to:
- (A) Write programs (B) Access websites
(C) Send emails (D) Store data
57. A search engine is used to:
- (A) Design websites (B) Transfer files
(C) Send emails (D) Search information
58. Cookies are:
- (A) Hardware (B) Files storing user data
(C) Viruses (D) Emails
59. Which is a secondary storage device?
- (A) RAM (B) Cache
(C) Hard Disk (D) Register
60. Cache memory is:
- (A) Slow (B) Large
(C) Very fast (D) External

61. Operating system is:
(A) Application software (B) System Software
(C) Utility software (D) Programming language
62. Application software is used for:
(A) Running system (B) Booting
(C) Managing hardware (D) Performing user tasks
63. Find the value of $(11101)_2 + (1011)_2$:
(A) 101000 (B) 101100
(C) 110000 (D) 100111
64. What is the hexadecimal equivalent of decimal 255?
(A) FE (B) FF
(C) EF (D) F0
65. 1 nibble is equal to:
(A) 4 bits (B) 8 bits
(C) 16 bits (D) 32 bits
66. Convert $(64)_{10}$ into octal:
(A) 110 (B) 90
(C) 80 (D) 100
67. Convert $(101101.101)_2$ to decimal:
(A) 45.625 (B) 44.625
(C) 45.375 (D) 46.625
68. Convert $(3A7)_{16}$ to decimal:
(A) 927 (B) 935
(C) 943 (D) 967
69. What is the octal equivalent of $(11111111)_2$?
(A) 777 (B) 357
(C) 377 (D) 3777

70. Find 2's complement of $(101100)_2$:
- (A) 010011 (B) 010100
(C) 010010 (D) 101100
71. Which component performs arithmetic operations?
- (A) Control Unit (B) ALU
(C) Memory Unit (D) Bus
72. Which of the following is not a type of cache mapping?
- (A) Direct Mapping (B) Associative Mapping
(C) Set-Associative Mapping (D) Linear Mapping
73. The number of bits a processor can process at a time is called:
- (A) Clock Speed (B) Word Length
(C) Bus Width (D) Memory Size
74. Deadlock occurs when:
- (A) CPU is idle
(B) Processes compete for resources
(C) Processes are blocked forever
(D) Memory is full
75. Which of the following is necessary for deadlock?
- (A) Mutual exclusion (B) Paging
(C) Segmentation (D) Scheduling
76. Which page replacement algorithm suffers from Belady's anomaly?
- (A) LFU (B) LRU
(C) Optimal (D) FIFO
77. In Round Robin Scheduling, the time slice is called:
- (A) Turnaround time (B) Waiting time
(C) Quantum (D) Burst time

78. Processes arrive in order with burst times:
P1 = 5, P2 = 3, P3 = 8
Average waiting time = ?
(A) 4.33 (B) 5.33
(C) 6.33 (D) 3.33
79. What will be the output?
int a = 10;
int *p = &a;
printf("%d", *p + 5);
(A) 5 (B) 0
(C) 15 (D) Error
80. What will be the output?
int arr[] = {10, 20, 30, 40};
int *p = arr;
printf("%d", *(p + 2));
(A) 20 (B) 30
(C) 40 (D) Error
81. What will be the output?
char str[] = "Hello";
printf("%d", strlen(str));
(A) 4 (B) 6
(C) 5 (D) Error
82. Which directive is used for macro definition?
(A) #include (B) #define
(C) #ifdef (D) #pragma
83. Which DBMS level describes transitive dependency?
(A) Physical level (B) External level
(C) View level (D) Logical level

84. Which normal form eliminates transitive dependency?
(A) 1NF (B) 2NF
(C) 3NF (D) BCNF
85. Which of the following ensures data consistency during transactions?
(A) ACID properties (B) SQL queries
(C) Indexing (D) Views
86. Which anomaly occurs due to redundancy?
(A) Syntax anomaly (B) Execution anomaly
(C) Compilation anomaly (D) Update anomaly
87. Which of the following is a DDL Command
(A) SELECT (B) INSERT
(C) CREATE (D) UPDATE
88. Which command is used to retrieve data?
(A) GET (B) FETCH
(C) SELECT (D) RETRIEVE
89. Which protocol is used for reliable communication?
(A) UDP (B) IP
(C) ARP (D) TCP
90. What is the default port number of HTTP?
(A) 60 (B) 80
(C) 190 (D) 443
91. Which protocol maps IP address to MAC address?
(A) ARP (B) DNS
(C) FTP (D) ICMP
92. What is the size of an IPv4 address?
(A) 16 bits (B) 32 bits
(C) 64 bits (D) 128 bits

93. Which protocol synchronizes and organizes emails across multiple devices directly on a server?
- (A) FTP (B) SMTP
(C) POP3 (D) IMAP
94. Which protocol is connectionless?
- (A) TCP (B) FTP
(C) UDP (D) HTTP
95. Which data structure uses the LIFO principle?
- (A) Queue (B) Stack
(C) Linked List (D) Tree
96. Which data structure uses the FIFO principle?
- (A) Stack (B) Graph
(C) Tree (D) Queue
97. Which of the following is NOT a linear data structure?
- (A) Array (B) Linked List
(C) Tree (D) Queue
98. Which searching algorithm requires sorted data?
- (A) Binary search (B) DFS
(C) Hashing (D) Linear Search
99. Which of the following is a valid Python data type?
- (A) int (B) float
(C) complex (D) All of the above
100. Which keyword is used for function definition in Python?
- (A) function (B) def
(C) fun (D) define

ROUGH WORK

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