CET (PG)-2015

Question Booklet Series : A

Important : Please consult your Admit Card / Roll No. Slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.   *In Figures*   *In Words*

O.M.R. Answer Sheet Serial No.

Signature of the Candidate : _____

Subject : M.C.A. (Master of Computer Applications)

Time : 90 minutes   **Number of Questions : 75**   **Maximum Marks : 75**

DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO

INSTRUCTIONS

1. Write your Roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Subject and Series Code of Question Booklet on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point / Black Gel pen.**
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. To open the Question Booklet remove the paper seal gently when asked to do so.
5. Please check that this Question Booklet contains **75** questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point / Black Gel pen.**
7. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "Rough Work" at the end of the Question Booklet be used.
12. The Answer Sheet is designed for **computer evaluation.** Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e., not following the instructions completely, shall be of the candidate only.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so, would be expelled from the examination.
15. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

SEAL

1. The polar co-ordinates of $(-2,-2)$ are given by :

    (A) $(2, -3\pi/4)$

    (B) $\left(2\sqrt{2}, \pi/4\right)$

    (C) $\left(2\sqrt{2}, 3\pi/4\right)$

    (D) $\left(2\sqrt{2}, -3\pi/4\right)$

2. The points $(-1,0),(3,1),(2,2)$ and $(-2,1)$ are the vertices of a :

    (A) Square

    (B) Rectangle

    (C) Quadrilateral

    (D) Parallelogram

3. The perpendicular distance of the point $(1,0)$ from the line $3x + 2y - 1 = 0$ is :

    (A) $1/\sqrt{13}$

    (B) $2/\sqrt{13}$

    (C) $3/\sqrt{13}$

    (D) $4/\sqrt{13}$

4. The lines $ax + by + c = 0$ and $ax + by + c1 = 0$ are :

    (A) Parallel

    (B) Perpendicular

    (C) Intersecting

    (D) Collinear

5. The distance between the lines $5x - 12y - 2 = 0$ and $5x - 12y - 3 = 0$ is :

    (A) 5

    (B) 13

    (C) 5/13

    (D) 6/13

6. What conic does $13x^2 - 18xy + 37y^2 + 2x + 14y - 2 = 0$ represent ?

    (A) Circle

    (B) Ellipse

    (C) Hyperbola

    (D) Parabola

7. $x^2/a^2 - y^2/b^2 = 1$ is the standard equation of :

    (A) Ellipse

    (B) Circle

    (C) Hyperbola

    (D) Parabola

8. If the roots of the quadratic equation $x^2 - bx + c = 0$ differ by unity then :

    (A) $b^2 = 4c - 1$

    (B) $c^2 = 4b + 1$

    (C) $c^2 = 4b - 1$

    (D) $b^2 = 4c + 1$

9. If A and B are two sets such that $A \cup B$ has 18 elemensts. If A has 8 elements and B has 15 elements, then the number of elements of $A \cap B$ will be :

    (A) 7

    (B) 5

    (C) 8

    (D) 4

10. There are 10 true false questions. The number of ways in which they can be answered is :

(A) 10!

(B) 2^{10}

(C) 10^2

(D) 100

11. The 10th term of the expansion of $(x-1)^{11}$ (in decreasing powers of x) is :

(A) $-11C_2 x^2$

(B) $-x^2$

(C) $-11x$

(D) $-x$

12. $\log_{10}(10 * 10^{2} * 10^{3*} .... * 10^9)$ is :

(A) 20

(B) 10

(C) 45

(D) 55

13. A solution of $\log_{10}(x+20) + \log_{10} 100 = 5$ is :

(A) $x = 900$

(B) $x = 1000$

(C) $x = 930$

(D) $x = 980$

14. The real roots of the equation $2^{2x^2-7x+5} = 1$ are respectively :

(A) $(5/2, 1)$

(B) $(5/2, -1)$

(C) $(-5/4, 1)$

(D) $(-5/2, -1)$

15. If a,b,c are in A.P. and a^2, b^2, c^2 are in H.P then :

(A) $2b = 3a + c$

(B) $b = 3a + c$

(C) $b^2 = ac/8$

(D) $a = b = c$

16. The number of diagonals in an n sided figure is equal to :

(A) $nC_2 - 2$

(B) nC_2

(C) $nC_2 - n$

(D) $nC_2 - 1$

17. The number of all possible words that can be formed using the letters of the word "MATHEMATICS" is :

(A) 11!

(B) $11!/(2!2!2!)$

(C) $11!/6!$

(D) $11C_2$

18. If $P = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$ and $Q = \begin{bmatrix} 1 & -1 \\ -3 & 2 \end{bmatrix}$ are 2×2 matrices then PQ is :

(A) $\begin{bmatrix} 12 & -8 \\ -8 & 5 \end{bmatrix}$

(B) $\begin{bmatrix} 12 & 8 \\ -8 & 5 \end{bmatrix}$

(C) $\begin{bmatrix} 1 & -4 \\ -2 & -9 \end{bmatrix}$

(D) $\begin{bmatrix} 1 & 2 \\ -4 & -9 \end{bmatrix}$

19. Suppose three dice are thrown. What is the probability to get equal number on the face of each one ?

(A) 1/6

(B) 1/3

(C) 1/36

(D) 1/12

20. The system of equations

$3x + y - z = 0$

$5x + 2y - 3z = 2$

$15x + 6y - 9z = 5$ has :

(A) A unique solution

(B) Two distinct solutions

(C) No solution

(D) Infinitely many solutions

21. The rank of the 3×3 matrix $\begin{bmatrix} 1 & 1 & 1 \\ 2 & 3 & 4 \\ 4 & 9 & 16 \end{bmatrix}$ is :

(A) 3

(B) 2

(C) 1

(D) 0

22. If $M = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ is a 2×2 matrix and M^T denotes the transpose of M, and I being unit matrix.

(A) $MM^T = 0$

(B) $M^T = -M$

(C) $MM^T = I$

(D) $M = M^T$

23. The value of sin 15° is equal to :

(A) $\sqrt{3} + 1/\sqrt{2}$

(B) $\sqrt{3} - 1/\sqrt{2}$

(C) $\sqrt{3} + 1/2\sqrt{2}$

(D) $\sqrt{3} - 1/2\sqrt{2}$

24. If a circle is concentric with the circle $x^2 + y^2 - 4x - 6y + 9 = 0$ and passes through the point $(-4, -5)$ then its equation is :

(A) $x^2 + y^2 + 4x + 6y - 87 = 0$

(B) $x^2 + y^2 - 4x - 6y - 87 = 0$

(C) $x^2 + y^2 - 4x + 6y + 87 = 0$

(D) $x^2 + y^2 + 4x + 6y + 87 = 0$

25. The points $(0, 0)$, $(3, \pi/2)$ and $(3, \pi/6)$ are the vertices of _____ triangle.

(A) Right angled

(B) Equilateral

(C) Isosceles

(D) Scalene

26. The derivation of $\sin^{-1}(2x/(1+x^2))$ w.r.t $\tan^{-1} 2x/(1-x^2)$ is :

(A) 1

(B) -1

(C) $1/1+x^2$

(D) $\sqrt{1/1-x^2}$

27. $\lim\limits_{n \to \infty} (1^2 + 2^2 + 3^2 + \ldots + n^2)/n^3 =$

(A) 1

(B) 0

(C) 1/2

(D) 1/3

28. $\lim\limits_{x \to 0} (xe^x - x)/(1 - \cos x)$ is equal to :

(A) 1/2

(B) 1

(C) 2

(D) 1/e

29. If $x^y = e^{x-y}$, then dy/dx is equal to :

(A) $\log x/(1 + \log x)^2$

(B) $x/(1 + \log x)^2$

(C) $1/1 + \log x$

(D) $\log x/(1 - \log x)^2$

30. $d/dx \ (\cos^{-1}x + \sin^{-1}x)$ is :

(A) $\pi/2$

(B) $2/\sqrt{x}$

(C) $2/\sqrt{1-x}$

(D) 0

31. The acceleration of a moving particle whose space time equation is given by $s = 3t^2 + 2t - 5$ is :

(A) 0

(B) 6

(C) 5

(D) 1

32. The tangent to the parabola $x^2 = 2y$ at the point $(1, 1/2)$ makes with x axis an angle of :

(A) $45°$

(B) $30°$

(C) $60°$

(D) $0°$

33. The area enclosed by the curve $y^2 = 4x$ and the line $y = x$ is :

(A) 4/3

(B) 2/3

(C) 8/3

(D) 1/3

34. The area of the region bounded by the curve $y = 2x - x^2$ and the line $y = x$ is :

(A) 1/3

(B) 1/2

(C) 1/4

(D) 1/6

35. If the sum of eleven consecutive numbers is 2761, than the middle number is :

(A) 250

(B) 249

(C) 252

(D) 251

36. If the standard deviation of 0, 1, 2, 3, ..., 9 is S, then the standard deviation of 10,11,12,13, ..., 19 is :

(A) S

(B) S + 10

(C) 10 S

(D) S + 20

37. The arithmetic mean of ten values is 12.45 and each value is increased by 5 then the resulting mean is :

(A) Increased by 5

(B) Increased by 2

(C) Increased by 10

(D) Increased by 12.45

38. Two cards are drawn at random from a pack of 52 cards. The probability of these two being aces is :

(A) 1/52

(B) 1/221

(C) 1/26

(D) 1/2

39. The probability of having at least one tail in 4 throws of a coin is :

(A) 15/16

(B) 1/16

(C) 1/8

(D) 1/4

40. 8 coins are tossed simultaneously. The probability of getting at least 6 heads is :

(A) 57/64

(B) 57/256

(C) 7/64

(D) 37/256

41. Who is the father of computing ?

(A) Alan Turing

(B) Jon Von Neumann

(C) Charles Babbage

(D) Ada Lovelace

42. _____ is an application that provides a huge imaginary sheet of paper on computer with rows and columns.

(A) Word-processing

(B) Spreadsheet

(C) Power Point

(D) Database

43. The full form of OCR is :

(A) Optical Character Reader

(B) Optical Card Recognition

(C) Optical Card Reader

(D) Optimal Character Recognition

44. _____ will be the last memory location in a memory of size 64 K :

(A) EFFF

(B) FFEE

(C) EEEE

(D) FFFF

45. The decimal equivalent of the binary number 1011.11011 is :

(A) 11.84375

(B) 10.8435

(C) 11.74389

(D) 10.74375

46. The storage capacity of a DVD is about :

(A) 100 MB

(B) 700 MB

(C) 0.5 GB

(D) 4.7 GB

47. Which of the following is not a projector technology ?

(A) Cathode Ray Tube

(B) Thermal Technology

(C) Digital Light Processing

(D) Liquid Cristal on Silicon

48. In a word processing software _____ are used to reuse complex paragraph formats without re-creating each-time.

(A) Macros

(B) Templates

(C) Clipboard

(D) Styles

49. Which of the following data structure is useful in traversing a graph by breadth first search ?

(A) Stack

(B) List

(C) Queue

(D) Set

50. If register R contains 5 and the value stored at the address is 7, then what is the value obtained after execution of the following statement ?

ADD 6 (immediate) to R (indirect)

(A) 12

(B) 13

(C) 11

(D) 14

51. End-to-end connectivity is provided from host to host in the _____ layer of OSI model.

(A) Transport

(B) Network

(C) Session

(D) Physical

52. Which of the following statements is correct ?

(A) Heaps are binary search trees

(B) Heaps are complete binary trees

(C) Heaps are full binary trees

(D) Heaps can contain only integer data

53. Which one of the following formats is commonly used for e-books and e-journals ?

(A) BMP

(B) MPEG

(C) AVI

(D) PDF

54. Which of the following options in C++ for catching an exception is preferred ?

(A) Catch by value

(B) Catch by pointer

(C) Catch by reference

(D) Catch by function

55. Which of the following processes in Unix is responsible for sending login prompt to the terminal when it is switched on ?

(A) getty
(B) system
(C) login
(D) shell

56. If Endless is to ETERNAL, escape is to :

(A) Surrender
(B) Avoid
(C) Abandon
(D) Abscond

57. The antonym of ADVERSITY is :

(A) Happiness
(B) Prosperity
(C) Richness
(D) Simplicity

58. The synonym of HOSTILE is :

(A) Friendly
(B) Happy
(C) Unfriendly
(D) Rich

59. Select the pair which is related in the same way as Submarine : Fish

(A) Thread : Needle
(B) Boy : School
(C) Kite : Bird
(D) Food : Hunger

60. Had you worked hard, you _____ secured more.

(A) will have
(B) shall have
(C) should have
(D) would have

61. It has been raining _____ two days.

(A) for
(B) since
(C) from
(D) before

62. Choose the nearest meaning word to the underlined word in the sentence "He used to regale us with anecdotes" :

(A) tire
(B) entertain
(C) vex
(D) trouble

63. Choose the word that is spelled wrongly :

(A) shining
(B) corect
(C) obscure
(D) sparkle

64. Karan is junior _____ Varun.

(A) than
(B) for
(C) to
(D) from

65. Choose the incorrect sentence :

(A) He does not know English

(B) He knows English

(C) He do not know English

(D) He can speak English

66. According to some statistics 60 percent of women employees are computer professionals. Forty percent of women are either housewives or perform other jobs. Answer the following question :

How many women employees are housewives ?

(A) Less than or equal to 40 percent

(B) 40 percent

(C) 60 percent

(D) 30 percent

67. Read the following paragraph and answer the question :

Mary went shopping for a new coat. She found a red one she really liked. When she brought it home it matched perfectly with her favourite dress. What did Mary like ?

(A) Shopping

(B) Dress

(C) Coat

(D) The newly purchased red coat

68. Read the following paragraph :

The population of India is increasing year by year. Efforts are made to increase food production, setting up hospitals, and educational institutions. Still these are not sufficient.

The key idea in the above paragraph is :

(A) A serious problem of over population

(B) Less food production

(C) Less number of hospitals

(D) Less number of educational institutions

69. Choose the word which is different from the rest :

(A) Asia

(B) Canada

(C) Australia

(D) Africa

70. Arrange the words given below in a meaningful order :

1. Education   2. Promotion   3. Retirement   4. Employment

5. Qualification

(A) 1 5 4 2 3

(B) 5 1 2 4 3

(C) 1 5 2 3 4

(D) 5 4 1 2 3

71. What can be deducted from the following statements :

- All film stars are playback singers.
- All film directors are film stars.

(A) Some film stars are film directors

(B) All film directors are playback singers

(C) Neither (A) nor (B)

(D) Both (A) and (B)

72. Given below is a statement followed by two assumptions numbered I and II. Decide which of the assumptions is implicit and select appropriate choice :

Statement : Children are influenced more by their teachers.

Assumptions :

I. The children consider teachers as their role models.

II. A large amount of children's time is spent in school.

(A) Only I is implicit

(B) Only II is implicit

(C) Neither I nor II is implicit

(D) Both I and II are implicit

73. If 'ACT' is coded as 'DFW', how will you code 'GOAT ?

(A) CEUV

(B) JRDW

(C) FHUV

(D) JRDV

74. A man ran 5 kms in east direction. He then turns left and ran for 3 kms. He then turns left and walks for 3 kms. He then turns left and walks again 4 km. How far has he reached from the starting point ?

(A) 1 Km

(B) 3 Km

(C) 5 Km

(D) 2 Km

75. Srilata and Monika are sisters. Bindu is Monika's daughter. Srilata has a son Srikanth. How is Bindu related to Srikanth ?

(A) Brother

(B) Cousin brother

(C) Father

(D) Nephew