Monday → 2 July → Selected MCA → delhi uni (Jmi)

ENTRANCE EXAMINATION-2018

MASTER OF COMPUTER APPLICATION (M.C.A)

05-06-18

SET B

ROLL NO. | M | 5 | 4 | 5 | 1 | 0 | 1 | 0 | |

Signature of Invigilator

Total Marks: 100

Time: **1 HOUR 45 MINUTES**

Instructions to Candidates

1. Do not write your name or put any other mark of identification anywhere in the OMR Response Sheet. **IF ANY MARK OF IDENTIFICATIONS IS DISCOVERED ANYWHERE IN OMR RESPONSE SHEET, the OMR sheet will be cancelled, and will not be evaluated.**

2. This Question Booklet contains the cover page and a total of <u>100 Multiple Choice Questions of 1mark each.</u>

3. Space for rough work has been provided at the beginning and end. Available space on each page may also be used for rough work.

4. There is negative marking in Multiple Choice Questions. For each wrong answer, 0.25 marks will be deducted.

5. USE OF CALCULATOR IS NOT PERMITTED.

6. USE/POSSESSION OF ELECTRONIC GADGETS LIKE MOBILE PHONE, iPhone, iPad, pager ETC. are strictly **PROHIBITED.**

7. Candidate should check the serial order of questions at the beginning of the test. If any question is found missing in the serial order, it should be immediately brought to the notice of the Invigilator. No pages should be torn out from this question booklet.

8. Answers must be marked in the OMR response sheet which is provided separately. OMR Response sheet must be handed over to the invigilator before you leave the seat.

9. The OMR response sheet should not be folded or wrinkled. The folded or wrinkled OMR/response Sheet will not be evaluated.

10. Write your Roll Number in the appropriate space (above) and on the OMR Response Sheet. Any other details, if asked for, should be written only in the space provided.

11. There are four options to each question marked A, B, C and D. Select one of the most appropriate option and fill up the corresponding oval/circle in the OMR Response Sheet provided to you. The correct procedure for filling up the OMR Response Sheet is mentioned below.

12. **Use Black or Blue Ball Pen** only for filling the ovals/circles in OMR Response Sheet. Darken the selected oval/circle completely. If the correct answer is 'B', the corresponding oval/circle should be completely filled and darkened as shown below..

CORRECT METHOD

Ⓐ ● Ⓒ Ⓓ

WRONG METHOD

Ⓐ ⊠ Ⓒ Ⓓ | Ⓐ ✔ Ⓒ Ⓓ | Ⓐ ◑ Ⓒ Ⓓ | Ⓐ ◉ Ⓒ Ⓓ | ◯ ● Ⓒ Ⓓ | Ⓐ ● Ⓒ ●

MCA Entrance Test

2018
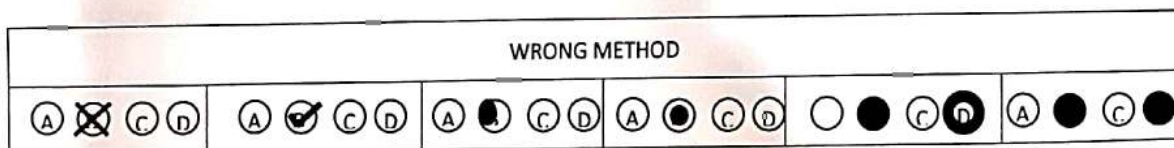
1. If w is an imaginary cube root of unity, then $(1 + w - w^2)^7$ is equal to
   A. 128w
   B. $-$ 128w
   C. $128w^2$
   D. $- 128w^2$

2. The complex numbers $(\sin x + i \cos 2x)$ and $(\cos x - i \sin 2x)$ are conjugate to each other, for
   A. $x = n\pi$
   B. $x = 0$
   C. $x = (n + 1/2)\pi$
   D. No value of x

3. The point's z1, z2, z3, z4 in the complex plane are the vertices of a parallelogram taken in order, if and only if
   A. z1 + z4 = z2 + z3
   B. z1 + z3 = z2 + z4
   C. z1 + z2 = z3 + z4
   D. None of these

4. Linear programming model which involves funds allocation of limited investment is classified as
   A. ordination budgeting model
   B. capital budgeting models
   C. funds investment models
   D. funds origin models

5. According to system of constraints, solution set graphical representation is classified as
   A. region of ordinate solutions
   B. region of intercept solutions
   C. region of vertex solutions
   D. region of feasible solutions

6. Points within set are connected by line segment must follow condition that points must be
   A. included in set
   B. not included in set
   C. included in function
   D. included in objective

7. In mathematical programming, goals represented by objective functions include.
   A. profit level
   B. total cost and revenue
   C. percent rate on investment
   D. all of above

8. Coordinates of midpoint of line joining two points (16, 4) and (36, 6) are:
   A. (26, 5)
   B. (5, 26)
   C. (10, 1)
   D. (1, 10

9. In how many ways can a group of 5 men and 2 women be made out of a total of 7 men and 3 women?
   A. 63
   B. 90
   C. 126
   D. None

10. For individual observations, reciprocal of arithmetic mean is called
    A. geometric mean
    B. harmonic mean
    C. deviation square mean
    D. paired mean

11. A.P whose nth term is 2n-1 is
    A. 1,3,6,...
    B. 2,3,5,...
    C. 1,3,5,...
    D. 5,3,1,...

12. The equation of the straight line passing through the point (3, 2) and perpendicular to the line y=x is
    A. X-Y=5
    B. X+Y=5
    C. X+Y=1
    D. X-Y=1

13. Specifying a straight line, how many geometrical parameters should be known?
    A. 1
    B. 2
    C. 3
    D. 4

14. A point equidistant from the lines 4x+3y+10=0, 5x-12y+26=0 and 7x+24y-50=0 is
    A. (1,-1)
    B. (1,1)
    C. (0,0)
    D. (0,1)

15. One vertex of the equilateral triangle with centroid at origin and one side as x + y -2 =0 is
    A. (-1,-1)
    B. (2,2)
    C. (-2,-2)
    D. (2,-2)

16. Two bus tickets from city A to B and three tickets from city A to C cost Rs. 77 but three tickets from city A to B and two tickets from city A to C cost Rs.73. What are the fares for cities B and C from A?
    A. Rs. 17, Rs. 13
    B. Rs. 4, Rs. 23
    C. Rs. 13, Rs. 17
    D. Rs. 15, Rs. 14

17. In the group G = {2, 4, 6, 8} under multiplication modulo 10, the identity element is
    A. 6
    B. 8
    C. 4
    D. 2

18. A partition of {1, 2, 3, 4, 5} is the family
    A. {(1, 2),(3, 4),(3, 5)}
    B. {φ(1, 2),(3, 4),(5)}
    C. {(1, 2, 3),(5)}
    D. {(1, 2,), (3, 4, 5)}.

ndicular to the

/n?

)=0 is

x + y -2 =0 is

s. 77 but three
re the fares for

nent is

19. Let P(S) denote the power set of set S. Which of the following is always TRUE?
   A. P(P(S)) = P(S)
   B. P(S) ∩ S = P (S)
   C. P(S) ∩ P(P(S)) = [φ]
   D. S ∉ P(S)

20. Find the remainder when 67^{99} is divided by 7.
   A. 4
   B. 6
   C. 1
   D. 2

21. G {e, a, b, c} is an abelian group with 'e' as identity element. The order of the other elements is
   A. 2,2,3
   B. 3,3,3
   C. 2,2,4
   D. 2,3,4

22. Period of 3sec x/3 is
   A. π
   B. 2π
   C. 3π
   D. 6π

23. The principal value of $\cos^{-1} (\cos 5)$ is
   A. 5
   B. π – 5
   C. 5 – π
   D. 2π – 5

24. If sin t = 1/5 and 0 < t < π / 2, then cos (4 t) =?

   A. 0.3464
   B. 0.8
   C. 0.6928
   D. - 0.6928

25. Find the value of $\int \frac{1}{4x^2+4x+5} dx$
   A. ⅛ $\sin^{-1}$ (x + ½)
   B. ¼ $\tan^{-1}$ (x + ½)
   C. ⅛ $\sec^{-1}$ (x + ½)
   D. ¼ $\cos^{-1}$ (x + ½)

26. A computer-controlled device for training exercises that duplicates the work environment is a:
   A. Simulator
   B. Duplicator
   C. Trainer
   D. None.

27. Multi user systems provided cost savings for small business because they use a single processing unit to link several
   A. Personal computers
   B. Workstations
   C. Dumb terminals
   D. Mainframes

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28. Which part of the computer is used for calculating and comparing?
    A. Disk unit
    B. Control unit
    C. ALU
    D. Modem

29. Which of the following memories need refresh?
    A. SRAM
    B. DRAM
    C. ROM
    D. All of the above

30. The ALU of a computer normally contains a number of high speed storage element called
    A. Semiconductor memory
    B. Registers
    C. Hard disks
    D. Magnetic disk

31. The representation of decimal number 532.86 in the form of decimal is
    A. 532.65
    B. 532.68
    C. 531.67
    D. 531.68

32. The quantity of double word is
    A. 8 bits
    B. 16 bits
    C. 32 bits
    D. 64 bits

33. Which protocol provides e-mail facility among different hosts?
    A. FTP
    B. SMTP
    C. TELNET
    D. SNMP

34. COBOL is an acronym for
    A. Common Basic Oriented Language
    B. Common Oriented Business Language
    C. Common Business Oriented Language
    D. None

35. Which of the following are real time systems?
    A. an on-line real reservation system
    B. a process control system
    C. Aircraft control system
    D. Payroll processing system

36. Which one of the following input device is user-programmable?
    A. Dumb terminal
    B. Smart terminal
    C. VDT
    D. Intelligent terminal

37. A name or number used to identify a storage location is called
    A. A byte
    B. A record
    C. An address
    D. All of above

38. Full form of URL is?
    A. Uniform Resource Locator
    B. Uniform Resource Link
    C. Uniform Registered Link
    D. Unified Resource Link

39. Second generation of computers consist of which of following?
    A. Vacuum Tubes
    B. Diodes
    C. VLSI Microprocessor
    D. Transistors

40. MPG is an extension of which type of files?
    A. Audio
    B. Image
    C. Video
    D. Flash

41. Which is odd one?
    A. Inkjet Printers
    B. CRT
    C. Laser Printers
    D. Dot Matrix Printer

42. Which type of switching is used in Internet?
    A. Packet
    B. Telephone
    C. Circuit
    D. Telex

43. What is the meaning of OSI, in terms of computers?
    A. Open Software Interrelation
    B. Open System Interrelation
    C. Open Software Interconnection
    D. Open System Interconnection

44. What is meaning of EEPROM?
    A. Electronically Erasable Programmable Read only Memory
    B. Electrically Erasable Programmable Read only Memory
    C. Electronically Erasable Programmable Reach only Memory
    D. Electrically Erasable Practical Reach only Memory

45. Which among following is responsible for finding and loading operating system into RAM?
   A. Bootstrap Loader
    B. CMOS
    C. BIOS
    D. DMOS

46. Three persons A, B and C are standing in a queue. There are five persons between A and B and eight persons between B and C. If there be three persons ahead of C and 21 persons behind A, what could be the minimum number of persons in the queue?

   A. 40
   B. 27
   C. 41
   D. 28

47. A class of boys stands in a single line; one boy is 19th in order from both the ends, How many boys are there in the class?

   A. 39
   B. 37
   C. 27
   D. 38
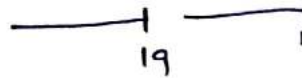
48. 517 325 639 841 792

   What will be the first digit of the second highest number after the positions of only the 2nd, 3rd digits within each number are interchanged?

   A. 7
   B. 8
   C. 9
   D. 2

49. What should come next in the following number series?

   9 8 7 6 5 4 3 2 1 8 7 6 5 4 3 2 1 7 6 5 4 3 2 1

   A. 9
   B. 8
   C. 6
   D. 7

50. P, Q, R, S, T, U, V and W are sitting round the circle and are facing the centre:

   P is second to the right of T who is the neighbour of R and V.
   S is not the neighbour of P.
   V is the neighbour of U.
   Q is not between S and W. W is not between U and S.
   Then who is sitting opposite to U?

   A. Q
   B. R
   C. P
   D. W

51. A shepherd had 27 sheep. All but 10 died. How many he left with?

   A. 17
   B. 27
   C. 10
   D. Zero

52. A is three times as old as B. C was twice-as old as A four years ago. In four years' time, A will be 31. What are the present ages of B and C

   A. 9, 50
   B. 9, 46
   C. 10, 46
   D. 10, 50

53. In a group of 15 people, 7 read French, 8 read English while 3 of them read none of these two. How many of them read French and English both ?
   A. 15
   B. 12
   C. 18
   D. 20

54. Find the least number which leaves a remainder of 3 when divided by 5, 6, 7 and 8, but leaves no remainder when divided by 9 ?
   A. 1458
   B. 1683
   C. 1692
   D. 1598

55. Find out the wrong number in the given sequence of numbers.
   22, 33, 66, 99, 121, 279, 594
   A. 33
   B. 121
   C. 279
   D. 594

56. Find out the wrong number in the given sequence of numbers.
   6, 13, 18, 25, 30, 37, 40
   A. 37
   B. 30
   C. 40
   D. 25

57. Insert the missing number.
   8, 7, 11, 12, 14, 17, 17, 22, (....)
   A. 24
   B. 27
   C. 20
   D. 22

58. Insert the missing number
   16, 33, 65, 131, 261, (....)
   A. 523
   B. 613
   C. 521
   D. 721

59. If COMPLETED is coded as MOCELPDET, then DIRECTION will be coded as :
   A. RIDTCENOJ
   B. SIDTCENOI
   C. RIDTCENOI
   D. RIETCENOI

60. In a coded language COMPUTER is written as RETUPMOC. How is MACHINE written in the same code
   A. DHFTCHS
   B. HGTIRDM
   C. ENIHCAM
   D. HGRMSCH

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61. If COOL is coded as DQRP, then write the code for HOT
    A. JQW
    B. IQW
    C. IQX
    D. IPW

62. Pointing to a girl in photograph. Amar said, "Her mother's brother is the only son of my mother's father." How the girl's mother related to Amar?
    A. Mother
    B. Sister
    C. Aunt
    D. Grandmother

63. A is the son of B. C, B's sister has a son D and a daughter E. F is the maternal uncle of D. How is E related to F?
    A. Sister
    B. Mother
    C. Cousin
    D. Niece

64. The question given below has a set of three or four statements. Each set of statements is further divided into three segments. Choose the alternative where the third segment in the statement can be logically deduced using both the preceding two, but not just from one of them.
    Statement - I. All papers are books
    II. All bags are books
    III. Some purses are bags

    Conclusion - I. Some papers are bags
    II. Some books are papers
    III. Some books are purses

    A. Only I follows
    B. Only II follows
    C. Only I and II follows
    D. Both II and III follow

65. Study the information given below carefully, and answer the question that follow:
    On a stage, D, N, A and P are standing as described below facing North.
    1) N is 2.5 m to the west of A.
    2) K is 4 m to the right of A.
    3) D is 6 m to the south of K.
    4) P is 9 m to the north of D.

    If a boy walks from N, meets A followed by K, D and then P, how many metres has he walked if he has travelled the straight distance all through?
    A. 15 m
    B. 18 m
    C. 21.5 m
    D. 22.5 m

66. Synonym of ACQUAINT
    A. Withhold
    B. Conceal
    C. Familiarise
    D. Risky

67. Synonym
    A. Decline
    B. Acquir
    C. Excite
    D. Irritate

68. A remedy
    A. Medic
    B. Panac
    C. Medic
    D. Medic

69. The mis
    A. Misd
    B. Anac
    C. Misp
    D. Prole

70. Find th
    A. Des
    B. Cla
    C. Co
    D. Sa

71. Find t
    A. Ins
    B. An
    C. Er
    D. Sc

72. Choo
    A. He
    B. He
    C. He
    D. He

73. Whic
    A. W
    B. Di
    C. A
    D. Fa

74. Wha
    A. T
    B. E
    C. M
    D. S

75. Fill
    A.
    B.
    C.
    D.

67. Synonym of AGGRAVATE
    A. Decline
    B. Acquire
    C. Excited
    D. Irritate

68. A remedy for all disease is
    A. Medicine
    B. Panacea
    C. Medical
    D. Medica

69. The mistake of placing something in the wrong period of time:
    A. Misdate
    B. Anachronism
    C. Misplacement
    D. Prolepsis

70. Find the most opposite meaning of SUBVERSION
    A. Destabilisation
    B. Clarity
    C. Compliance
    D. Sanity

71. Find the word just opposite of PROVOKE
    A. Insult
    B. Anger
    C. Encourage
    D. Soothe

72. Choose the grammatically correct sentence out of the given options
    A. He parked the car in front of the bakery.
    B. He parked an car in front of the bakery.
    C. He park the car in front of the bakery.
    D. He parked car in front of the bakery.

73. Which word of the following means 'extremely or unusually small'?
    A. Webbed
    B. Diminutive
    C. Awkward
    D. Farthest

74. What is the meaning of the word 'gait'?
    A. Threshold
    B. Entrance
    C. Manner of walking
    D. Speed

75. Fill in the blank with the correct prepositions. We will be staying _____ Kolkata ___ next Saturday.
    A. on, from
    B. for, from
    C. by, by
    D. in, till

76. A box has 5 black and 3 green shirts. One shirt is picked randomly and put in another box. The second box has 3 black and 5 green shirts. Now a shirt is picked from second box. What is the probability of it being a black shirt?
A. 4/9
B. 29/72
C. 8/72
D. 3/16

77. What is the probability of getting a sum 9 from two throws of dice?
A. 1/3
B. 1/9
C. 1/12
D. 2/9

78. The predicted rate of response of the dependent variable to changes in the independent variable is called:
A. Slope
B. Intercept
C. Error
D. Regression equation

79. If the value of any regression coefficient is zero, then two variables are:
A. Qualitative
B. Correlation
C. Dependent
D. Independent

80. If mean is 11 and median is 13 then value of mode is
A. 15
B. 13
C. 11
D. 17

81. Which term of the A.P. 92, 88, 84, 80, ... is 0?
A. 22
B. 23
C. 24
D. 32

82. $(1) + (1 + 1) + (1 + 1 + 1) + ... + (1 + 1 + 1 + ... \text{ n-1 times}) = ?$
A. $n(n+1)/2$
B. $(n-1)n/2$
C. n^2
D. n

83. If roots of $x^2 - 5x + a = 0$ are equal, then a =?
A. 25/5
B. ±25/4
C. 25/4
D. None of Above

84. Given that limit exists find $\lim_{(x,y,z)\to(-2,-2,-2)} \dfrac{\sin((x+2)(y+5)(z+1))}{(x+2)(y+7)}$
A. 1
B. 3/5
C. 1/2
D. 0

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85. Two m
$f(x, y$

They m
observe
is deci
A. Th
B. Th
C. T
D. N

86. The
A. f
B. f
C.
D.

87. Cos
A.
B.
C.
D.

88. C
A.
B.
C.
D

89. F
A
B
C

90.

91

9

85. Two men on a 3-D surface want to meet each other. The surface is given by

$$f(x, y) = \frac{x^{-6}.y^7}{x + y}$$

They make their move horizontally or vertically with the X-Y plane as their reference. It was observed that one man was initially at (200, 400) and the other at (100, 100).Their meet point is decided as (0, 0). Given that they travel in straight lines, will they meet?

A. They will meet
B. They Will not meet
C. They meet with probability 0.5
D. None

86. The graph of the function y=f(x) is symmetrical about the line x=2, then
A. f(x+2)=f(x-2)
B. f(2+x)=f(2-x)
C. f(x)=f(-x)
D. f(x)=-f(-x)

87. Cos²2θ =?
A. 1 - sin²θ
B. 1 + sin²θ
C. 1 - sin²2θ
D. 1 – sinθ

88. Considering Cosine Rule of any triangle ABC, possible measures of angle A includes
A. angle A is obtuse
B. angle A is acute
C. angle A is right-angle
D. all of above

89. For a skew symmetric even ordered matrix A of integers, which of the following will not hold true?
A. det(A) = 9
B. det(A) = 81
C. det(A) = 7
D. d) det(A) = 4

90. Which of the following property of matrix multiplication is correct?
A. Multiplication is not commutative in general
B. Multiplication is associative
C. Multiplication is distributive over addition
D. All of the mentioned

91. The area enclosed by 3|x| + 4|y| <= 12 is
A. 6 square units
B. 12 square units
C. 24 square units
D. 36 square units

92. Power set of empty set has exactly _____ subset.
A. One
B. Two
C. Zero
D. Three

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93. Transpose of a column matrix is
    A. zero matrix
    B. diagonal matrix
    C. column matrix
    D. row matrix

94. Constant zero solution of linear ordinary differential equation is called
    A. trivial equation
    B. bypass equation
    C. logical equation
    D. singular equation

95. Dot product of two vectors a and b is termed as
    A. outer product
    B. inner product
    C. Cartesian product
    D. vector product

96. IF $f(x) = \max\{x, x^3\}$, then the number of points where $f(x)$ is not differentiable, are
    A. 1
    B. 2
    C. 3
    D. 4

97. If $y = a \log|x| + bx^2 + x$ has its extreme values at $x = -1$ and $x = 2$, then
    A. $a = 2, b = -1$
    B. $a = 2, b = -1/2$
    C. $a = -1/2, b = \frac{1}{2}$
    D. None

98. If A and B are coefficient of x^n in the expressions of $(1+x)^{2n}$ and $(1+x)^{2n-1}$ respectively, then A/B equals
    A. 1
    B. 2
    C. ½
    D. 1/n

99. What is the Cardinality of the Power set of the set $\{0, 1, 2\}$.
    A. 8
    B. 6
    C. 7
    D. 9

100. Consider a line passing through (1, 2) and (4, 8), gradient of this line is equal to:
    A. 1/2
    B. -1/2
    C. 2
    D. -2

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1. $\lim\limits_{x\to\frac{\pi}{4}} \dfrac{\sin x - \cos x}{x-\frac{\pi}{4}}$ is equal to ......

   (a) 1   (b) 2   (c) $-\sqrt{2}$ (d) $\sqrt{2}$

2. $\lim\limits_{h\to 0} \dfrac{\sqrt{x+h}-\sqrt{x}}{h}$ is equal to ......

   (a) $\sqrt{x}$ (b) $\dfrac{1}{\sqrt{x}}$ (c) $2\sqrt{x}$ (d) $\dfrac{1}{2\sqrt{x}}$

3. If $\lim\limits_{x\to a} \dfrac{a^x - x^a}{x^x - a^a} = -1$, then $'a'$ is equal to ......

   (a) 0   (b) 1   (c) ∞ (d) -1

4. $\lim\limits_{x\to a} \dfrac{x^{10}-a^{10}}{x^2-a^2}$ is equal to ......

   (a) $10a^9$ (b) $5a^9$

   (c) $5a^8$ (d) $10a^8$

5. $\lim\limits_{x\to 1} \dfrac{x+x^2+\cdots+x^{10}-10}{5x-5}$ is equal to .....

   (a) 55   (b) 11   (c) 10   (d) 2

6. $\int \dfrac{1+\log x}{x}\,dx$ is equal to ...... Put. $1+\log x = t$

   (a) $\dfrac{1}{2}(1+\log x)^2$ (b) $\dfrac{1}{2}(\log x)^2$

   (c) $(1+\log x)^2$ (d) $(\log x)^2$ No effect of mod is there

7. If $x > 0$, then $\int |x|^3\,dx$ is equal to ......

   (a) $-\dfrac{x^4}{4}$ $\int |x|^3 = \int x^3$ (b) $\dfrac{x^4}{4}$

   (c) $\dfrac{|x|^4}{4}$ (d) $|x|^4$

8. If $\int_0^{\pi/4} \sec^2 x \sin x\,dx = a + \sqrt{2}$, then $'a'$ is equal to ......

   (a) 0   (b) 1   (c) -1 (d) 2

9. $\int_0^1 \dfrac{x}{(1-x)^{1/2}}\,dx$ is equal to ......

   (a) $1/3$ (b) $-1/3$ $u = $ $S_n - S_{(n-1)} = 159$

   (c) $-3/4$ (d) $-4/3$

10. $\int \sqrt{x}\,e^{\sqrt{x}}\,dx$ is equal to ......

    (a) $(2x - 4\sqrt{x}+4)e^{\sqrt{x}}$ (b) $(2x^2 - 4x + 4)e^{\sqrt{x}}$

    (c) $(2x-4)e^{\sqrt{x}}$ (d) $(2x^2 - 4)e^{\sqrt{x}}$

11. The value of $2\sin^2\theta\cos^2\theta(\sec^2\theta + \csc^2\theta)$ is .....

    (a) 1   (b) 2   (c) 4   (d) 0

12. If $\cos\theta + \sec\theta = 3$, then $\cos^2\theta + \sec^2\theta$ is.......

    (a) 5   (b) 6   (c) 4   (d) 7

13. The value of $\tan 1^0.\tan 2^0.\tan 3^0 \ldots\ldots \tan 89^0$ is

    (a) 1   (b) ∞ (c) 0   (d) $1/3$

14. If $\cos\theta + \cos^3\theta = \sin^2\theta$, then $\sin^6\theta - 4\sin^4\theta + 8\sin^2\theta$ is equal to

    (a) 2   (b) 3   (c) 4   (d) 1

15. If $\cos^2\theta + \sec^2\theta = a$, then .....

    (a) $a < 1$ (b) $a = 1$

    (c) $2 > a > 1$ (d) $a \geq 2$

16. The amplitude of $\dfrac{1+i\sqrt{3}}{\sqrt{3}+1}$ is equal to ......

    (a) $\dfrac{\pi}{3}$ (b) $\dfrac{\pi}{2}$ (c) $\dfrac{\pi}{6}$ (d) π

17. If z be a complex number and $\bar{z}$ be its conjugate, then the number of solutions of the equation $z^2 + 2\bar{z} = 0$ is

    (a) 1   (b) 2   (c) 3   (d) 4

18. If z be a complex number, then one of the solution of the equation $z^2 + |z|^2 = 0$ is....

    (a) $2 + 3i$ (b) $3 + 2i$ (c) $4i$ d) $3 - 4i$

19. If ω is a cube root of unity, then the value of $(1+\omega-\omega^2)(1-\omega+\omega^2)$ is...   use $1+\omega+\omega^2=0$

    (a) 1   (b) 2   (c) 3   (d) 4

20. Let cube root of unity are $1, \omega, \omega^2$. Which of the following is a cube root of equation $(x-1)^3 + 8 = 0$?

    (a) 1   (b) $(1-\omega)$

    (c) -1 (d) $(1-2\omega^2)$

21. If m^{th} term of an A.P. is n and its nth term is m, then its 10th term is

    (a) $m+n-10$ (b) $m-n-10$

    (c) $n-m-10$ (d) $m+n+10$

22. Let sum of n terms of an A.P. is $3n^2 + 5$. If T_n of this series is 159, then n is equal to .....

    (a) 12   (b) 2   (c) 27   (d) 36

23. If the roots of the equation $x^3 - 9x^2 + 23x - 15 = 0$ are in A.P., then their common difference will be ......

    (a) ± 1 (b) ± 2 (c) ± 4 (d) ± 3

24. If $\log_2(5.2^x + 1), \log_4(2^{1-x} + 1)$, and 1 are in A.P., then x will be equal to ....

    (a) $\log_2 5$ (b) $1 + \log_2 5$

    (c) $1 - \log_5 2$ (d) $1 - \log_2 5$

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25. If sum of n terms of a series is $3n^2 + 4n$, then the series is.....
    (a) A.P.   (b) G.P.   (c) H.P.   (d) A.G.P.

26. If $^8C_r - ^7C_3 = ^7C_2$, then r is equal to ....
    (a) 4   (b) 5   (c) 6   (d) 7

27. The number of arrangement of the letters of the word BANANA in which two N's do not appear adjacently is ......
    (a) 40   (b) 50   (c) 60   (d) 70

28. The number of numbers greater than 23000 can be formed from the digits 1, 2, 3, 4, 5......
    (a) 80   (b) 90   (c) 120   (d) 150

29. The coefficient of $x^8 y^{10}$ in $(x+y)^{18}$ is ....
    (a) 2^{18} (b) $^{18}P_{10}$ (c) $^{18}C_8$ (d) $^{18}C_{10}$

30. The coefficient of x^4 in expansion of $(1 + x + x^2 + x^3)^{11}$ is ....
    (a) 900   (b) 990   (c) 999   (d) 1000

31. If A be a set of cardinality n, then number of one to one onto functions from set A to A is....
    (a) 2^n (b) $n!$ (c) n^n (d) n^3

32. If f is a function from a finite set A having 10 elements to a finite set B having 5 elements, then the number of functions from A to B is ......
    (a) 5^{10} (b) 50   (c) 10^5 (d) 105

33. If A and B are two sets, then $(A \cup B)' \cap B$ is equal to
    (a) B   (b) A   (c) ϕ (d) A − B

34. If $A = \{a, b, c\}$ and $B = \{a, b, d, e, f\}$ are two sets, the number of elements in $(A - B) \times (A \cap B)$ is ....
    (a) 3   (b) 2   (c) 1   (d) 0

35. If A and B are two disjoint sets having 3 and 5 elements respectively, then power-set of $A \times (B - A)$ contains ......elements.
    (a) 1   (b) 2^3 (c) 2^6 (d) 2^{15}

36. If $y = \tan^{-1}\left\{\frac{1+\tan x}{1-\tan x}\right\}$, then $\frac{dy}{dx}$ is equal to ....
    (a) 1   (b) 0   (c) −1   (d) $\sec^2 x$

37. If $y = \log \tan \theta$, then $\frac{dy}{d\theta}$ is equal to .....
    (a) $2 \sec 2\theta$ (b) $2 \sec^2 \theta$
    (c) $\sec \theta \csc \theta$ (d) $2 \csc^2 \theta$

38. If $\sqrt{x+y} + \sqrt{y-x} = a$, then $\frac{d^2y}{dx^2}$ is equal to ....
    (a) −2a   (b) $2/a^2$ (c) $2/a$ (d) $2a$

39. If $y = x + e^x$, then $\frac{dx}{dy}$ is.....
    (a) e^x (b) $\frac{1}{(1+e^x)^2}$ (c) $\frac{1}{(1+e^x)}$ (d) $-\frac{1}{(1+e^x)}$

40. If $y = (x^x)^x$, then $\frac{dy}{dx}$ is equal to ....
    (a) $xy + 2xy \log x$ (b) $xy + xy \log x$
    (c) $xy + \log x$ (d) $y + 2xy \log x$

41. The points $A(12,8), b(-2,6)$ and $C(6,0)$ are the vertices of .....
    (a) Right angled triangle   (b) Isosceles Triangle
    (c) Straight Line   (d) Equilateral Triangle

42. If the point $P(x,y)$ be equidistant from the points $A(a+b, b-a)$ and $B(a-b, a+b)$, then ....
    (a) $ax = by$ (b) $bx = ay$
    (c) $xy = ab$ (d) $x + y = a + b$

43. The number of the lines that are parallel to $2x + 6y + 7 = 0$ and have an intercept of length 10 between the coordinate axes is.....
    (a) 4   (b) 3   (c) 2   (d) 1

44. The four lines $ax \pm by \pm c = 0$ enclose a ....
    (a) Square   (b) Parallelogram
    (c) Rectangle   (d) Rhombus

45. The area bounded by the lines $y = |x| - 1$ and $y = -|x| + 1$ is ......square unit.
    (a) 1   (b) 2   (c) 3   (d) 4

46. The number of vectors of unit length perpendiculars to vectors $\vec{a} = i + j$ and $\vec{b} = k + j$ is .....
    (a) 1   (b) 2   (c) 3   (d) infinite

47. The angle between vectors $\vec{a} \times \vec{b}$ and $\vec{b} \times \vec{a}$ is....
    (a) 0^0 (b) 45^0 (c) 90^0 (d) 180^0

48. Two dice are thrown. The probability that the sum of the numbers on two dices will be 7 is ....
    (a) 5/36   (b) 1/36   (c) 1/6   (d) 8/36

49. A single letter is selected at random from the word "JAMIA". The probability that it is a vowel is ....
    (a) 3/5   (b) 2/5   (c) 1/5   (d) 4/5

50. One die and a coin are tossed simultaneously. The probability of getting 6 on die and head on coin is ...
    (a) $\frac{1}{3}$ (b) $\frac{1}{4}$ (c) $\frac{1}{12}$ (d) $\frac{1}{6}$

51. The 2's complement of the binary number $(10101000)_2$ is ?

(a) $(01010111)_2$ (b) $(01011111)_2$

(c) $(01011000)_2$ (d) $(11111000)_2$

52. Which of the following is not a universal logic gate?

(a) NAND   (b) NOR

(c) Both (a) and (b)   (d) XNOR

53. Intel 8085 is a(n)_____ bit microprocessor?

(a) 4   (b) 8   (c) 16   (d) 32

54. Which of the following is not a Web Browser?

(a) iOS   (b) Internet Explorer

(c) Chrome   (d) Safari

55. Which of the following CPU registers contains the address of next instruction during a program execution?

(a) Program Counter   (b) Accumulator

(c) Index Register   (d) Instruction Register

56. 1 Petabyte is equivalent to 1024 _____.

(a) Megabytes   (b) Gigabytes

(c) Exabyte's   (d) Terabytes

57. Which of the following is a Class-A IP address?

(a) 191.10.50.0   (b) 164.255.10.1

(c) 125.10.10.1   (d) 220.10.10.1

58. The default subnet mask for class-A IP address is

(a) 255.255.255.0   (b) 255.255.0.0

(c) 255.0.0.0   (d) 0.0.0.0

59. Which of the following IP address class is reserved for multicasting?

(a) Class – A   (b) Class – B

(c) Class – C   (d) Class – D

60. The number of links in a fully mashed network of N nodes is

(a) N (b) N^2

(c) $\frac{N(N-1)}{2}$ (d) $\frac{N(N+1)}{2}$

61. Which of the following is an example of Firmware?

(a) Operating System   (b) Compiler

(c) BIOS   (d) Word Processor

62. Which of the following memory works on the principle of the 'locality of reference'?

(a) Flash Memory   (b) Associative Memory

(c) Cache Memory   (d) Magnetic Tape

63. Which of the following categories of ROM allows data to be erased at byte-level?

(a) PROM   (b) EPROM

(c) EEPROM   (d) All of these

64. Who originated the concept of programmable computer, and considered as the 'father of the computer'?

(a) Bill Gates   (b) Tim Berners – Lee

(c) Steve Jobs   (d) Charles Babbage

65. Which of the following statements is false?

(a) Static RAM is faster than dynamic RAM.

(b) Static RAM uses transistors

(c) Dynamic RAM uses capacitors

(d) Static RAM requires refreshing

66. The binary of the decimal number 219 is

(a) $(11011011)_2$ (b) $(10101010)_2$

(c) $(11110000)_2$ (d) $(11001100)_2$

67. The Octal equivalent of the Hexadecimal number $(A07)_{16}$ is

(a) $(7005)_8$ (b) $(1007)_8$

(c) $(5007)_8$ (d) $(4055)_8$

68. If $(2?5)_8 = 141$, then the missing digit is

(a) 1   (b) 2   (c) 3   (d) 4

69. Which of the following is a high – level programming language?

(a) Machine Language   (b) Assembly Language

(c) Both (a) and (b)   (d) COBOL

70. If $(123)_b = 291$, then the value of the base 'b' is?

(a) 4   (b) 8   (c) 10   (d) 16

71. If '120456' is to '315', then '204562' is to

(a) 816   (b) 2134   (c) 613   (d) 415

72. 263 : 36 : : 139 : ?

(a) 36   (b) 27   (c) 63   (d) 72

73. MNPQ : QTRU : : FIGP : ?

(a) JMTK   (b) JMKU   (c) JMKT   (d) MKUJ

74. Three of the following four are alike in a certain way and so form a group. Which is the one that does not belong to that group?

(a) 185   (b) 165   (c) 65   (d) 85

75. Three of the following four are alike in a certain way and so form a group. Choose the odd one out?

(a) 3, 7, 11, 13   (b) 6, 8, 15, 18

(c) 2, 7, 19, 23   (d) 3, 5, 7, 17

76. Which of the following is a wrong number in the series : 78, 57, 36, 19, 10, 2, ?

(a) 2   (b) 10   (d) 36   (d) None

77. What will be the next number in the following series?
2, 6, , 42, 1806, ___

(a) 20005   (b) 251645

I 3263442   (d) None of these

78. A letter series is given in which some letters are missing. The missing letters are given in the proper sequence as one of the options. Find the correct options.

CABBAC

C__BBA__CAB__AC__AB__AC

(a) BABCC   (b) ACBCB

I ABCBC   (d) BCACB

79. One terms in the following number series is wrong. Find out the wrong term. 1, 2, 6, 15, 30, 56

(a) 6   (b) 15   (c) 30   (d) 56

80. If '234' is to '10', then '345' is to ___

(a) 13   (b) 11   (c) 12   (d) 10

81. Find odd one out

(a) C   (b) I   (c) S   (d) T

82. If HOTEL = 55, then BORE = ?

(a) 40   (b) 45   (c) 35   (d) 55

83. In a certain code 13479 is written as AQFJL and 5268 is written as DMPN. How is 396824 written in that code?

(a) QLPMNF   (b) QLPNKJ

I QLPNDF   (d) QLPNMF

84. If 54 + 43 = 2, 60 + 51 = 10, then 62 + 72 =?

(a) 9   (b) 10   (c) 18   (d) 27

85. A and B are brothers. C and D are sisters. A's son is D's brother. How is B related to C?

(a) Father   (b) Brother

I Uncle   (d) Grandfather

86. Introducing Sanjay, Rinki said, "His brother's father is the only son of my grandfather". How is Rinki related to Sanjay? *my father*

(a) Sister   (b) Mother   (c) Niece   (d) Daughter

87. A is the brother of B, B is the brother of C. D is the father of A. Which of the following statements cannot be definitely true? *C is either male/female*

(a) B is the brother of A   (b) B is the son of D

(c) A is the brother of C   (d) C is the brother of A

88. 'X + Y' means 'Y is the brother of X' ; 'X × Y' means 'Y is the husband of X' ; 'X − Y' means 'X is the

mother of Y'; 'X/Y' means 'X is the father of Y'. Then which of the following expression indicates

(a) Q − P + R/T   (b) P × Q/R + T

(c) P × Q/R − T   (d) None of these

89. A, B, C, D and E when arranged in descending order of their weights from the top, A becomes third, E is between D and A while C and D are not at the top. Who among them is the second heaviest?

(a) A   (b) B   (c) C   (d) E

90. Q, R, S, T, U and V are seated in a straight line facing North. S is second to the right of T and T is second to the right of Q. R is to the left of Q and second to the left of V. What is Q's position with respect to S?

(a) Third to left   (b) Fourth to left

I Second to left   *Q,V,T,U,S*   (d) Fifth to left

91. Which of the following is not a synonym of "sympathy"?

(a) Pity   (b) Consolation

I Hostility   (d) Commiseration

92. Which of the following is the antonym of "patience"?

(a) Forbearance   (b) Stoicism

I Sufferance   (d) None of these

93. Which of the following words is correctly spelled?

(a) Liaison   (b) Liasion

I Liason   (d) None of these

94. The past participle of the verb "become" is

(a) Became   (b) Becomed

I Become   (d) None of these

95. The simple past of the verb "set" is

(a) Sit   (b) Set   (c) Sat   (d) None

96. What year did you _____ university?

(a) Graduate   (b) Graduating

I Graduate from   (d) Graduating from

97. I have trouble _____

(a) Remembering my password

(b) Remember my password

(c) To remember my password

(d) To remembering my password

Left page (partial, cut off):

STUDY

S By *Shivam Gupta*

Y'; 'X/Y' means 'X is the father of
which of the following expression

R/T   (b) $P \times Q/R + T$
—T   (d) None of these
nd E when arranged in descending order
ts from the top, A becomes third, E is
d A while C and D are not at the top.
em is the second heaviest?
(b) B   (c) C   (d) E

and V are seated in a straight line facing
ond to the right of T and T is second to
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is Q's position with respect to S?
(b) Fourth to left
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following is not a synonym of

(b) Consolation
(d) Commiseration

lowing is the antonym of "patience"?
(b) Stoicism
(d) None of these

owing words is correctly spelled?
(b) Liasion
(d) None of these

e of the verb "become" is
(b) Becomed
(d) None of these

the verb "set" is
Set   (c) Sat   (d) None

_____ university?
(b) Graduating
(d) Graduating from

my password
assword
y password
my password

Right page:

_____ Albert Einstein became famous mainly
for his work on relativity; he received the Nobel Prize
for his work on photoelectric law.
(a) Because   (b) As long as
(c) Ever since   (d) Despite the fact that

. There are many interesting events _____ in the
night – time sky.
(a) Being observed   (b) Having observed
(c) That observed   (d) Which are observing

00. We must be grateful for the blessing that God has
_____ on us.
(a) Bestowed   (b) Given
(c) Granted   (d) Presented

(Handwritten notes)

Maths = 50%   upto 12
compt. Aw = 20%
Reasoning = 20%
GE   = 10%