50114

ROLL No. | | | | | |

TEST BOOKLET No. **1432**

APTITUDE TEST FOR M.C.A.

Time: 2 Hours | Maximum Marks: 450

INSTRUCTIONS TO CANDIDATES

1. You are provided with a Test Booklet and an Optical Mark Reader (OMR) Answer Sheet to mark your responses. Do not soil the Answer Sheet. Read carefully all the instructions given on the Answer Sheet.
2. Write your Roll Number in the space provided on the top of **this page**.
3. Also write your Roll Number, Test Code, and Test Subject in the columns provided for the same on the **Answer Sheet**. Darken the appropriate bubbles with a **Ball Point Pen.**
4. The paper consists of 150 objective type questions. All questions carry equal marks.
5. Each question has four alternative responses marked **A, B, C** and **D** and you have to **darken** the bubble fully by a **Ball Point Pen** corresponding to the correct response as indicated in the example shown on the Answer Sheet.
6. Each correct answer carries **3** marks and each wrong answer carries **1** minus mark.
7. Space for rough work is provided at the end of this Test Booklet.
8. You should return the Answer Sheet to the Invigilator before you leave the examination hall. However, you can retain the Test Booklet.
9. Every precaution has been taken to avoid errors in the Test Booklet. In the event of any such unforeseen happenings, the same may be brought to the notice of the Observer/Chief Superintendent in writing. Suitable remedial measures will be taken at the time of evaluation, if necessary.

SEAL

50114

APTITUDE TEST FOR M.C.A.

1. The straight line $3x + 2y + 6 = 0$

   (A) is a tangent to the circle $x^2 + y^2 - 2x - 2y + 1 = 0$

   (B) lies outside the circle $x^2 + y^2 - 2x - 2y + 1 = 0$

   (C) intersects the circle $x^2 + y^2 - 2x - 2y + 1 = 0$

   (D) None of the above

2. The eccentricity of the ellipse $\frac{x^2}{9} + \frac{y^2}{4} = 1$ is

   (A) $\frac{1}{3}$ (B) $-\frac{1}{3}$

   (C) 3 (D) –3

3. Asymptotes of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ are

   (A) $x = \pm \frac{b}{a} y$ (B) $y = \pm \frac{b}{a} x$

   (C) $x + y = 0$ (D) $(x - y) = 0$

4. The distance between the parallel lines represented by $16x^2 + 24xy + 9y^2 + 40x + 30y - 75 = 0$ is

   (A) 1 (B) 2

   (C) 3 (D) 4

5. The unit vector normal to the surface $x^2 + 2y^2 + z^2 = 7$ at $(1, -1, 2)$ is

(A) $i - 2j + 2k$

(B) $\frac{i-2j+2k}{3}$

(C) $i + 2j + k$

(D) $\frac{i+2j+k}{2}$

6. Evaluate $\frac{-4^2.(6.2)^0}{3^{-2}}$

(A) -144

(B) 144

(C) $\frac{-16}{9}$

(D) $\frac{16}{9}$

7. What is the multiplicative inverse of $\frac{3}{4}+\frac{3}{4}i$?

(A) $\frac{3+3i}{4}$

(B) $\frac{4}{3+3i}$

(C) $\frac{4}{3}$

(D) $\frac{3}{4}$

8. If $m > 0$, the expression $\left(\sqrt{m}\right)\left(\sqrt{2m}\right)$ is equivalent to

(A) $\sqrt{2m}$

(B) $m^2\sqrt{2}$

(C) $m\sqrt{2}$

(D) $2m$

9. The divergence and curl of a vector are

(A) vector and a scalar

(B) scalar and a vector

(C) both scalars

(D) both vectors

10. If $\bar{r} = xi + yj + zk$, then $\nabla \cdot \bar{r}$ and $\nabla^2 \left(\frac{1}{r}\right)$ (where $r = \sqrt{x^2 + y^2 + z^2}$) are

(A) both zero
(B) both 3
(C) 3 and 0
(D) 0 and 3

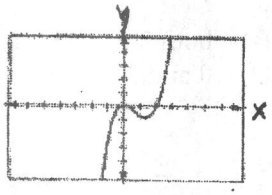
11. Div $\left(\overline{A} \times \overline{B}\right)$ is equal to

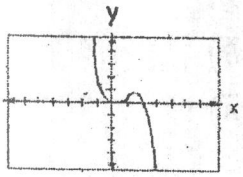
(A) $\overline{A} \times div\, \overline{B} + div\, \overline{A} \times \overline{B}$
(B) $\overline{B} \cdot \left(curl\, \overline{A}\right) - \overline{A} \cdot \left(curl\, \overline{B}\right)$
(C) $\overline{A} \cdot \left(curl\, \overline{B}\right) + \overline{B} \cdot \left(curl\, \overline{A}\right)$
(D) None of the above

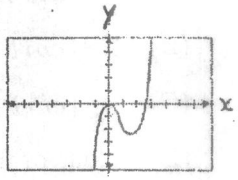
12. The 7^{th} term of the geometric sequence $\frac{3}{64}, \frac{-3}{16}, \frac{3}{4}, -3 \ldots$. is

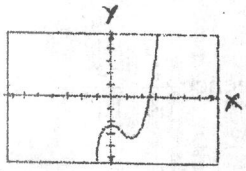
(A) -48
(B) 192
(C) 3072
(D) -12288

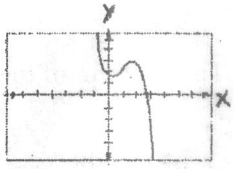
13. The graph shown below represents the equation $y = f(x)$. which of the choices represents $g(x)$, if $g(x) = -f(x)$?



(A) 

(B) 

(C) 

(D) 

14. What is the value of $2\sum_{n=0}^{2}\left(n^2 + 2^n\right)$?

(A) 12
(B) 22
(C) 24
(D) 26

15. $\int_{|z|=1} \frac{dz}{z^2 e^z}$ is equal to

(A) $-2\pi i$
(B) $2\pi i$
(C) 0
(D) None of the above

16. The function $f(z) = \frac{\bar{z}}{z}$ is

(A) analytic at $z = 0$
(B) analytic for all $z \neq 0$
(C) nowhere analytic
(D) analytic for all z

17. The sequence $1, 1-\frac{1}{2}, 1+\frac{1}{3}, 1-\frac{1}{4}, \ldots$ is

(A) bounded but not convergent
(B) convergent but not bounded
(C) convergent
(D) None of the above

18. The coefficient of x^{3n+1} in the expansion of $\frac{1}{1+x+x^2}$ is

(A) 0 (B) -1
(C) 1 (D) 3

19. If a, b, c are the sides of a triangle, then

(A) $a + b > c$ alone holds
(B) $b + c > a$ alone holds
(C) $c + a > b$ alone holds
(D) All of the above should hold

20. If every side of a triangle is doubled, then the area of the new triangle is k times that of the old triangle. Then the value of k is

(A) 2 (B) $\sqrt{3}$
(C) $\sqrt{2}$ (D) 4

21. In a triangle ABC, $a = 25$, $c = 50$ and $A = 30°$. Then

(A) $B = 90°, C = 60°$ (B) $C = 90°, B = 60°$
(C) $C = 100°, B = 50°$ (D) the triangle is isosceles

22. What is the solution set of the equation $\frac{x}{x-4} - \frac{1}{x+3} = \frac{28}{x^2-x-12}$?

(A) $\{6\}$ (B) $\{4,6\}$
(C) $\{-6\}$ (D) $\{4\}$

23. In the equation $x^2 - 7x + 2 = 0$, the sum of the roots exceeds the product of the roots by

(A) 9
(B) 5
(C) −9
(D) −5

24. The roots of the equation $3x^2 - 4x + 2 = 0$ are

(A) $\frac{1 \pm \sqrt{2}}{3}$
(B) $\frac{2 \pm \sqrt{10}}{3}$
(C) $\frac{2 \pm i\sqrt{2}}{3}$
(D) $4 \pm \frac{i\sqrt{2}}{3}$

25. The roots of the equation $2x^2 + 3x + 2 = 0$ are

(A) real, rational, and equal
(B) real, rational, and unequal
(C) real, irrational, and unequal
(D) imaginary

26. What is the value of b in the equation $4^{2b-3} = 8^{1-b}$?

(A) 3/7
(B) 7/9
(C) 9/7
(D) 10/7

27. The volume of a soap bubble is represented by the equation $V = 0.094\sqrt{A^3}$, where A represents the surface of the bubble. Which of the following expressions is equivalent to V?

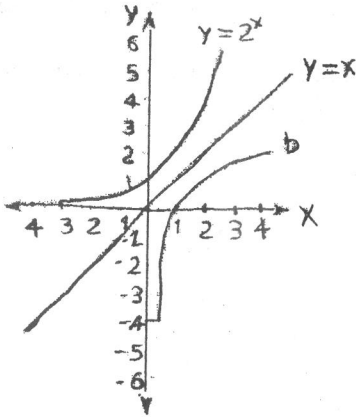
(A) $0.094A^{\frac{3}{2}}$
(B) $0.094A^{\frac{2}{3}}$
(C) $0.094A^6$
(D) $(0.094A^3)^{\frac{1}{2}}$

28. What is the solution set of the inequality $x^2+3x-10>8$?

(A) $\{x|-6<x<3\}$ (B) $\{x|x<-6 \text{ or } x>3\}$

(C) $\{x|-3<x<6\}$ (D) $\{x|x<-3 \text{ or } x>6\}$

29. In the diagram, figure b is the reflection of $y=2^x$ in the line $y=x$. Which is an expression for the equation of figure b?



(A) $y=(-2)^x$ (B) $y=2^{-x}$

(C) $y=\log_2 x$ (D) $y=\log_x 2$

30. The function defined by $f(x)=\sin x+\cos 2x$ is

(A) unbounded (B) bounded

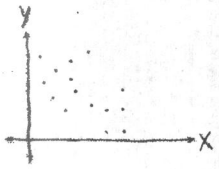
(C) discontinuous at $x=0$ (D) None of the above

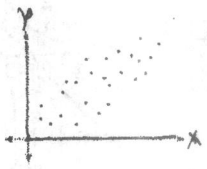
31. The data, shown below, was collected regarding the class size of the Advanced Placement course offered at a local high school. Which statement about the range of this sample is true?

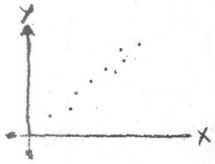
Class Size	Frequency
14	2
10	3
8	1

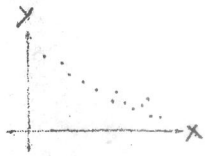
(A) Range < standard deviation
(B) Range = mean
(C) Range > mean
(D) Range < mean

32. Which graph represents data used in a linear regression that produces a correlation coefficient closest to −1?

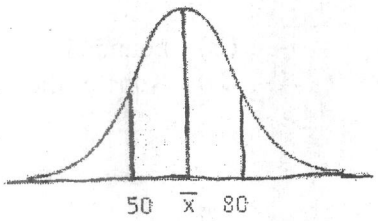
(A) 

(B) 

(C) 

(D) 

33. In the following diagram, about 68% of the scores fall within the shaded area, which is symmetric about the mean $\bar{x}$. The distribution is normal and the scores in the shaded area range from 50 to 80. What is the standard deviation of the scores in this distribution?



(A) 7.5
(B) 15
(C) 30
(D) 65

34. A basketball squad has ten players. Which expression represents the number of five-player teams that can be made if Tucker, the team captain, must be on every team?

(A) ${}_{10}C_5$
(B) ${}_9C_4$
(C) ${}_9P_4$
(D) ${}_{10}P_5$

35. A committee of five members is to be randomly selected from a group of nine freshman and seven sophomores. Which expression represents the number of different committees of three freshman and two sophomores that can be chosen?

(A) ${}_9P_3 \cdot {}_7P_2$
(B) ${}_9C_3 + {}_7C_2$
(C) ${}_{16}C_3 \cdot {}_{16}C_2$
(D) ${}_9C_3 \cdot {}_7C_2$

36. If three fair coins are tossed, what is the probability of getting *at least* two heads?

(A) 2/3
(B) 1/2
(C) 3/8
(D) 1/8

37. A pair of dice is rolled. What is the probability of the sum being 10 or less?

(A) 3/36
(B) 33/36
(C) 10/36
(D) 6/36

38. The fourth term in the recursive sequence $a_1 = 3,\ a_n = a_{n-1} - n$ is

(A) 0
(B) −2
(C) −4
(D) −6

39. Which function is *not* one-to-one?

(A) $\{(0,1),(1,2),(2,3),(3,4)\}$
(B) $\{(0,0),(1,1),(2,2),(3,3)\}$
(C) $\{(0,1),(1,0),(2,3),(3,2)\}$
(D) $\{(0,1),(1,0),(2,0),(3,2)\}$

40. Determine $\lim_{x\to\infty}\left(\frac{-2x^3+x}{-4x^5+2x^2+2}\right)$

(A) ∞ (B) 0

(C) $\frac{1}{2}$ (D) $\frac{3}{10}$

41. If $x = a\,(t - \sin t), y = a\,(1 - \cos t)$, then $\frac{dy}{dx}$ at $t = \frac{\pi}{2}$ is

(A) $\frac{1}{2}$ (B) $-\frac{1}{2}$

(C) 1 (D) ∞

42. The matrix $A = \begin{bmatrix} 2 & 3 \\ 8 & a \end{bmatrix}$ is invertible if

(A) $a = 12$ (B) $a \neq 12$

(C) for any positive value of a (D) for any value of a

43. The rank of $\begin{bmatrix} 1 & 1 & 1 \\ 2 & 2 & 2 \\ 4 & 4 & 4 \end{bmatrix}$ is

(A) 0 (B) 1

(C) 2 (D) 3

44. If $x + 2y + 3z = 2$ and $2x + 4y + 6z = a$ are infeasible, then

(A) $a \neq 4$ (B) $a = 4$

(C) $a = 0$ (D) $a \neq 0$

45. The negation of "If a TV is bad, then it is cheap" is

(A) if a TV is cheap, then it is bad

(B) a TV is bad but is not cheap

(C) if TV is good, then it is not cheap

(D) either a TV is bad or it is cheap

46. The solution of $|2x-3|<5$ is

(A) $(-\infty,-1)\cup(4,\infty)$ (B) $(-1,4)$

(C) $(-1,\infty)$ (D) $(-\infty,4)$

47. $S-(S-T)$ is equal to

(A) T (B) $S\cap T$

(C) S (D) $S\cup T$

48. The number of non-negative integral solutions of the equation $a+b+c=3$ is

(A) 6 (B) 8

(C) 10 (D) 12

49. The number of 3×3 binary matrices (A binary matrix is one whose entries are 0 or 1) is

(A) 2^9 (B) 2^6

(C) 2^3 (D) 9

50. $\int \sec x\, dx$ is equal to

(A) $\log\tan\left(\frac{\pi}{4}+\frac{x}{2}\right)$ (B) $\log\tan x$

(C) $\log\sec x$ (D) None of the above

51. $\int \log x\, dx$

(A) $x(\log x-1)$ (B) $x\log x$

(C) $\frac{1}{\log x}$ (D) $\frac{(\log x)^2}{2}$

52. $\int_0^1 \int_0^2 dx\, dy$ is equal to

(A) 1
(B) 2
(C) 4
(D) $\sqrt{2}$

53. $L^{-1}\left(\frac{1}{s+a}\right)$ is valid for

(A) $s > -a$
(B) $s > a$
(C) $s = a$
(D) $s = -a$

54. $L(\sin 2t)$ is

(A) $\frac{2}{s^2+4}$
(B) $\frac{s}{s^2+4}$
(C) $\frac{2}{s^2-4}$
(D) $\frac{s}{s^2-4}$

55. Determine $\frac{d}{dx}\left(\frac{4x^4-2x}{4x^4+2x}\right)$

(A) $\frac{24x^2-1}{(4x^3-2)^2}$
(B) $\frac{48x^2-1}{(4x^3+2)^2}$
(C) $\frac{12x^2}{(2x^3+1)^2}$
(D) $\frac{24x^2}{(4x^3+2)^2}$

56. Compute $\int_0^{\frac{1}{2}} \frac{4}{1+4t^2} dt$

(A) $-\pi$
(B) $\frac{3}{2}\pi$
(C) $\frac{1}{2}\pi$
(D) π

57. Give the equation of the normal line to the graph of $y = 2x\sqrt{x^2 + 8 + 2}$ at the point (0,2).

(A) $x - 4\sqrt{2}y = -8\sqrt{2}$
(B) $x + 4\sqrt{2}y = 8\sqrt{2}$
(C) $4\sqrt{2}x + y = 2$
(D) $-4\sqrt{2}x + y = 2$

58. $\int_{-\infty}^{\infty} e^{-\frac{x^2}{2}} dx$ is equal to

(A) 1
(B) 0
(C) $\frac{1}{2}$
(D) 2

59. $\lim_{n\to\infty}\left(1 - \frac{m}{n}\right)^n$ is equal to

(A) e^n
(B) e^{-n}
(C) e^m
(D) e^{-m}

60. If α and β are the roots of $x^2 + 4x + 8 = 0$, then $\frac{\alpha+\beta}{\alpha\beta}$ is

(A) $\frac{1}{2}$
(B) $-\frac{1}{2}$
(C) 2
(D) -2

61. What are the solution(s) to the system of equations $y = x^2 - 9$ and $y - 3 = x$?

(A) (−3,0) and (4,7)
(B) (−3,0)
(C) (4,7)
(D) No solutions

62. If α, β, γ are the roots of $x^3 + 7x + 2 = 0$, then the value of $(\alpha+\beta)(\beta+\gamma)(\gamma+\alpha)$ is

(A) 0 (B) -2
(C) 2 (D) None of the above

63. If $\overline{a}$ and $\overline{b}$ are two unit vectors and θ is the angle between them, then $\overline{a} + \overline{b}$ is a unit vector if

(A) $\theta = \frac{\pi}{3}$ (B) $\theta = \frac{\pi}{4}$

(C) $\theta = \frac{\pi}{2}$ (D) $\theta = 2\pi$

64. $\lim_{x\to 0} \frac{e^x - e^{-x}}{\log(1+x)}$ is equal to

(A) 0 (B) 1
(C) 2 (D) 3

65. The equation $x^3 + 14x^2 + 11x + 7 = 0$ can have

(A) at most 2 complex roots (B) at least 2 complex roots
(C) at most 2 real roots (D) at least 2 real roots

66. The coefficient of x^n in the expansion of $(1-x)^{-3}$ is

(A) $(-1)^n (n+1)(n+2)$ (B) $\frac{(-1)^n (n+1)(n+2)}{2}$

(C) $\frac{(n+1)(n+2)}{2}$ (D) $(n+1)(n+2)$

67. The complementary function of $(x^2D^2 + 3xD + 1)y = \frac{1}{(1+x)^2}$ is

(A) $A + B\log x$ (B) $\frac{A+B\log x}{x}$

(C) $Ae^{2x} + Be^{x}$ (D) None of the above

68. The value of x for which $4x^2 + 6x + 4$ is minimum is

(A) 0 (B) $-\frac{4}{3}$

(C) $-\frac{3}{4}$ (D) None of the above

69. The residue of $(z-1)^{-1}e^{z}$ at $z=1$ is

(A) 1 (B) e

(C) e^{-1} (D) 0

70. $\frac{1}{(1+2x)(1-3x)}$ can be expanded in ascending powers of x when

(A) $|x|<2$ (B) $|x|<3$

(C) $|x|<\frac{1}{2}$ (D) $|x|<\frac{1}{3}$

71. Let $f(x)=x^3$. A region is bounded between the graphs of $y=-1$ and $y=f(x)$ for x between -1 and 0, and between the graphs of $y=1$ and $y=f(x)$ for x between 0 and 1. Give an integral that corresponds to the area of this region.

(A) $\int_{-1}^{1}(1-x^3)dx$ (B) $\int_{0}^{1}2(1-x^3)dx$

(C) $\int_{0}^{1}2(1+x^3)dx$ (D) $\int_{-1}^{1}(1+x^3)dx$

72. Compute the derivative of $-4\sec(x)+2\csc(x)$

(A) $-4\sec(x)\tan(x)-2\csc(x)\cot(x)$

(B) $-4\csc(x)-2\sec(x)$

(C) $-4(\sec(x))^2-2(\csc(x))^2$

(D) $-4\sec(x)\tan(x)+2\csc(x)\cot(x)$

73. The average score for a Biology test is 77 and the standard deviation is 8. Which percent best represents the probability that any one student scored between 61 and 93 on the test?

(A) 99.5% (B) 95%

(C) 68% (D) 34%

74. The flight paths of two Thunderbird jets are plotted on a Cartesian coordinate plane, and the equations of the jets' flight paths are represented by $y=2^x+3$ and $y=0.5^x$. The best approximation of the intersection of the flight paths is

(A) $(-1.50, 2.82)$ (B) $(0,1)$

(C) $(-1.72, 3.3)$ (D) $(-2,-1)$

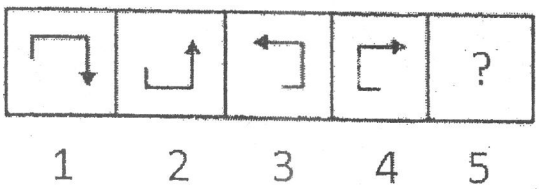
75. Which equation is equivalent to $1-\frac{6}{t^2}=\frac{1}{t}$?

(A) $(t-3)(t+2)=0$ (B) $(t-2)(t+3)=0$

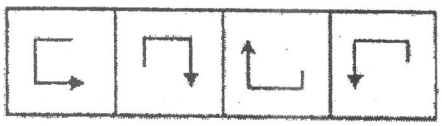
(C) $(2t+1)(3t-1)=0$ (D) $(2t-1)(3t+1)=0$

Direction (Qn. Nos. 76 and 77): In the following figure series, the last one is missing. Identify the figure from among the choices which would complete the series.

76.



1 2 3 4 5

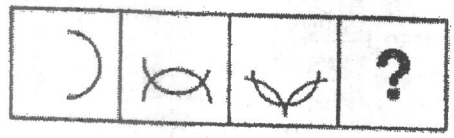


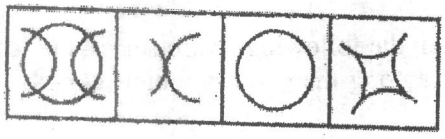
a b c d

(A) a (B) b

(C) c (D) d

77.

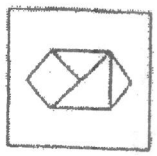


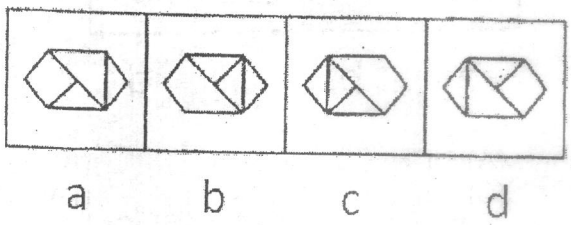


(A) a
(C) c
(B) b
(D) d

Direction (Qn. Nos. 78 and 79): Choose the correct mirror-image of the figure (x) from amongst the four alternatives (a), (b), (c), (d) given along with it.

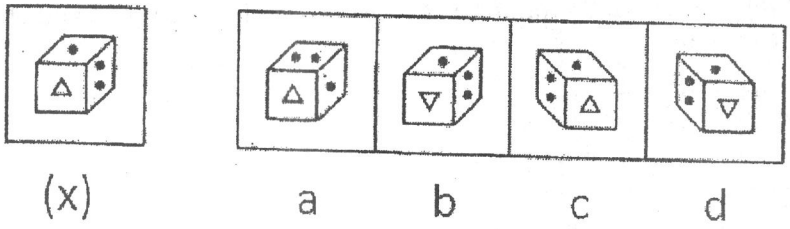
78.





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

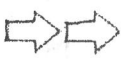
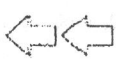
79.



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

Direction (Qn. Nos. 80 – 82): This set contains sequence questions that use a series of non-verbal and non-number symbols. Look carefully at the sequence of symbols to find the pattern.

80. 

(A) 
(B) 
(C) 
(D) 

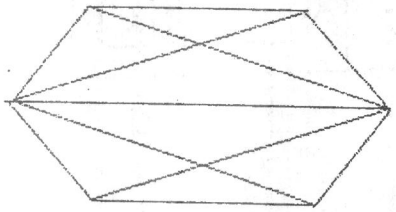
81. 

(A) 
(B) 
(C) 
(D) 

82. 

(A) 
(B) 
(C) 
(D) 

Direction (Qn. Nos. 83 and 84): Analyse the following figure and choose the correct answer.



83. Find the number of quadrilaterals

(A) 6 (B) 7
(C) 9 (D) 10

84. Find the number of pentagons

(A) 2 (B) 3
(C) 4 (D) 6

Direction (Qn. Nos. 85 – 88): Select the related pair that expresses the relationship that is MOST similar to that of the capitalised pair.

85. NITROGEN : GASEOUS :: _____ : _____

(A) Oxygen : organic matter (B) Lead : heavy
(C) Feather : weightless (D) Mercury : fluid

86. LUGUBRIOUS : SORROWFUL :: _____ : _____

(A) Unhappy : gloomy (B) Lustrous : luscious
(C) Credible : incredible (D) Euphoric : cheerful

87. WEIGHT : KILOGRAM :: _____ : _____

(A) Pint : liquid (B) Distance : kilometre
(C) Mile : length (D) Pound : weight

88. PAIN : MISERY :: _____ : _____

(A) Disease : poverty
(B) Despair : loneliness
(C) Ignorance : confusion
(D) Superstition : peasants

Direction (Qn. Nos. 89-94): Of the four choices given in the following groups of words, three are similar. Identify the word which does not belong to the group.

89.
(A) Leopard
(B) Cougar
(C) Elephant
(D) Lion

90.
(A) Tape
(B) Twine
(C) Cord
(D) Yarn

91.
(A) Branch
(B) Dirt
(C) Leaf
(D) Root

92.
(A) Noun
(B) Preposition
(C) Punctuation
(D) Adverb

93.
(A) Inch
(B) Ounce
(C) Centimetre
(D) Yard

94.
(A) Cornea
(B) Retina
(C) Pupil
(D) Vision

Direction (Qn. Nos. 95 – 99): Study the following information carefully and answer the questions given below it.

A sales representative plans to visit each of six companies M, N, P, Q, R and S exactly once during the course of one day. She is setting up her schedule for the day according to the following conditions:

(i) She must visit M before N and R
(ii) She must visit N before Q
(iii) The third company she visits must be P

95. Which of the following must be true of the sales representative's schedule?

(A) She visits M before Q
(B) She visits N before R
(C) She visits P before M
(D) She visits P before S

96. If the sales representative visits S first, which company must she visit second?

(A) M
(B) N
(C) P
(D) Q

97. The sales representative could visit any of the following companies immediately after P except

(A) S
(B) R
(C) Q
(D) M

98. If the sales representative visits Q immediately before R and immediately after S, she must visit Q

(A) First
(B) Second
(C) Fourth
(D) Fifth

99. Which of the following could be the order in which the sales representative visits the six companies?

(A) M,S,P,N,R,Q
(B) Q,N,P,R,S,M
(C) M,R,N,Q,P,S
(D) P,S,M,R,Q,N

Direction (Qn. Nos. 100 – 105): Study the following information and answer the questions given below it.

A blacksmith has five iron articles *A*, *B*, *C*, *D* and *E*, each having a different weight.

(i) *A* weighs twice as much as *B*
(ii) *B* weighs four and a half times as much as *C*
(iii) *C* weighs half as much as *D*
(iv) *D* weighs half as much as *E*
(v) *E* weighs less than *A* but more than *C*

100. Which of the following is the lightest in weight?

(A) *A* (B) *B*
(C) *C* (D) *D*

101. E is lighter in weight than which of the other two articles?

(A) *A, B* (B) *D, C*
(C) *A, C* (D) *D, B*

102. Which of the above given statements is not necessary to determine the correct order of the articles according to their weights?

(A) (i) (B) (ii)
(C) (iii) (D) (v)

103. E is heavier than which of the following two articles?

(A) *D,B* (B) *D,C*
(C) *A,C* (D) *A,B*

104. Which of the following articles is the heaviest in weight?

(A) *A* (B) *B*
(C) *C* (D) *D*

105. Which of the following represents the descending order of weights of the articles?

(A) *A, B, E, D, C* (B) *B, D, E, A, C*
(C) *E, C, D, A, B* (D) *C, A, D, B, E*

106. Although most of the fastest growing jobs in today's economy will require a college degree, many of the new jobs being created from home health aide to desktop publisher-require knowledge other than that gained from earning a degree. For workers in those jobs, good basic skills in reading, communication, and mathematics play an important role in getting a job and developing a career.
From the information given above it can be validly concluded that, in today's economy,

(A) skills in reading, communication, and mathematics play an important role in developing a career as a desktop publisher
(B) the majority of the new jobs being created require knowledge other than that gained from earning a college degree
(C) a job as a home health aide will rely more on communication skills than on basic skills in reading and mathematics
(D) if a job is one of the fastest growing jobs, it will require a college degree

Direction (Qn. Nos. 107 – 113): In the following, the first set of two words expresses a relationship. Find out the word from among the choices given, that would complete the sentence and would express the same relationship as the first set of words.

107. 'Exercise is to gym' as 'eating is to .....'

(A) food (B) dieting
(C) fitness (D) restaurant

108. 'Secretly is to openly' as 'silently is to .....'

(A) scarcely (B) impolitely
(C) noisily (D) quietly

109. 'Careful is to cautious' as 'boastful is to .....'

(A) arrogant (B) humble
(C) joyful (D) suspicious

110. 'Reptile is to lizard' as 'flower is to .....'

(A) petal (B) stem
(C) daisy (D) alligator

111. 'Marathon is to race' as 'hibernation is to .....'

(A) winter (B) bear
(C) dream (D) sleep

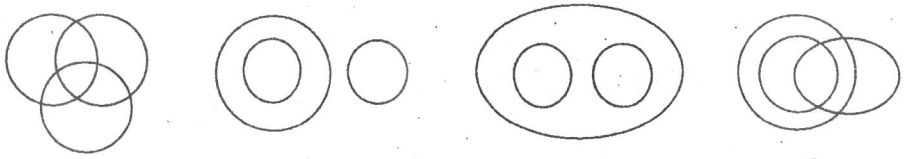
112. 'Odometer is to mileage' as 'compass is to .....'

(A) speed (B) hiking
(C) needle (D) direction

113. 'Optimist is to cheerful' as 'pessimist is to .....'

(A) gloomy (B) mean
(C) petty (D) helpful

Direction (Qn. Nos. 114 – 118): In the following questions, three classes are given. One of the four figures given represents the relationship among the three classes stated in the question. Select the figure which best represents the relationship among the three classes.



a b c d

114. Women, Mothers, Widows

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

115. Authors, Teachers, Men

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

116. Sparrows, Birds, Mice

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

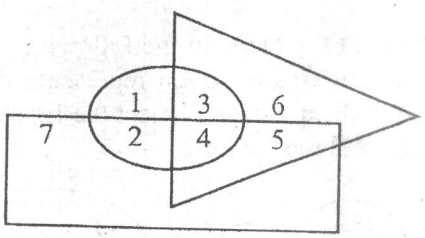
117. Tea, Coffee, Beverages

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

118. Boys, Students, Athletes

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

Direction (Qn. Nos. 119 – 122): In the following figure, the circle represents young persons, the triangle represents uneducated persons and the rectangle represents employed persons. Answer the questions based on the information.



119. Which region represents young, uneducated and employed persons?

(A) 6 (B) 5
(C) 4 (D) 3

120. The region which represents educated, employed young persons, is denoted by

(A) 2 (B) 3
(C) 4 (D) 5

121. Which region represents young, educated and unemployed persons?

(A) 7 (B) 4
(C) 1 (D) 5

122. Which region represents young, uneducated and unemployed persons?

(A) 1 (B) 2
(C) 6 (D) 3

Direction (Qn. Nos. 123 – 130): Find out the missing number(s) in the series from among the choices given.

123. 8, 43, 11, 41, ___, 39, 17

(A) 8 (B) 14
(C) 43 (D) 44

124. 15, ___, 27, 27, 39, 39

(A) 51 (B) 39
(C) 23 (D) 15

125. 4, 7, 25, 10, ___, 20, 16, 19

(A) 13 (B) 15
(C) 20 (D) 28

126. 70, 71, 76, ___, 81, 86, 70, 91

(A) 70 (B) 71
(C) 80 (D) 96

127. 0.15, 0.3, __, 1.2, 2.4

(A) 4.8 (B) 0.006
(C) 0.6 (D) 0.9

128. J14, L16, __, P20, R22

(A) S24 (B) N18
(C) M18 (D) T24

129. VIII, XI, XIV, __, XX

(A) IX (B) XXIII
(C) XV (D) XVII

130. 55, 54, 52, 49, __, __,

(A) 48, 46 (B) 45, 40
(C) 45, 39 (D) 45, 38

Directions (Qn. Nos. 131 – 133): In the following, a series is given with one term missing. Choose the correct alternative that will complete the series.

131. QPO NML KJI __ EDC

(A) HGF (B) CAB
(C) JKL (D) GHI

132. JAK KBL LCM MDN __

(A) OEP (B) NEO
(C) MEN (D) PFQ

133. QAR RAS SAT TAU __

(A) UAV (B) UAT
(C) TAS (D) TAT

134. If 'BUS' is coded as 'DWU', how will you code 'ROBS'?

(A) SPCT
(B) TQCV
(C) TQDU
(D) SPDU

135. If 'ROAD' is coded as 'WTFI', how will you code 'BEAT' ?

(A) URDG
(B) UREG
(C) TQCF
(D) GJFY

136. If 'LATE' is coded as 'PEXI', how will you code 'TRACE' ?

(A) XVELI
(B) XVEGI
(C) XVFGI
(D) XUEGH

137. If 'HJSM' means 'GIRL', what does 'RNES' mean ?

(A) BOYS
(B) COWS
(C) TOYS
(D) SOFT

138. 'DBMDVUUB' stands for 'CALCUTTA', how will you write 'BOMBAY'?

(A) DQODDX
(B) CPNCBZ
(C) DPNCBX
(D) CPMCBZ

139. If 'FIRE' is coded for a secret message to be teleprinted as 'EHQD'. How should the answer 'DONE' be relayed?

(A) DMOE
(B) CNMD
(C) DLNC
(D) DNPE

140. If in a certain language, POPULAR is coded as QPQVMBS, which word would be coded as GBNPVT?

(A) FAMOSU
(B) FAMOUS
(C) FASOUM
(D) FOSAUM

141. If in a certain language, COVET is coded as FRYHW, which word would be coded as SHDUO?

(A) QUAKE (B) REPAY
(C) STINK (D) PEARL

142. Gaurav walks 20 meters towards North. He then turns left and walks 40 meters. He again turns left and walks 20 meters. Further, he moves 20 meters after turning to the right. How far is he from his original position?

(A) 20 meters (B) 30 meters
(C) 50 meters (D) 60 meters

Direction (Qn. Nos. 143 and 144): For the Assertions (A) and Reasons (R) given in each of the question below, choose the correct alternative from the following.

a. Both A and R are true and R is the correct explanation of A.
b. Both A and R are true but R is not the correct explanation of A.
c. A is true but R is false
d. A is false but R is true

143. Assertion (A) : For the production of aluminium, cheap electricity is essential.
Reason (R) : Extraction of aluminium from its ore requires abundant supply of electricity.

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

144. Assertion (A) : Photosynthesis takes place in all green plants.
Reason (R) : Chlorophyll is essential for Photosynthesis.

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

Direction (Qn. No. 145): Choose the best alternative to complete the sentence.

145. A book always has .....

(A) chapters
(B) pages
(C) contents
(D) pictures

146. Which of the following is associated with diamond?

(A) Hardness
(B) Brilliance
(C) Use
(D) Conductivity

Direction (Qn. Nos. 147 and 148): Find the odd man out.

147.

(A) Sunday
(B) Monday
(C) Holiday
(D) Friday

148.

(A) Furnace oil
(B) Mobil oil
(C) Petrol
(D) Diesel oil

Direction (Qn. Nos. 149 and 150): In the following, a series is given with one term missing. Choose the correct alternative that will complete the series.

149. DEF DEF_2 DE_2F_2 ___ $D_2E_2F_3$

(A) DEF_3
(B) D_3EF_3
(C) D_2E_3F
(D) $D_2E_2F_2$

150. BCB DED FGF HIH ___

(A) JKL
(B) HJH
(C) IJI
(D) JHJ

***

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

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SEAL