TARGET IIT JEE-PMT CLASSES™

(NTTSE) National Target Talent Search Examination

(FOR CLASS X STUDENT)

Time: 2:30 Hrs **INSTRUCTIONS FOR THE CANDIDATES** **M.M: 540**

Parts	Section	Subject	No. of Questions	Mark per Question	Negative Marking	Total Marks
PART - I	A	Physics	15	4	-1/4th	60
	B	Chemistry	15	4	-1/4th	60
	C	Biology	15	4	-1/4th	60
	D	Mathematics	45	4	-1/4th	180
PART – II	E	Mental Ability	25	4	-1/4th	100
	F	Reasoning	20	4	-1/4th	80
Total			135			540

❖ Read each question carefully.

❖ Do not use white – fluid or any other rubbing material on sheet. No change in the answer once marked.

❖ Student can not use log tables and calculators or any other electronic material in the examination hall.

❖ Rough work is to be done on the rough sheet provided for this purpose with the booklet

❖ Immediately after the prescribed examination time is over, the answer sheet to be returned to the invigilator.

❖ Marking Scheme:

   a. If darkened bubble is RIGHT answer: **4 Marks**.

   b. If no bubble is darkened in any question: **No Mark.**

   c. If darkened bubble is WRONG answer: -**1/4 Marks (Minus)**

❖ If you are found involved in cheating or disturbing others then your OMR Sheet will be cancelled.

❖ Do not put any stain on OMR Sheet and hand it over back properly to the invigilator.

PART I
SECTION –A: PHYSICS

This section contains **15 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

1. Which of the following can produce a virtual image?

   (a) Plane mirror

   (b) Concave mirror

   (c) Convex lens

   (d) All of these

2. Choose the only wrong statement from the following

   (a) A convex mirror forms virtual images for all positions of the object

   (b) A concave mirror forms real images for all positions of the object.

   (c) A concave mirror, if suitably placed in front of an object, can form a unity.

   (d) The magnification produced by a convex mirror is always less than unity.

3. Power of a convex lens of focal length 50 cm is

   (a) -2 D

   (b) – 0.5 D

   (c) + 2 D

   (d) + 0.5 D

4. How will the image formed by a convex lens be affected if the upper half of the lens is wrapped with a black paper?

   (a) The size of the image is reduced to one-half.

   (b) The upper half of the image will be absent.

   (c) The brightness of the image is reduced.

   (d) There will be no effect.

5. Scattering of light involves

   (a) Reflection

   (b) Refraction

   (c) Diffraction

   (d) Change in direction of light

6. The intensity of scattered light varies inversely as n^{th} power of wavelength

(λ) of incident light where

(a) n = 2

(b) n = 1

(c) n = 4

(d) n = -4

7. A concave lens of suitable focal length is used for correcting a

(a) myopic eye

(b) hypermetropic eye

(c) both (a) and (b)

(d) neither (a) nor (b)

8. If 10^{10} electrons are removed from a neutral body, the change acquired by the body is

(a) + 1.6 x 10^{-29} C

(b) + 1.6 x 10^{-9} C

(c) − 1.6 x 10^{-9} C

(d) + 10^{10} C

9. Two conductors of resistance 2R and R are connected in series in a battery circuit. The ratio of heat developed in them is

(a) 2 : 1

(b) 1 : 2

(c) 1 : 3

(d) 1 : 4

10. What is immaterial for an electric fuse wire?

(a) Its specific resistance

(b) Its radius

(c) Its length

(d) Current flowing through it.

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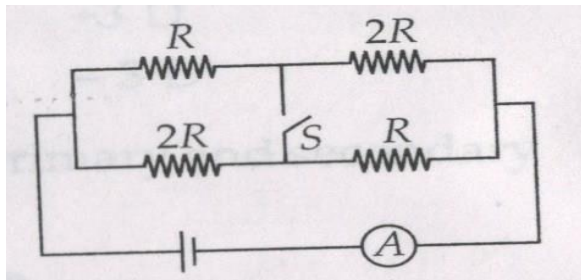Registered Office: - 106, 1st Floor, Pragati Deep Building, District Centre, Laxmi Nagar, Delhi-110092
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11. If n equal resistances are first connected in series and then connected in parallel, the ratio of the maximum to the minimum resistance is

(a) n

(b) $\dfrac{1}{n^2}$

(c) n^2

(d) $\dfrac{1}{n}$

12. A circuit is shown in the figure. if switch 'S' is closed, the reading of an ammeter (A)

(a) Does not change

(b) Increases

(c) Decreases

(d) May decrease or increase

13. A wire of resistance R is stretched to twice of its original length. Its new resistance will be

(a) 4R

(b) R/4

(c) 2R

(d) R/2

14. A mirror which can produce a magnification of +1 is

(a) Convex mirror

(b) Concave mirror

(c) Plane mirror

(d) Both concave mirror and plane mirror

15. Wavelength of violet colour is

(a) $7900 \overset{0}{A}$

(b) $6000 \overset{0}{A}$

(c) $5800 \overset{0}{A}$

(d) $4000 \overset{0}{A}$

SECTION –B: CHEMISTRY

This section contains **15 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.
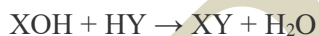
16. The solution with the lowest concentration of H^+ ion is

(a) pH = 7

(b) pH = 8.6

(c) pH = 2.0

(d) pH = 6.8

17. Soda-acid fire extinguisher extinguishes the fire by

(a) Cutting the supply of air

(b) Removing the combustible substance

(c) Raising the ignition temperature

(d) None of these

18. The equation between an acid and a base is

$$XOH + HY \rightarrow XY + H_2O$$

Which of the following is the cation part of salt?

(a) X

(b) OH

(c) H

(d) Y

19. Pure gold is

(a) 14 carat

(b) 24 carat

(c) 18 carat

(d) 22 carat

20. Which of the following reactions cannot occur?

(a) $2AgNO_{3(aq)} + Fe_{(s)} \rightarrow Fe(NO_3)_{2(aq)} + 2Ag_{(s)}$

(b) $CuSO_{4(aq)} + Zn_{(s)} \rightarrow ZnSO_{4(aq)} + Cu_{(s)}$

(c) $CuSO_{4(aq)} + 2Ag_{(s)} \rightarrow Cu_{(s)} + Ag_2SO_{4(aq)}$

(d) $2AgNO_{3(aq)} + Zn_{(s)} \rightarrow Zn(NO_3)_{2(aq)} + 2Ag_{(s)}$
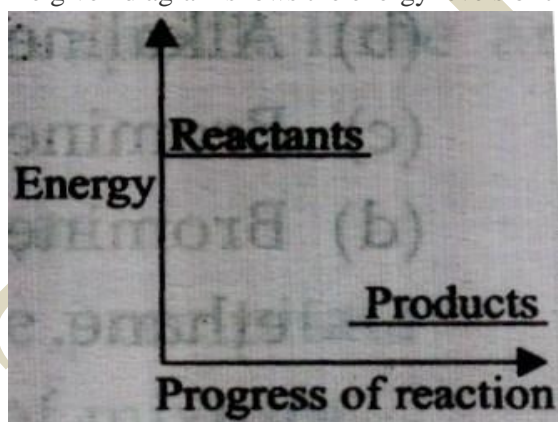
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21. Which of the following oxide cannot be reduced with carbon to obtain the metal?

  (a) MnO_2

  (b) Cr_2O_3

  (c) Al_2O_3

  (d) All of these

22. Silver chloride turns grey when placed in sun because of the formation f which of the following when placed in sun?

  (a) Silver metal

  (b) Carbon dioxide

  (c) Silver oxide

  (d) Silver sulphate

23. When copper sulphate solution reacts with iron metal, copper metal is formed. This reaction comes under which of the following category?

  (a) Decomposition reaction

  (b) Single displacement reaction

  (c) Double displacement reaction

  (d) Combination reaction.

24. The given diagram shows the energy levels of the reactants and products for a particular reaction:

Which of the following processes can be related to the given diagram?

  (a) Ethyne gas burns in oxygen to form carbon dioxide and water along with evolution of heat.

  (b) When solid mercury (ii) oxide is heated liquid mercury and oxygen gas are produced.

  (c) Hydrogen gas combines with chlorine gas in the presence of light to form hydrogen chloride gas.

  (d) Potassium chlorate decomposes in presence of heat to form potassium chloride and oxygen.

25. Daivik, a class 10 student studied the reaction between a carbonate and an acid, in the lab. His results are shown in the given graph:
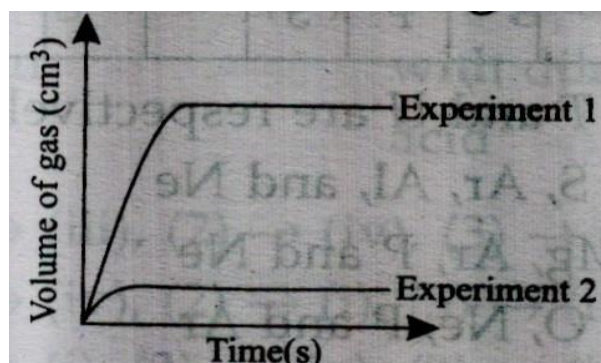
Which of the following experimental conditions did he use?

		Experiment 1	**Experiment 2**
(a)	(i)	Excess acid, 5 g carbonate, 20^0 C	Excess acid, 5 g carbonate, 40^0C
(b)	(ii)	Excess acid, 4g carbonate	Excess acid, 1 g carbonate
(c)	(iii)	200 cm^3 of 0.5 mol/dm^3 acid, excess carbonate	100 cm^3 of 1 mol/dm^3 acid, excess carbonate
(d)	(iv)	150 cm^3 of 0.1 mol/dm^3 acid, excess carbonate	50 cm^3 of 0.5 mol/dm^3 carbonate

26. In an experiment, 5 cm^3 of 1.0 mol/dm^3 NaOH solution is gradually added to 10 cm^3 of 1.0 mol/dm^3 HCl solution containing methyl orange indicator.
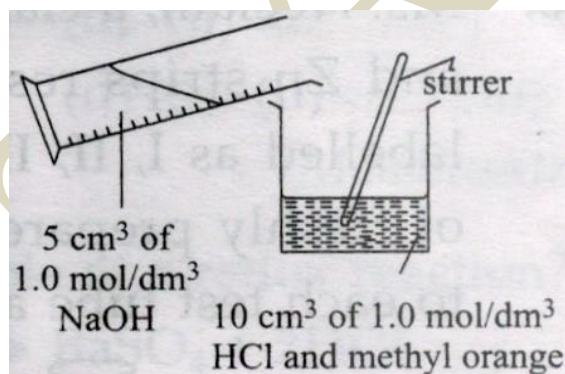
Which of the following changes will occur in the mixture?

(a) pH of the resultant solution increases

(b) the methyl orange indicator changes colour from red to yellow.

(c) Number of moles of water decreases and beaker gets warmed up.

(d) A precipitate is formed.

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27. Chemical reaction between quick line and water is characterised by

    (a) Evolution of hydrogen gas

    (b) Formation of slaked lime precipitate

    (c) Change in temperature of mixture

    (d) Change in colour of the product.

28. Which one is an example of a redoz reaction?

    (a) $BaCl_2 + H_2SO_4 \rightarrow BaSO_4 + 2HCl$

    (b) $CaCO_3 \rightarrow CaO + CO_2$

    (c) $Ca(OH)_2 + 2HCl \rightarrow CaCl_2 + 2H_2O$

    (d) $NaH + H_2O \rightarrow NaOH + H_2$

29. Which reagent in able to dissolve gold and platinum?

    (a) Nitric acid

    (b) Aqua-regia

    (c) Hydrochloric acid

    (d) Sulphuric acid

30. Amalgam is

    (a) Submetal

    (b) Alloy

    (c) Compound

    (d) Heterogeneous mixture.

SECTION – C : BIOLOGY

This section contains **15 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

31. Translocation of solutes primarily takes place through

    (a) Phloem

    (b) Xylem

    (c) Cortex

    (d) Pith

32. Digestion within a digestive tract is

    (a) Intracellular

    (b) Intercellular

    (c) Incomplete

    (d) None of these

33. In normal expiration, the diaphragm is

    (a) Arched

    (b) Flattened

    (c) Not involved

    (d) Perforated

34. The longest cell in human body is

    (a) Nerve cell

    (b) Liver cell

    (c) Reproductive cell

    (d) Muscle fibre

35. Master gland in the body is

    (a) Thyroid

    (b) Adrenal

    (c) Islets of Langerhans

    (d) Pituitary

36. Which is the correct sequence of the components of a reflex arc?

    (a) Receptors → muscles → sensory neuron → motor neuron → spinal cord

    (b) Receptors → motor neuron → spinal cord → sensory neuron → muscles

    (c) Receptors → spinal cord → sensory neuron → motor neuron → muscles

    (d) Receptors → sensory neuron → spinal cord → motor neuron → muscles

37. Bending of stem towards the sunlight in plants is due to

    (a) Unequal distribution of auxins

    (b) Uniform occurrence of gibberellins

    (c) Inhibition of cytokinin synthesis

    (d) Unequal distribution of cytokinins and gibberellins.

38. Select the mis- matched pair.

    (a) Adrenaline   –   Pituitary gland

    (b) Testosterone   -   Testes

    (c) Estrogen   -   Ovary

    (d) Thyroxine   -   Thyroid gland

39. Which of the following is a contraceptive device?

    (a) Copper-T

    (b) Condom

    (c) Diaphragm

    (d) All of these

40. The type of reproduction shown in the figure is

    (a) Budding

    (b) Fragmentation

    (c) Regeneration

    (d) Fission.
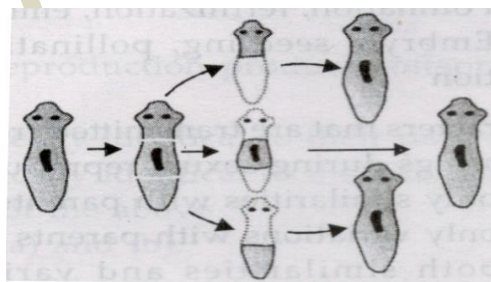
41. Which of the following is celebrated as "World AIDS Day"?

    (a) September 1

    (b) October 1

    (c) November 1

    (d) December 1

42. Match the labelled parts of the given figure with the correct option.
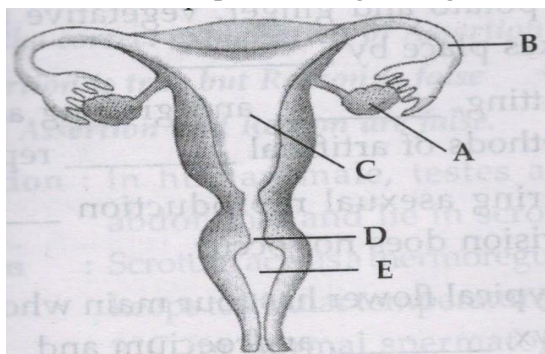
	A	B	C	D	E
(a)	Fallopian	Oviduct	Uterus	Cervix	Vagina tube
(b)	Oviduct	Vas	Ovary	Vagina	Cervix
(c)	Ovary	Oviduct	Uterus	Cervix	Vagina
(d)	Ovary	Fallopian tube	Uterus	Vagina	Cervix

43. Why are testes located outside the abdominal cavity in scrotum?

(a) Because sperm formation requires more space.

(b) Because sperm formation requires a lower temperature.

(c) Because sperm formation requires a higher temperature

(d) None of the above

44. The instrument for measuring blood pressure is called

(a) Manometer

(b) Sphygmomanometer

(c) Barometer

(d) Potentiometer

45. The component of gastric juice which inactivates ptyalin is

(a) Pepsin

(b) Mucus

(c) Renin

(d) Hydrochloric acid.

SECTION – D : MATHEMATICS

This section contains **45 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

46. What is the value of 'sin θ' if tan θ is $\left(-4\big/3 \right)$?

(a) $-\dfrac{4}{5}$ but not $\dfrac{4}{5}$

(b) $-\dfrac{4}{5}$ or $\dfrac{4}{5}$

(c) $\dfrac{4}{5}$ but not $-\dfrac{4}{5}$

(d) $\dfrac{5}{4}$ but not $-\dfrac{5}{4}$

47. Two isosceles triangles have their corresponding angles equal and their areas are in the ratio 25 : 36. Find the ratio of their corresponding heights.

(a) 25 : 35

(b) 36 : 25

(c) 5 : 6

(d) 6 : 5

48. In an Arithmetic sequence of terms, S_n represents sum to n terms, then what is S_n-S_{n-1}?

(a) $t_1 + t_2 + t_{n-1}$

(b) S_{n-2}

(c) $\displaystyle\sum_{n=1}^{n-2} t_n$

(d) t_n

49. Find the number X in the data given below.

I. The L.C.M. of x and 18 is 36

II. The H.C.F. of x and 18 is 2

(a) 1

(b) 2

(c) 3

(d) 4

50. What is the total number of integer pairs (x,y) satisfying the equation x + y = xy?

(a) 0

(b) 1

(c) 2

(d) 3

51. In the given figure, if PQR is the tangent to a circle at Q whose centre is O, AB is a chord parallel to PR and $\angle$ BQR = 70^0, find the measure of $\angle$ AQB.

   (a) 70^0

   (b) 30^0

   (c) 35^0
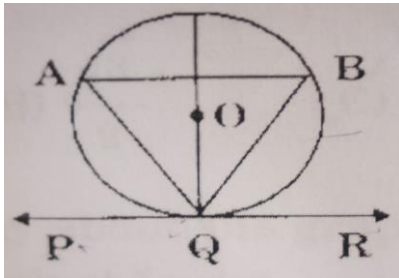
   (d) 40^0

52. If x = 0.7, what is the value of 2x?

   (a) $1.\overline{4}$

   (b) $1.\overline{5}$

   (c) $1.\overline{54}$

   (d) $1.\overline{45}$

53. If the expression $x^2 - x + c$ when divided by $(x +1)$ leaves a remainder 3, then what is the value of c?

   (a) 0

   (b) 1

   (c) 2

   (d) 3

54. If $\left(\dfrac{a}{3}, 4\right)$ is the midpoint of the line segment joining A (-6, 5) and B(-2, 3), then what is the value of 'a'?

   (a) -4

   (b) -12

   (c) 12

   (d) -6

55. Δ ABC $\approx$ Δ DEF and the perimeters of Δ ABC and Δ DEF are 30 cm and 18 cm respectively. If BC = 9cm, then measure of EF is:

   (a) 6.3 cm

   (b) 5.4 cm

   (c) 7.2 cm

   (d) 4.5 cm

56. Find the value of $\dfrac{\sin(-660^0)\tan(1050^0)\sec\left(-420^0\right)}{\cos(225^0)\cos ec(315^0)\cos(510^0)}$

   (a) $\dfrac{\sqrt{3}}{4}$

   (b) $\dfrac{\sqrt{3}}{2}$

   (c) $\dfrac{2}{\sqrt{3}}$

   (d) $\dfrac{4}{\sqrt{3}}$

57. What can you say about the graph of $y = x^2 - 12x + 40$?
   (a) Intersects X –axis at 1 point.
   (b) Intersects X-axis at 2 points
   (c) Intersects X-axis at 3 points.
   (d) Does not intersect at any point.

58. Find the sum of integers from 1 to 100 that are divisible by 2 or 5.
   (a) 3000
   (b) 3050
   (c) 4050
   (d) 5000

59. If there are n Arithmetic means between a & b then what is their common difference?

   (a) $\dfrac{n-1}{b+2}$

   (b) $\dfrac{b-a}{n+1}$

   (c) $\dfrac{a-b}{n-1}$

   (d) $\dfrac{b+a}{n-1}$

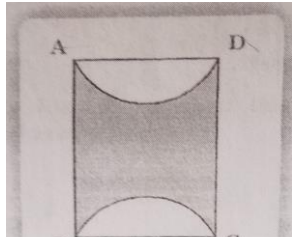**60.** If the roots of $x^2 - px + q = 0$ are two consecutive integers, then find the value of $p^2 - 4q$.
   (a) 1
   (b) 2
   (c) 3
   (d) 4

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61. Which of the following will have a terminating decimal expansion?

(a) $\dfrac{77}{210}$

(b) $\dfrac{23}{30}$

(c) $\dfrac{125}{441}$

(d) $\dfrac{23}{8}$

62. The sum of three non-zero prime numbers is 100. One of them exceeds the other by 36. Find the largest number.

(a) 73

(b) 91

(c) 67

(d) 57

63. The string of a kite is 100 m long and it makes an angle of 60^0 with the horizontal. If there is no slack in the string, find the height of the kite from the ground.

(a) $50\sqrt{3}m$

(b) $100\sqrt{3}m$

(c) $50\sqrt{2}m$

(d) 100 m

64. A circle touches the side BC of Δ ABC at P and touches AB and AC produced at Q and R respectively. If AQ = 5 cm, then find the perimeter of Δ ABC.
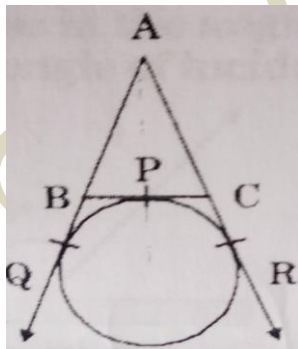
(a) 5 cm
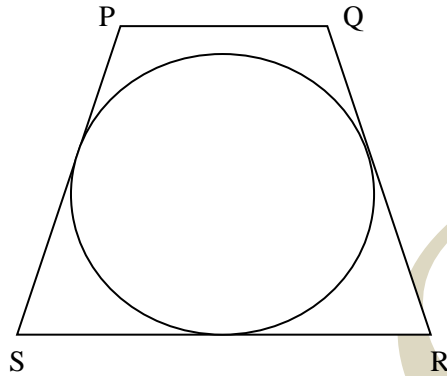
(b) 10 cm

(c) 25 cm

(d) 50 cm

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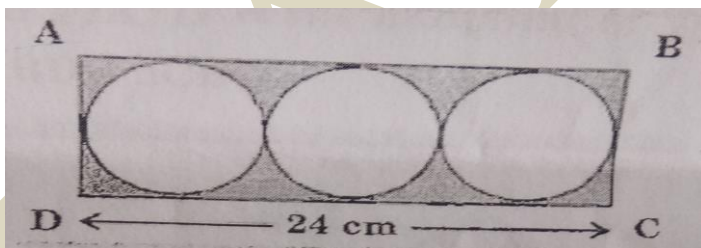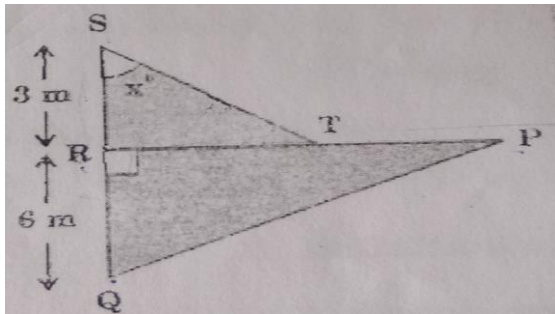Registered Office: - 106, 1st Floor, Pragati Deep Building, District Centre, Laxmi Nagar, Delhi-110092
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65. What is the maximum value of $2-4x-x^2$?

   (a) 2

   (b) 4

   (c) 6

   (d) 8

66. Two poles of heights 6 meters and 11 metres stand vertically on a plane ground. If the distance between their feet is 12 metres, what will be the distance between their tops?

   (a) 10 m

   (b) 12 m

   (c) 13 m

   (d) 15 m

67. If p, q and r are the zeroes of the polynomial $f(x) = ax^3 + bx^2 + cx + d$, then the value of $\dfrac{1}{p} + \dfrac{1}{q} + \dfrac{1}{r}$ is

   (a) $\dfrac{-b}{a}$

   (b) $\dfrac{c}{a}$

   (c) $-\dfrac{c}{d}$

   (d) $\dfrac{c}{d}$

68. If $(\sin\alpha + \cos ec\alpha)^2 + (\cos\alpha + \sec\alpha)^2 = \tan^2\alpha + \cot^2\alpha + K$ then find K.

   (a) 9

   (b) 7

   (c) 4

   (d) 3

69. E and F are points on the sides PQ and PR respectively of a Δ PQR. In which of the following options is EF $\|QR$?

   (a) PE = 3.9 cm, EQ = 3 cm, PF = 3.6 cm, FR = 2.4 cm

   (b) PE = 4 cm, QE = 4.5 cm, PF = 8 cm, RF = 9 cm

   (c) PQ = 1.28 cm, PR = 2.56 cm, PE = 0.18 cm, PF = 0.52 cm

   (d) Both (B) and (C)

70. ABCD is a rectangle with AD = 10 cm. if the shaded area is 100 cm^2, then the shortest distance between the semicircles is:

   (a) 2.5 π cm

   (b) 5 π cm

   (c) (2.5 π +5) cm

   (d) (2.5 π -2.5) cm

71. In the rectangle shown, the value of a – b is :
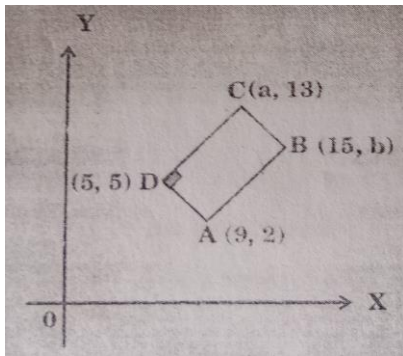
72. Find the sum of all values of "x", so that $16^{(x^2+3x-1)} = 8^{(x^2+3x+2)}$

(a) 0

(b) 3

(c) -3

(d) -5

73. Solve for x, given y = x^2 -1 and x = 2y +1

(a) $x \in \{0,1\}$

(b) $x \in \left\{\dfrac{-1}{2}, \dfrac{-3}{4}\right\}$

(c) $x \in \left\{\dfrac{-1}{2}, 1\right\}$

(d) $x \in \left\{0, \dfrac{-3}{4}\right\}$

74. Find the value for "x" so that three points $\{(2,7), (6,1), (x, 0)\}$ are collinear.

(a) 7

(b) $4\dfrac{1}{2}$

(c) 10

(d) $6\dfrac{2}{3}$

75. Let "b" be a positive number such that the system. $\begin{cases} ax + 3y = 1 \\ 5x + ay = b \end{cases}$ has an infinite number of solutions. By

rounding to the nearest hundredth, the value of "b" equals_____

(a) 0.60

(b) 1.29

(c) 1.67

(d) 3.87

76. If the first four terms of an arithmetic sequence are : a, 2a, b and a-6-b for some numbers "a" and "b", then the value of the 100th term is :

  (a) -100

  (b) -300

  (c) 150

  (d) -150

77. A circle is inscribed in trapezoid PQRS. If PS = QR = 25 cm, PQ = 18 cm and SR = 32cm, what is the length of the diameter of the circle?

  (a) 14 cm

  (b) 25 cm

  (c) 24 cm

  (d) $\sqrt{674}\,cm$

78. In the diagram, ABCD is a rectangle, and three circles are positioned as shown. The area of the shaded region, rounded to the nearest cm^2. Is :

  (a) 41

  (b) 43

  (c) 45

  (d) 47

79. In the diagram, PTR and QRS are straight lines.

Given that, $\tan x^0 = \dfrac{4}{3}$ and "T" is the midpoint of PR, calculate the length of PQ in cm.

(a) $\sqrt{8}$

(b) 9

(c) $\sqrt{59}$

(d) 10

80. In the diagram, PQR is a tangent to the circle at Q and "O" is the centre of the circle. Find the value of "x".

(a) 25^0

(b) 30^0

(c) 35^0
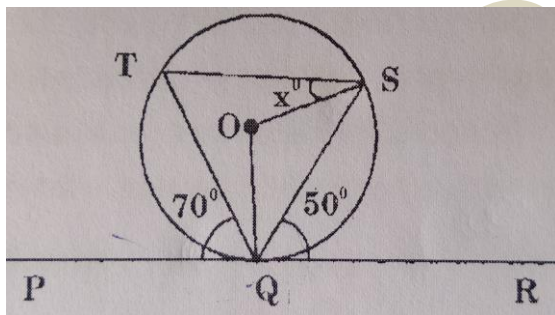
(d) 40^0

81. An irrational number is :

(a) A terminating and non-terminating decimal

(b) A non-terminating and non repeating decimal

(c) A terminating and repeating decimal

(d) A non-terminating and repeating decimal

82. If $\cos\theta + \sin\theta = \sqrt{2}\cos\theta, then \cos\theta - \sin\theta =$

   (a) $\sqrt{2}\tan\theta$

   (b) $\sqrt{2}\sin\theta$

   (c) $\dfrac{\sqrt{2}}{\cos\theta + \sin\theta}$

   (d) None of these

83. If α, β and γ are the zeroes of the cubic polynomial $3x^3 - 5x^2 - 11x - 3$, then $\alpha + \beta + \gamma = $ _____

   (a) $\dfrac{5}{3}$

   (b) $\dfrac{-11}{3}$

   (c) 1

   (d) $\dfrac{-5}{3}$

84. In the given figure, $\angle ACB = 90^0$ and $CD \perp AB$. Then $\dfrac{BC^2}{AC^2} = $ _____

   (a) $\dfrac{BD}{CD}$

   (b) $\dfrac{CD}{AD}$

   (c) $\dfrac{BD}{AD}$

   (d) $\dfrac{BC}{CD}$
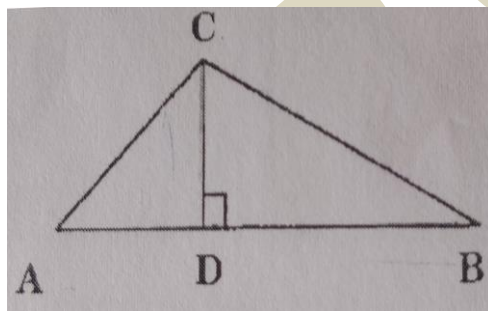
85. By solving $\dfrac{5}{x+y} - \dfrac{2}{x-y} = -1 and \dfrac{15}{x+y} - \dfrac{7}{x-y} = 10$, we get:

   (a) $x = \dfrac{19}{351}; y = \dfrac{-46}{351}$

   (b) $x = \dfrac{-19}{351}; y = \dfrac{46}{351}$

   (c) $x = \dfrac{-46}{351}; y = \dfrac{-19}{351}$

   (d) $x = \dfrac{-46}{351}; y = \dfrac{19}{351}$

86. Number of common tangents that can be drawn to two concentric circles is:

(a) 0

(b) 1

(c) 3

(d) 4

87. If $2009 = p^a.q^b$, where "p" and "q" are prime numbers, then find the value of p + q.
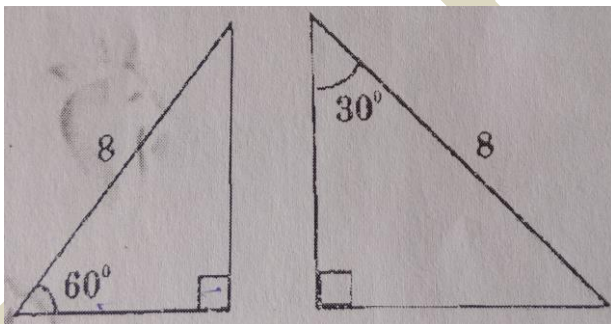
(a) 3

(b) 48

(c) 51

(d) 2009

88. The length of shadow of tower is $\sqrt{3}$ times that of its length. The angles of elevation of the sun is:

(a) 45^0

(b) 30^0

(c) 60^0

(d) 90^0

89. The degree of the polynomial $6a^4 - a^4b^3 + ab^3 + b^4$ is :

(a) 4

(b) 3

(c) 7

(d) 8

90. Which of the following best describes the triangles shown below?

(a) Both are similar and congruent

(b) Both are similar but not congruent

(c) Both are congruent but not similar

(d) Both are neither similar or congruent.

PART II
SECTION – E: MENTAL ABILITY

This section contains **25 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

91. Choose the diagram which represent the boy, girl and a dog?

(a)

(b) .

(c) .

(d)
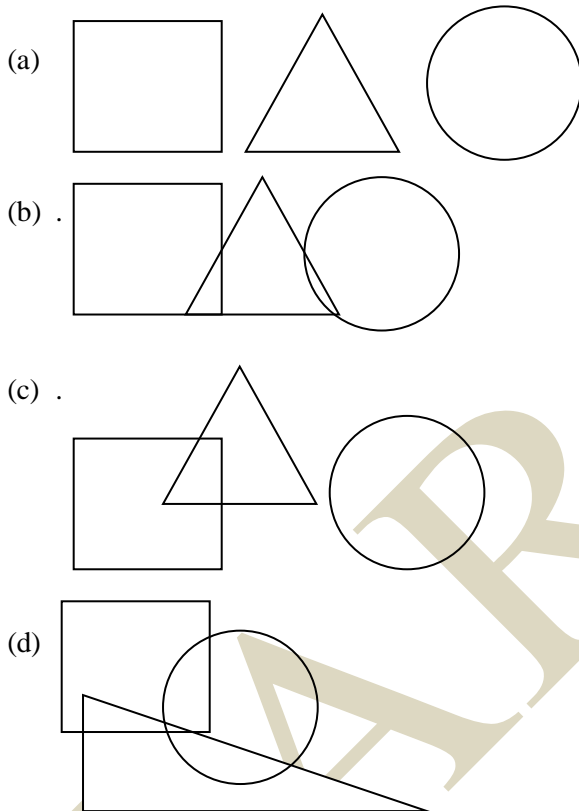
92. What are the factors of the given expression?

$$16x^2 – 72xy + 81y^2 – 12x + 27y$$

(a) $(6x – 7y)(6x – 7y – 5)$

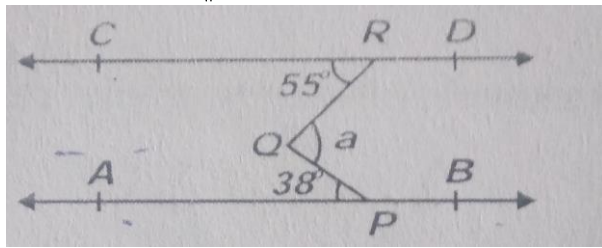(b) $(4x – 9y)(4x – 9y - 3)$

(c) $(4x + 9y)(4x + 9y + 3)$

(d) $(6x + 7y)(6x – 7y + 5)$

93. In the figure AB $\parallel CD$, find the value of $\angle$ a.

(a) 93^0

(b) 103^0

(c) 83^0

(d) 97^0

94. A boy walks a while failing towards the sun he turns to his right and continues to walk, later he turns left and finally, turning to his right, he stops. Which direction is he facing now?

(a) North

(b) South

(c) East

(d) West

95. A solid metallic cylinder of radius 12 cm and height 175 cm is melted and moulded into another solid cylinder of height 63 cm. What is the radius of the new cylinder?

(a) 14

(b) 4π

(c) 20

(d) 5π

96. The following facts are known about an unknowns number X :

I.   The sum of digits of X is 15

II.   The unit`s digit of X is 6.

Then which of the following statement is certainly true about X?

(a) X is divisible by 3 but not by 6

(b) X is divisible by 6 but not by 9

(c) X is not divisible by 6 but divisible by 9

(d) X is divisible by both 6 and 9

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97. The average age of A, B and C is 43 years. Which of the following statements are required to find the eldest among them?

Statements:

I.　　　Age of C is 65 years

II.　　　Age of A is 25 years

(a) I is sufficient

(b) Both I and II are required

(c) I and II together are not sufficient

(d) II is sufficient

98. X is an integer such that it leaves a remainder of 2 when divided by 3, leaves a remainder of 3 when divided by 5, and leaves a remainder of 5 when divided by 7. What could be a possible value of x from among the following options?

(a) 53

(b) 68

(c) 74

(d) 83

99. One line forms two regions in a plane. Similarly, two lines in a plane can form a maximum of four regions. These are shown in the figure below:

What is the maximum number of regions that can be formed by 4 lines in a plane? Lines need not be concurrent
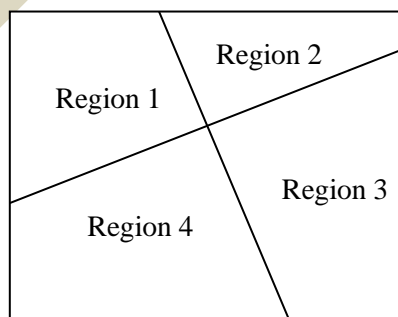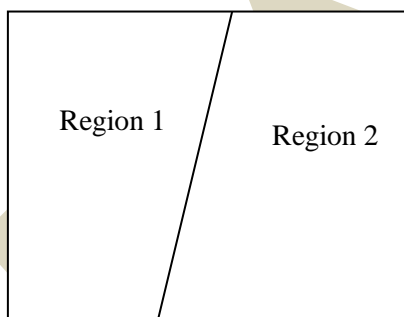
(a) 7

(b) 8

(c) 10

(d) 11

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100. If A, B, C, D are distinct decimal digits, then which of the following options is correct?

$$
\begin{array}{r}
A\;4\;B\;C \\
\times\;\;\;\;\;C \\
\hline
1\;A\;1\;D\;C
\end{array}
$$

(a) A = 3   B = 7   C = 5   D = 9

(b) A = 2   B = 3   C = 6   D = 5

(c) A = 3   B = 8   C = 6   D = 5

(d) A = 2   B = 3   C = 5   D = 7

101. With what operators, should the symbols @ and < be replaced so that the following expression is valid.

$100 - 81 \div 27$ @ $3 < 6 = 115$

(a) + and –

(b) X and ÷

(c) + and x

(d) ÷ and –

102. What will be the number in the blank box?

1	3
2	14

4	6
5	77

7	9
8	

(a) 98

(b) 128

(c) 189

(d) 194

**DIRECTIONS:-** Read the following information carefully and answer the questions given below it.

103.   There are five men A, B, C, D and E and six women P, Q, R, S, T and U. A, B, R is advocates, C, D, P, Q and S are doctors and the rest are teachers. Some teams are to be selected from amongst these eleven persons subject to the following conditions:-

A, P and U have to be together
B cannot go with D or R
E and Q have to be together
C and T have to be together
D and P cannot go together
C cannot go with Q.

If the team is to consist of one advocate, two doctors, three teachers and C may not go with T, the members of the team are: -

(a) A, E, P, Q, S, U

(b) A, E, P, Q, T, U

(c) B, E, Q, S, T, U
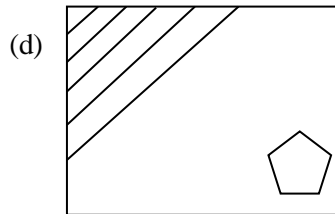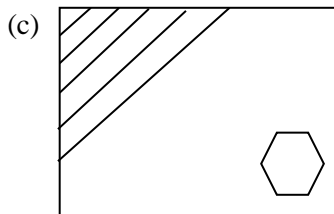
(d) E, Q, R, S, T, U

104.   What comes next?
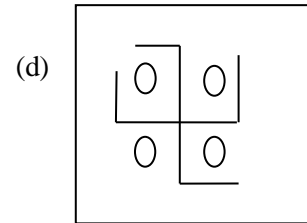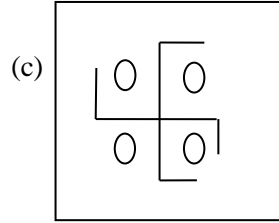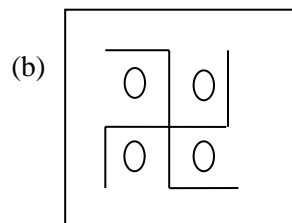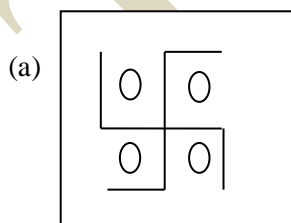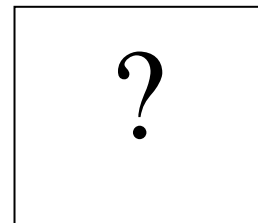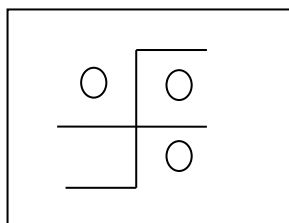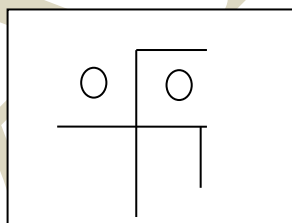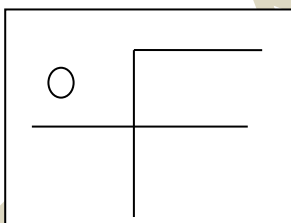
105.   Find the odd one

(a)

(b)

(c)

(d)
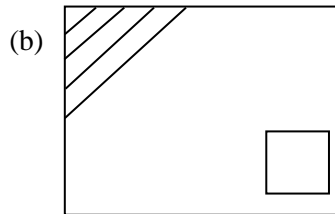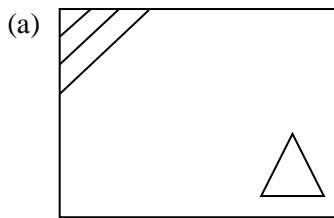
106.   In a certain code, MONKEY is written as XDJMNL. How is TIGER written in that code?

(a) QDFHS

(b) SDFHS

(c) SHFDQ

(d) UJHFS

107.

Directions: In the following questions, different alphabets stand for various symbols as indicated below:
R stands for addition; S stands for subtraction;
T stands for multiplication; U stands for division;
V stands for equal to ; W stands for greater than;
X stands for less than.
Out of the four alternatives given in these questions, only one is correct according to the above letter symbols, identify the correct answer.

(a) 30 U 6 R 2 V 4 T 3

(b) 30 S 6 U 2 U 4 V 3

(c) 30 U 6 S 2 X 4 T 3

(d) 30 R 6 U 2 V 4 T 3

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108. Find the missing numbers. 3, 9, 27, 81,......

(a) 243

(b) 324

(c) 342

(d) 432

**109.** Find the missing numbers. 216, 221, 231, 246, 266,......

(a) 289

(b) 271

(c) 281

(d) 291

110. A three centimetre cube has been painted red on all its sides. It is cut into one centimeter cubes. How many cubes will be there with only one side painted red?

(a) 4

(b) 6

(c) 1

(d) 9

111. Directions: In the following figure, the circle denotes intelligent persons the triangle is for creative persons, while the rectangle consists of lazy persons. Refer to this figure to answer these questions: Who are creative and lazy but not intelligent persons?

(a) A, C and F

(b) F

(c) C and F

(d) D, E and F
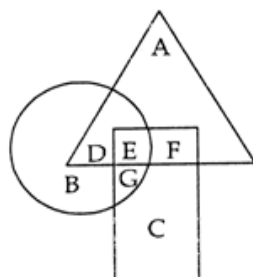
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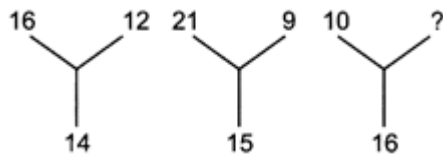
112.   Find the number which replaces the question mark.

(a) 21

(b) 12

16   12   21   9   10   ?

(c) 32   14   15   16

(d) 22

113.   Directions: Read the following information carefully and answer the questions given below it. There are five men A, B, C, D and E and six women P, Q, R, S, T and U. A, B and R are advocates; C, D, P, Q and S are doctors and the rest are teachers. Some teams are to be selected from amongst these eleven persons subject to the following conditions:

A, P and U have to be together.
B cannot go with D or R.
E and Q have to be together.
C and T have to be together.
D and P cannot go together.
C cannot go with Q.

If the team is to consist of one advocate, three doctors and one male teacher, the members of the team are:

(a) A, D, P, S, U

(b) C, D, R, S, T

(c) D, E, Q, R, S

(d) D, E, Q, R, T

114.   A is B's wife and C is A's sister. D is the father Of C, while E is D's son. What is the relation of E to B?

(a) Brother

(b) Brother-in-law

(c) Cousin

(d) Father-in-law

115.   Directions: Choose the odd one out from given four words.

(a) Run

(b) Climb

(c) Swim

(d) Listen

SECTION – F: REASONING

This section contains **20 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.
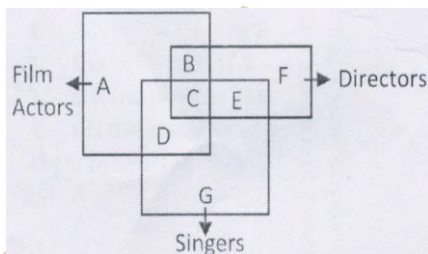
116. In a certain code language

(i)   'Count me out' is written as '874'.

(ii)   'you can count' is written as '719'.

(iii)   'you and me' is written as '924'.

How will 'and' be written in that code language?

(a) 4

(b) 7

(c) 9

(d) 2

(e) None of these

117. In the following venn diagram, identify the letter which denotes Film Actors who are Singers but not Directors.

(a) D

(b) C

(c) E

(d) F

(e) None of these
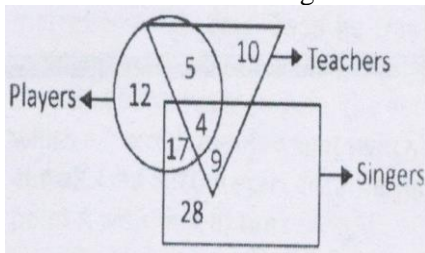
118. The diagram represents Teachers. Singers and players. Study the diagram and find out the number of teachers who are also singers.

(a) 30

(b) 28

(c) 14

(d) 13

(e) None of these

119. The figure represents three classes of youth in a village. Find the number of youth who are educated but poor?
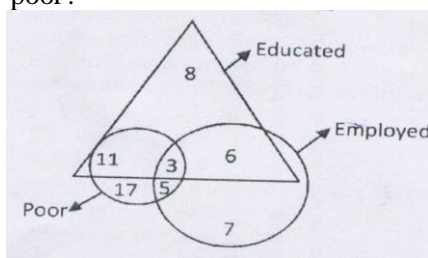
(a) 28

(b) 22

(c) 20

(d) 14

(e) None of these

120. Given that

1. A is the brother of B

2. C is the father of A

3. D is the brother of E

4. E is the daughter of B

Then, the uncle of D is

(a) A

(b) B

(c) C

(d) E

(e) None of these

121. Examine the following three figures in which the numbers follow a specific pattern.

Find the missing number (?) in the third figure.

(a) 7

(b) 16

(c) 21

(d) 28

(e) None of these

122. Find the missing letter in the following table.

(a) B

(b) N

(c) M

(d) L

(e) None of these

123. Starting from point 'A' Sushil travels 10 metres towards East. Then he travels 10 metres towards North and reaches to the base of a 5 metres hiegh pole. The vertex of which has a red coloured light switching on and off. Find out the exact distance between point A with that of the red light

(a) 10 metres

(b) 18 metres

(c) 20 metres

(d) 15 metres

(e) None of these

124. Consider the following statements:

Assertion (A): People and their problems are unique.

Reason (R): Active listening conveys something to the person who is listened to.

On the basis of the above, choose the correct option in your answer.

(a) Both (a) and (R) are true, but (R) is not the correct

(b) (A) is true, but (R) is false

(c) (A) is false, but (R) is true

(d) Both (A) and (R) are true and (R) correctly explains (A)

(e) None of these

125. While sitting in a park, you observe that a man comes to the place on a motorbike, leaves it there and goes away with someone else in a car. You would:

(a) Chase the person.

(b) Inform the police

(c) Call back the person.

(d) Remain engaged in your enjoyment.

(e) None of these

126. Six students – A, B, C, D, E and F are sitting in a ground, A and B have come from Delhi while other from Bangalore. D and F are tall and all others are short. A, C and D are girls while other are boys. Who is the tall girl hailing from Bangalore?
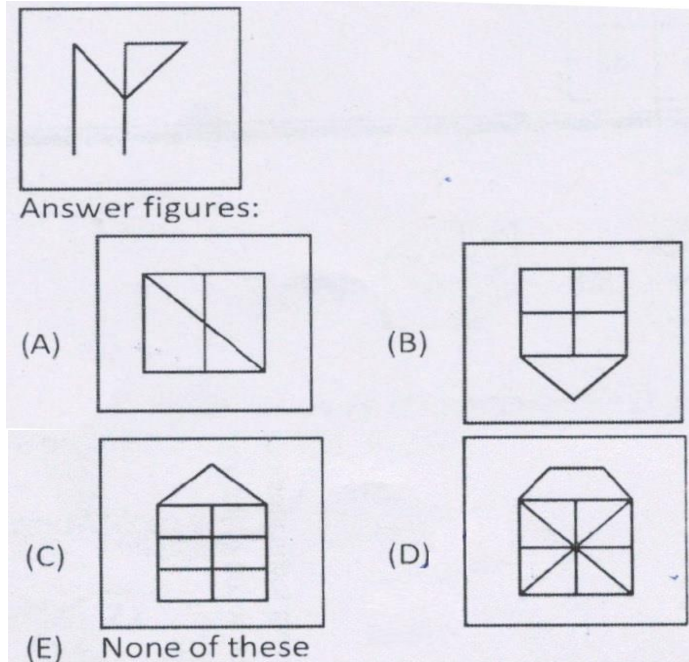
(a) C

(b) D

(c) E

(d) F

(e) None of these

127. Select the answer figure in which the question figure is hidden/embedded.

128. P,Q, R, S, T and U are 6 members of a family in which there are two married couples. T, a teacher is married to a doctor who is mother of R and U. Q, the lawyer is married to P. P has one son and one grandson. Of the two married ladies one is a housewife. There is also one student and one male engineer in the family.

Which of the following is true about the grand-daughter of the family?

(a) She is a student

(b) She is a lawyer.

(c) She is an engineer

(d) She is a doctor

(e) None of these

129. In a certain code language ,

"only in serial order" is written as "ve pun a to"

"order in the state" is written as "li ve su pu"

"the logical idea only" is written as "su na ri jo"

and "in idea or theory" is written as "zt job k pu"

The code 'li ri to ve' may represent which of the following?

(a) Serial order theory only

(b) Only idea state order

(c) State logical serial order

(d) Serial theory state the

(e) None of these

130. A is the son of C; C and Q are sisters; Z is the mother of Q and P is the son of Z. which of the following statements is true?

(a) P and A are cousins

(b) P is maternal uncle of A

(c) Q is maternal grandfather of A

(d) C and P are sisters.

131. Some translated words in an artificial Language (in which the word order is not necessarily same) are given below

mie	Pie	sie	good	person	sing
pie	sie	rie	sing	good	lyrics
tie	rie	sie	love	good	lyrics

What is the translocation for "prson love lyrics"?

(a) pie   tie   rie

(b) tie   rie   sie

(c) rie   mie   tie

(d) sie   mie   pie

132. In the given sequence, some letters are missing. Which of the given options can fill the blanks in the correct order from left to right?

ab_ab_aaa_bbaaa_bbbb

(a) abab

(b) abba

(c) aabb

(d) baba

133. Choose appropriate option from given alternatives such that the relationship defined by ':' is preserved.

PNLJ : LIFC and VTRP: _____

(a) ROLI

(b) SOLH

(c) RPOM

(d) DMEN

134. If South-East becomes North ; and North-East becomes West; then West becomes

(a) North – East

(b) South – East

(c) North – West

(d) South – West

135. Choose the conclusions which logically follow from the given statements.

Statement:

All the pens are papers

All the papers are boats

Some birds are boats

Conclusion:

A. Some boats are pens

B. Some birds are papers

C. None of the pens are birds

(a) Only A and B

(b) Only A

(c) Only C

(d) Only A and C

ANSWER KEYS

(FOR CLASS X NTTSE)

Part - I		Physics	Q. (1-15)	Part-II	Mental Ability & Reasoning		Q.(91-135)
		Chemistry	Q. (15-30)				
		Biology	Q.(31-45)				
		Mathematics	Q.(46-90)				
1.	D	30.	B	59.	B	88.	B	117.	A
2.	D	31.	A	60	A	89.	C	118.	D
3.	C	32.	B	61.	D	90.	A	119.	A
4.	C	33.	A	62	C	91.	A	120.	A
5.	D	34.	A	63.	A	92.	B	121.	B
6.	C	35.	D	64.	B	93.	A	122.	C
7.	A	36.	D	65.	C	94.	C	123.	D
8.	B	37.	A	66.	C	95.	C	124.	D
9.	A	38.	A	67.	C	96.	B	125.	B
10.	C	39.	D	68.	B	97.	A	126.	B
11.	C	40.	C	69.	B	98.	B	127.	D
12.	C	41.	D	70.	A	99.	D	128.	A
13.	A	42	C	71.	D	100.	D	129.	C
14.	B	43.	B	72.	C	101.	C	130.	B
15.	D	44.	B	73.	C	102.	D	131.	C
16	C	45.	D	74.	D	103.	B	132.	B
17.	A	46.	B	75.	B	104.	A	133.	A
18.	A	47.	C	76.	A	105.	D	134.	B
19.	B	48.	D	77.	C	106.	A	135.	B
20.	C	49.	D	78.	A	107.	C		
21.	D	50.	C	79.	D	108.	A		
22.	A	51.	D	80	B	109	D		
23.	B	52.	B	81.	B	110.	B		
24.	A	53.	B	82.	B	111.	B		
25.	B	54.	B	83.	A	112.	D		
26.	A	55.	B	84.	C	113.	C		
27.	C	56.	C	85.	C	114.	B		
28.	D	57.	D	86.	A	115.	D		
29.	B	58.	B	87.	B	116.	D		

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