SAT-2 **NTSE(I)/19**

राष्ट्रीय प्रतिभा खोज परीक्षा (प्रथम स्तर) 2019
NATIONAL TALENT SEARCH EXAMINATION (FIRST LEVEL) 2019

411–B

Roll No. रोल नम्बर

Booklet Number पुस्तिका संख्या

SCHOLASTIC APTITUDE TEST
(For Students of Class X)

Time : 120 Minutes Max. Marks : 100
(For Blind Candidates Time : 2 Hours 30 Minutes)

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you open the question booklet.

1. Answers are to be given on a **separate answer sheet (OMR sheet).**
2. Write your **Roll Number** as allotted to you in the admission card very clearly on **the test-booklet** and darken the appropriate circles on the **answer sheet** as per instructions given.
3. There are 100 questions in this test. All are compulsory. The question numbers 1 to 13 belong to Physics, 14 to 26 Chemistry, 27 to 33 Botany, 34 to 40 Zoology, 41 to 60 Mathematics, 61 to 71 History, 72 to 82 Geography, 83 to 93 Political Science and 94 to 100 are on Economics subjects.
4. Please follow the instructions given on the answer sheet for marking the answers.
5. If you do not know the answer to any question, do not waste time on it and pass on to the next one. Time permitting, you can come back to the questions, which you have left in the first instance and attempt them.
6. Since the time allotted for this question paper is very limited, you should make the best use of it by not spending too much time on any one question.
7. **Rough work** can be done **on the given Blank Pages at the back of the booklet** but not on the answer sheet/loose paper.
8. Every correct answer will be awarded one mark. There will be no negative marking.
9. **Please return the Answer sheet (OMR Sheet) only to the invigilator after the test.**
10. Hindi version of the question paper will be considered as final in case of any dispute arising out of variation in translated version.

PLEASE TURN OVER THE PAGE AND START YOUR WORK.

शैक्षिक योग्यता परीक्षा
(कक्षा X के विद्यार्थियों के लिए)

समय : 120 मिनट पूर्णांक : 100
(दृष्टिहीन अभ्यर्थियों के लिए समय : 2 घंटे 30 मिनट)

परीक्षार्थियों के लिए निर्देश

प्रश्न पुस्तिका खोलने से पहले निम्न निर्देशों को ध्यान से पढ़िए।

1. उत्तर एक **अलग उत्तर पत्रक (ओ० एम० आर० शीट)** में देने हैं।
2. कृपया अपना **रोल नम्बर** जैसा कि आपके प्रवेश पत्र पर दिया गया है, निर्देशानुसार **टेस्ट पुस्तिका** पर बहुत स्पष्ट लिखिये और **उत्तर-पत्रक** पर दिये गये गोलों को काला करें।
3. इस परीक्षा में 100 प्रश्न हैं। सभी प्रश्न अनिवार्य हैं। प्रश्न संख्या 1 से 13 भौतिक विज्ञान, 14 से 26 रसायन विज्ञान, 27 से 33 वनस्पति विज्ञान, 34 से 40 प्राणी विज्ञान, 41 से 60 गणित, 61 से 71 इतिहास, 72 से 82 भूगोल, 83 से 93 राजनीति विज्ञान एवं 94 से 100 अर्थशास्त्र विषयों पर आधारित हैं।
4. कृपया उत्तर चिह्नित करने के लिए उत्तर-पत्रक पर दिये गये निर्देशों को ध्यान से समझ कर उनकी अनुपालना कीजिए।
5. यदि आप किसी प्रश्न का उत्तर नहीं जानते हैं तो उस पर बहुत समय न गंवाइये और अगले प्रश्न पर बढ़ जाइये। यदि बाद में समय मिले तो जिन प्रश्नों को आपने पहले छोड़ दिया था, उन पर वापस आकर उनके उत्तर दीजिए।
6. क्योंकि इस प्रश्न पत्र के लिए निर्धारित समय बहुत सीमित है, इसलिए इसका अधिकतम उपयोग कीजिये और किसी प्रश्न पर बहुत समय न लगाइये।
7. **रफ कार्य** पुस्तिका के अंत में दिए गए रिक्त पृष्ठों पर किया जा सकता है किन्तु **उत्तर-पत्रक/अलग कागज** पर नहीं।
8. प्रत्येक सही उत्तर का एक अंक प्रदान किया जाएगा। इसमें ऋणात्मक अंकन नहीं होगा।
9. **कृपया परीक्षा के बाद केवल उत्तर-पत्रक (ओ० एम० आर० शीट) ही निरीक्षक को लौटाइए।**
10. अनुवादित विवरण में अन्तर से उठे किसी भी विवाद की स्थिति में प्रश्न-पत्र के हिन्दी विवरण को निर्णायक माना जाएगा।

कृपया पृष्ठ पलटिये और अपना कार्य आरम्भ कीजिए।

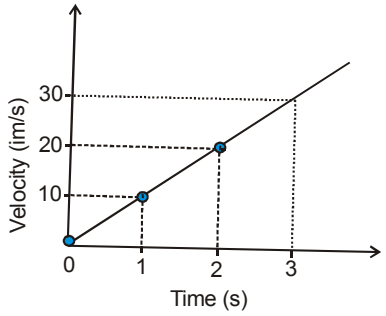
NATIONAL TALENT SEARCH EXAMINATION-2018-19, RAJASTHAN
SCHOLASTIC APTITUDE TEST (SAT) PAPER & SOLUTION

1. The inertia of a body depends upon.
(1) Gravitational acceleration (2) Centre of gravity of body
(3) Shape of body (4) mass of body

Sol. More mass more inertia, less mass less inertia

Ans. (4)

2. Velocity-time graph of a body moving with uniform acceleration is shown in the diagram. The distance travelled by the body in 3 seconds is



(1) 90 m (2) 45 m (3) zero (4) 10 m

Sol. Area under v–t graph represent distance so

Distance = $\frac{1}{2}\times 30\times 3 = 45\text{m}$

Ans. (2)

3. The distance between two masses is to be halved. The gravitational force between them will be
(1) double (2) one-fourth (3) quadruple (4) half

Sol. $F = \frac{Gm_1m_2}{r^2}$

Now , $\frac{Gm_1m_2}{(r/2)^2} = \frac{4Gm_1m_2}{r^2} = 4F$

Ans. (3)

4. Which statement is correct among the following for gravitational acceleration (g) due to earth ?
(1) The value of g is equal at poles and equatorial circle
(2) The value of g is more at poles than at equatorial circle
(3) The value of g is more at equatorial circle than at poles
(4) None of these

Sol. $g_P \propto \frac{1}{R_P^2}$ & $g_e \propto \frac{1}{R_e^2}$

$\frac{g_P}{g_e} = \frac{R_e^2}{R_P^2}$

$R_e > R_P$

So $g_p > g_e$

Ans. (2)

5. Which waves are used in the device “SONAR” ?
(1) Audible waves (2) Ultrasound waves (3) Infrasound waves (4) Light waves

Ans. (2)

6. The speed of a wave is 350 m/s and wavelength is 70 cm. The frequency of wave is
(1) 500 Hz (2) 700 Hz (3) 50 Hz (4) 200 Hz

Sol. $v = n\lambda$

$$n = \frac{v}{\lambda} = \frac{350}{70 \times 10^{-2}} = 500 \text{ Hz}$$

Ans. (1)

7. Which defect in human eye arises due to the irregularities in spherical shape of cornea ?
(1) Cataract (2) Hypermetropia or long sightedness
(3) Myopia or short sightedness (4) Astigmatism

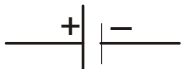
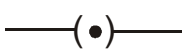
Ans. (4)

8. Focal length of convex lens is +40 cm. The power of this lens will be
(1) + 4 dioptre (2) + 2.5 dioptre (3) + 40 dioptre (4) + 25 dioptre

Sol. $P = \frac{100}{f(cm)} \Rightarrow P = \frac{100}{40} = 2.5D$

Ans. (2)

9. Match the electric devices given in Column–A with their symbols shown in Column–B.

	Column–A		**Column–B**
(a)	Voltmeter	(i)	
(b)	Rheostat	(ii)	
(c)	Electric cell	(iii)	
(d)	Plug key	(iv)	

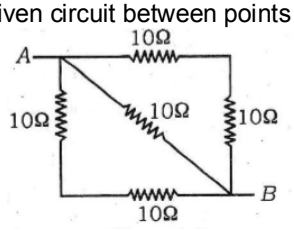
Then correct answer is
(1) (a) – (iii), (b) – (i), (c) – (iv), (d) – (ii) (2) (a) – (iii), (b) – (iv), (c) – (ii), (d) – (i)
(3) (a) – (iii), (b) – (ii), (c) – (i), (d) – (iv) (4) (a) – (iii), (b) – (iv), (c) – (i), (d) – (ii)

Ans. (4)

10. Which one of the following is not a part of direct current generator ?
(1) Commutator (2) Sliprings
(3) Armature (4) Carbon brushes

Ans. (2)

11. The equivalent resistance of the given circuit between points A and B is



(1) 40 Ω (2) 4 Ω (3) 5 Ω (4) 0.2 Ω

Sol. $R_{AB} = \frac{10}{2} = 5\ \Omega$

Ans. (3)

12. If 4 joule work is to be done in stretching a spring by 4 cm then spring constant of the spring is
(1) 5×10^3 N/m (2) 5×10^4 N/m (3) 2×10^3 N/m (4) 2×10^4 N/m

Sol. $U = \frac{1}{2}kx^2$

$k = \frac{2U}{x^2} = \frac{2\ U}{x^2} = \frac{2\ \times 4}{4 \times 4 \times 10^{-4}} = \frac{1}{2} \times 10^4 = 5 \times 10^3$ N/m

Ans. (1)

13. The electric device which is having more use time and less electricity consumption is
(1) Incandescent bulb (2) CFL
(3) LED (D) Tube light

Ans. (3)

14. Homogeneous mixture among the following is :
(1) milk (2) cloud (3) smoke (4) air

Sol. Air $\rightarrow N_2 \rightarrow 78\%$, $O_2 \rightarrow 21\%$
Rest $-CO_2$, H_2S etc.
Air is homogeneous mixture

Ans (4)

15. The substance showing sublimation property among the following is :
(1) common salt (2) copper sulphate (3) potassium nitrate (4) camphor

Sol. (1) Common salt -NaCl
(2) Copper sulphate - $CuSO_4$
(3) Potassium nitrate - KNO_3
(4) Camphor -sublime - $C_{10}H_{16}O$ Shows sublimation

Ans (4)

16. Number of molecule present in 32 g of O_2 is :
(1) 6.022×10^{23} (2) 3.011×10^{23} (3) 1.51×10^{23} (4) 6.022×10^{22}

Sol. Mole = $\frac{\text{Given mass of molecules}}{\text{Molecular mass}} = \frac{\text{No. of molecule}}{6.023 \times 10^{23}}$

As per question $\Rightarrow \frac{32}{32} = \frac{\text{No. of } O_2 \text{ molecule}}{6.023 \times 10^{23}}$

$\Rightarrow$ No. of O_2 molecule = 6.023×10^{23}

Ans (1)

17. Number of neutrons is isotope of hydrogen, tritium is :
(1) 0 (2) 1 (3) 2 (4) 3

Sol. Isotopes of hydrogen

	$_1H^1$	$_1H^2$	$_1H^3$
	Protium	Deutirium	Tritium
Proton	1	1	1
Neutron	0	1	2
Electron	1	1	1

Since, A = Z + n
$\Rightarrow$ n = A – Z
$\Rightarrow$ n = 3 –1 = 2
So No. of neutron in tritium = 2

Ans. (3)

18. The formula of chloride of an element X is XCl_3. The formula of its oxide will be :
(1) XO_2 (2) XO_3 (3) X_2O_3 (4) X_3O_2

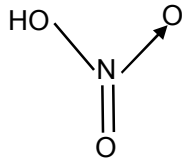
Sol. Since element chloride = XCl_3
then valency of X = 3
Oxide of element X = $X^{+3}\ O^{-2} = X_2O_3$

Ans. (3)

19. Molecule containing coordinate covalent bond among the following is :

(1) H_2O (2) HNO_3 (3) $BaCl_2$ (4) CaO

Sol. HNO_3 =



There is one coordinate bond ($\longrightarrow$) present between nitrogen & oxygen.

Ans. (2)

20. Concentration of hydrogen and hydroxyl ions in mole/litre for pure water is :

(1) 1×10^{-7} (2) 2×10^{-7} (3) 1×10^{-14} (4) 1×10^{-6}

Sol. For pure water $[H^+] = [OH^-] = 1 \times 10^{-7}$ mole / litre

Ans. (1)

21. The compound used for removal of acidity in stomach is :

(1) NaCl (2) $MgCl_2$ (3) $Mg(OH)_2$ (4) $CaCl_2$

Sol. For removal of acidity in stomach, mild bases are used which is $Mg(OH)_2$ (Milk of magnesia)

Ans. (3)

22. The chemical formula of dead burnt plaster is :

(1) $CaSO_4.\ \frac{1}{2}H_2O$ (2) $CaSO_4.2H_2O$ (3) $CaSO_4.H_2O$ (4) $CaSO_4$

Sol. Dead burnt plaster is sulphate salt of calcium, which do not contain any water of crystallisation

$$CaSO_4 \cdot 2H_2O \xrightarrow{406K} \underset{\text{Dead Burnt plaster}}{CaSO_4} + 2H_2O$$

Ans (4)

23. Which type of catalyst is glycerol in the following reaction ?

$$2H_2O \xrightarrow{\text{glycerol}} 2H_2O + O_2$$

(1) Positive catalyst (2) Negative catalyst (3) Biocatalyst (4) Autocatalyst

Sol. Here glycerol decreases the rate of reaction so it works as negative catalyst .

Ans. (2)

24. Element having largest atomic radius among the following is :

(1) Li (2) Be (3) B (4) C

Sol. All these four element belong from same period as Li, Be, B, C. On moving left to right across a period atomic size decreases due to increase in effective nuclear charge. Order of increasing atomic radius in given element will be Li > Be> B > C.
So Li will have largest atomic radius.

Ans (1)

25. IUPAC name of isopantane is :

(1) 2-ethyl propane (2) pentane (3) 2-methyl butane (4) 2, 2-dimethyl propane

Sol. Structure of isopentane will be

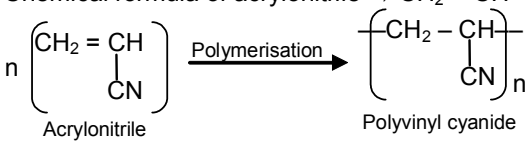
$$CH_3 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_2 - CH_3$$

It's IUPAC name will be 2-methyl butane.

Ans. (3)

26. The polymer of acrylonitrile is
(1) Polythene (2) Polyvinyl chloride (3) Polyvinyl cyanide (4) Polystyrene

Sol. Chemical formula of acrylonitrile $\rightarrow CH_2 = CH - CN$



Acrylonitrile Polyvinyl cyanide

Ans. (3)

27. The cell organelle discovered by de Duve is
(1) Plastid (2) Ribosome (3) Lysosome (4) Centrosome

Ans. (3)

28. The example of hydrophytes are :
(1) Hydrilla, Calotropis (2) Lotus, Salsola (3) Moss, Lichen (4) Sagittaria, Trapa

Ans. (4)

29. Number of male gametes in the growing pollen tube is :
(1) one (2) two (3) three (4) seven

Ans. (2)

30. The main method of reproduction in Yeast is :
(1) Budding (2) Sporogenesis (3) Cutting (4) Grafting

Ans. (1)

31. The number of biosphere reserves established in India is
(1) 18 (2) 118 (3) 142 (4) 669

Ans. (1)

32. The bark of which plant is used as medicine ?
(1) Aloe vera (2) Terminalia arjuna
(3) Curcuma longa (4) Papaver somniferum

Ans. (2)

33. In which year was Indian Space Research committee changed into Indian Space Research Organisation ?
(1) 1965 (2) 1969 (3) 1975 (4) 1981

34. Bacterial disease is
(1) Dengue (2) Polio myelitis (3) Tuberculosis (4) Chicken pox

Ans. (3)

35. Honey bee culture is known as
(1) Silviculture (2) Apiculture (3) Sericulture (4) Pisciculture

Ans. (2)

36. Disease caused by deficiency of Vitamin-D is
(1) Night blindness (2) Beri-beri (3) Scurvy (4) Rickets

Ans. (4)

37. Universal donor blood group is
(1) A (2) O (3) AB (4) B.

Ans. (2)

38. Skeletal muscles are
(1) striated and voluntary (2) Unstriated and voluntary
(3) Striated and involuntary (4) Unstriated and involuntary

39. Water vascular system is found in
(1) Cnidaria (2) Echinodermata (3) Mollusca (4) Annelida
Ans. (2)

40. Which of the following is not a secondary reproductive organ ?
(1) Fallopian tube (2) Uterus (3) Ovary (4) Vagina
Ans. (3)

41. Which of the following is not an irrational number ?
(1) $2+\sqrt{5}$ (2) $\sqrt{2}$ (3) $\frac{7}{\sqrt{5}}$ (4) $\frac{2\sqrt{11}}{7\sqrt{11}}$

Sol. $\frac{2\sqrt{11}}{7\sqrt{11}}=\frac{2}{7}$ is rational number.

$\therefore$ $\frac{2\sqrt{11}}{7\sqrt{11}}$ is not an irrational number.

Ans. (4)

42. If a polynomial $x^4 - 4x^2 + x^3 + 2x + 1$ is divided by $x - 1$, then remainder will be
(1) 0 (2) 1 (3) 9 (4) – 1

Sol. $P(x) = x^4 - 4x^2 + x^3 + 2x + 1$
$P(x) \div (x - 1)$
Remainder = $P(1) = (1)^4 - 4(1)^2 + (1)^3 + 2(1) + 1$
$= 1 - 4 + 1 + 2 + 1 = 1$

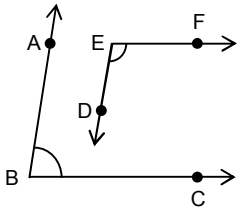
Ans. (2)

43. The sum of the digits of a two digit number is 14. If 18 is subtracted from the number, digits are reversed. Find the number
(1) 86 (2) 77 (3) 68 (4) 76

Sol. $N = 10x + y$ $N' = 10y + x$
$x + y = 14$ _____ (1)
$N - 18 = N'$
$(10x + y) - 18 = 10y + x$
$9(x - y) = 18$
$x - y = 2$ _____(2)
from (1) & (2) we get $x = 8$ & $y = 6$
$N = 86$

Ans. (1)

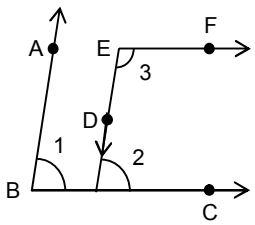
44. In the given figure, AB || ED and BC || EF, then the value of $\angle ABC + \angle DEF$ is



(1) 90° (2) 180° (3) 120° (4) 360°

Sol.

$\angle 1 = \angle 2$ AB || DE _____(1)
$\angle 2 + \angle 3 = 180°$ _____(2)
From (1) & (2)
$\angle 1 + \angle 3 = 180°$



Ans. (2)

45. How many cubic centimetres make 100 kilolitre ?

(1) 10^{10} (2) 10^5 (3) 10^8 (4) 10^6

Sol. $1000\ cm^3 = 1\ l$

$1\ kl = 1000 \times 1000\ cm^3$

$100\ kl = 10^8\ cm^3$

Ans. (3)

46. 5^{th} term of an A.P. is 10 more than its 3^{rd} term. What is the difference of its 9^{th} and 6^{th} terms ?

(1) 15 (2) 3 (3) 6 (4) 10

Sol. $a_5 = 10 + a_3$

$a + 4d = 10 + a + 2d$

$2d = 10$

$d = 5$

$a_9 - a_6 = a + 8d - (a + 5d)$

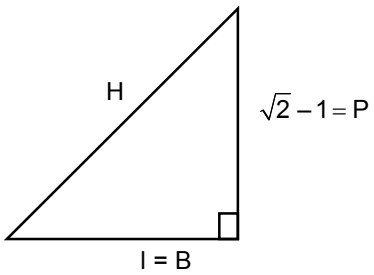
$= 3d = 3\ (5) = 15$

Ans. (1)

47. If tan A = $\sqrt{2} - 1$ where A is an acute angle then the value of sin A • cos A will be

(1) $2\sqrt{2}$ (2) $\sqrt{2}$ (3) $\frac{1}{2\sqrt{2}}$ (4) $\frac{3}{\sqrt{2}}$

Sol. A = $\frac{\sqrt{2}-1}{1}$



$h = \sqrt{P^2 + B^2}$

$= \sqrt{(\sqrt{2}-1)^2 + 1^2}$

$= \sqrt{2+1-2\sqrt{2}+1}$

$= \sqrt{4-2\sqrt{2}}$

SinA Cos A = $\frac{\sqrt{2}-1}{\sqrt{4-2\sqrt{2}}} \times \frac{1}{\sqrt{4-2\sqrt{2}}}$

$= \frac{\sqrt{2}-1}{4-2\sqrt{2}} = \frac{\sqrt{2}-1}{2\sqrt{2}(\sqrt{2}-1)} = \frac{1}{2\sqrt{2}}$

Ans. (3)

48. The multiplication of all prime numbers between 1 and 10 is

(1) 105 (2) 945 (3) 210 (4) 1890

Sol. $2 \times 3 \times 5 \times 7 = 210$

Ans. (3)

49. If the roots of $(b - c)x^2 + (c - a)x + (a - b) = 0$ are real equal, then which of the following is true ?

(1) $2b = a + c$ (2) $2a = b + c$ (3) $2c = a + b$ (4) $2b = a - c$

Sol. $(b - c)x^2 + (c - a)x + (a - b) = 0$

for equal roots

$D = 0$

$(c - a)^2 - 4(b - c)(a - b) = 0$

$c^2 + a^2 - 2ac - 4ba + 4b^2 + 4ac - 4bc = 0$

$c^2 + a^2 + 4b^2 - 4ab - 4bc + 2ac = 0$

$(c + a - 2b)^2 = 0$

$c + a = 2b.$

Ans. (1)

50. For which value of k, a pair of equations $x + y - 4 = 0$, $2x + ky - 3 = 0$ has no solution ?

(1) 0 (2) 2 (3) 6 (4) 8

Sol. $x + y - 4 = 0$, $2x + ky - 3 = 0$

for no solution

$$\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$$

$$\frac{x}{2x} = \frac{y}{ky}$$

$\Rightarrow 2xy = kxy$

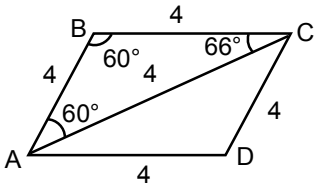
$k = 2.$

Ans. (2)

51. The length of the side of a rhombus is 4 cm. If one of the diagonals is equal to the side of rhombus, then the length of other diagonal in cm will be

(1) $\frac{\sqrt{3}}{2}$ (2) $\sqrt{3}$ (3) $2\sqrt{3}$ (4) $4\sqrt{3}$

Sol.



area $\Delta ABC = \frac{\sqrt{3}}{4}(4)^2 = 4\sqrt{3}$

area $ABCD = 8\sqrt{3} = \frac{1}{2} \times 4 \times d_2$

$d_2 = 4\sqrt{3}$.

Ans. (4)

52. The mean of first seventeen whole numbers is

(1) 8 (2) 7.5 (3) 8.5 (4) 18

Sol. First 17 whole numbers are

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Mean = $\left(\frac{n+1}{2}\right)^{th}$ term

= $\left(\frac{17+1}{2}\right)^{th}$ term

= 9^{th} term

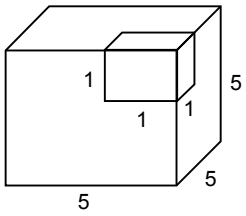
= 8.

Ans. (1)

53. A cube of edge 1 cm is cut from a corner of a solid cube of edge 5 cm. What is the total surface area of the solid remained ?

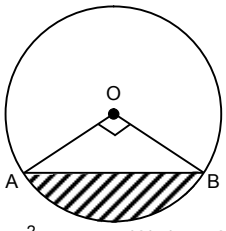
(1) 150 cm^2 (2) 149 cm^2 (3) 151 cm^2 (4) 147 cm^2

Sol.



Ans. (1)

54. In the given figure, chord AB subtends an angle 90° at centre O of the circle having radius 4 cm. Area of the shaded region will be



(1) $(4\pi - 2)$ cm^2 (2) $4(\pi - 2)$ cm^2 (3) $(\pi - 8)$ cm^2 (4) $(\pi - 2)$ cm^2

Sol. Area of shaded region = Area of sector – Area of triangle

$= \frac{\theta}{360}\pi r^2 - \frac{1}{2} \times b \times h$

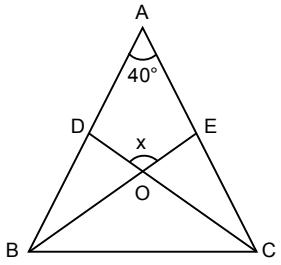
$= \frac{90}{360}\pi(4)^2 - \frac{1}{2} \times 4 \times 4$

$= 4\pi - 8$

$= 4(\pi - 2)$ cm^2

Ans. (2)

55. In the given figure, AB = AC, $\angle BAC = 40°$, BE and CD are angle bisectors of $\angle B$ and $\angle C$ respectively. If $\angle DOE = x$, the value of x is



(1) 140° (2) 70° (3) 110° (4) 40°

Sol.

$\angle BAC = 40°$

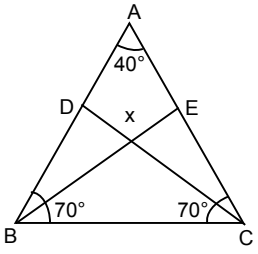
$\angle ABC = \angle ACB = \frac{180 - 40}{2} = \frac{140}{2} = 70°$

$\angle BOC = 180° - (35 + 35)$

$= 180° - 70°$

$= 110°$

$\angle COD = 110°$. (vertically opposite angle)

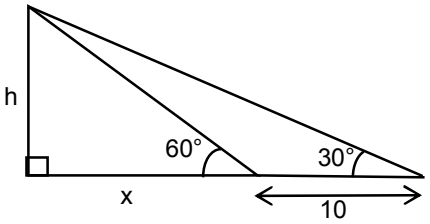


Ans. (3)

56. The shadow of a tower, when the angle of elevation of the sun is 30° is found to be 10 metre longer than when it was 60°. The height of the tower will be

(1) $5\sqrt{3}$ m (2) $5\left(\sqrt{3}-1\right)$ m (3) $5\left(\sqrt{3}+1\right)$ m (4) $3\sqrt{5}$ m

Sol.



$\tan 60° = \frac{h}{x} \Rightarrow x = \frac{h}{\sqrt{3}}$

$\tan 30° = \frac{h}{x+10}$

$\frac{1}{\sqrt{3}} = \frac{h}{\frac{h}{\sqrt{3}}+10}$

$\left(\frac{h}{\sqrt{3}}+10\right) \times \frac{1}{\sqrt{3}} = h$

$\frac{h}{3}+\frac{10}{\sqrt{3}} = h$

$\frac{10}{\sqrt{3}} = \frac{2h}{3}$

$\frac{10\times 3}{2\sqrt{3}} = h \Rightarrow 5\sqrt{3}$

Ans. (1)

57. A die is thrown once. If the probability of getting a number less than 4 is x and the probability of getting a number greater than 4 is y, then x – y is

(1) $\frac{5}{6}$ (2) $\frac{1}{6}$ (3) $\frac{2}{3}$ (4) $\frac{1}{3}$

Sol. 1 , 2 , 3 , 4 , 5 , 6

$\frac{3}{6} = \frac{1}{2} = x$

$\frac{2}{6} = \frac{1}{3} = y$

$x - y = \frac{1}{2} - \frac{1}{3}$

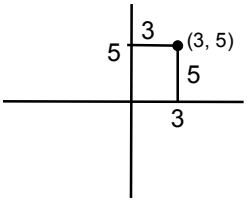
$x - y = \frac{3-2}{6} = \frac{1}{6}$

Ans. (2)

58. The sum of distances from x-axis and y-axis measured from the point (3, 5) will be

(1) – 1 (2) 0 (3) 2 (4) 8

Sol.



5 + 3 = 8

Ans. (4)

59. If $x^2 + 4y^2 + 9z^2 – 4xy – 12yz + 6xz = 0$, then

(1) x = 2y – 3z (2) x = y – 3z (3) 2x = y – 3z (4) x = 3y – 2z

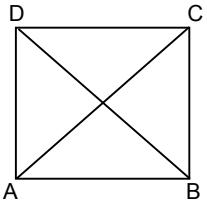
Sol. $(x)^2 + (2y)^2 + (3z)^2 – 2(x)(2y)$
$– 2(2y)(3z) + 2(3z)(x)$
$(x – 2y + 3z)^2 = 0$
x = 2y – 3z ____(1)

Ans. (1)

60. Which of the following statements is false for the quadrilateral ABCD ?

(1) AB + BC + CD + DA > AC (2) AB + BC + CD + DA > AB + AC
(3) AB + BC + CD + DA > AC + BD (4) AB + BC + CD + DA < 2AC

Sol.



AC + BD < AB + BC + CD + DA < 2(AC +BD).

Ans. (4)

61. Match List-I with List-II and select the correct answer by chosing from the given code :

List-I	List-II
(1) Magadha	(i) Mathura
(2) Kashi	(ii) Varanasi
(3) Surasena	(iii) Taxila
(4) Gandhara	(iv) Rajgriha

Code :

	A	B	C	D
(1)	iv	iii	ii	i
(2)	i	ii	iii	iv
(3)	iv	ii	i	iii
(4)	ii	iii	iv	i

Ans. (3)

62. In which of the following forts was the coronation of Chhatrapati Shivaji held ?

(1) Raygarh Fort (2) Kumbhalgarh Fort (3) Pune Fort (4) Surat Fort.

Ans. (1)

63. The founder of 'Abhinav Bharat' was

(1) Chandrashekhar Azad (2) Vasudev Hari Chapekar
(3) Mahatma Gandhi (4) Vinayak Damodar Savarkar

Ans. (4)

64. Who discovered the water frame ?
(1) Henry Cort (2) Richard Archrite (3) James Bridali (4) Jethrotal
Ans. (2)

65. When was the Quit India Movement proposal passed ?
(1) 8th August, 1942 (2) 8th August, 1941 (3) 8th August, 1940 (4) 15th August, 1942
Ans. (1)

66. The state of India, where the Kalibanga is situated , is
(1) Punjab (2) Rajasthan (3) Gujarat (4) Jammu & Kashmir
Ans. (2)

67. Triratna is related to
(1) Buddhist philosophy (2) Vedic philosophy (3) Islamic philosophy (4) Jain philosophy
Ans. (4)

68. What is the modern name of Champa ?
(1) Malaysia (2) Thailand (3) Vietnam (4) Indonesia
Ans. (3)

69. Consider the following points :
(A) Raja Rammohan Roy established Vedanta College in Calcutta.
(B) Swami Vivekananda wrote a book named Satyartha Prakash.
Choose the correct answer from the codes given below :
(1) Both (A) and (B) are correct (2) Only (A) is correct
(3) Only (B) is correct (4) Both (A) and (B) are wrong
Ans. (2)

70. Who was the king of Russia at the time of the Russian Revolution of 1917 ?
(1) Czar Nicholas First (2) Louis 14th (3) Czar Nicholas Second (4) Louis 16th
Ans. (3)

71. Who was the publisher of Hindu Patriot ?
(1) Bal Gangadhar Tilak (2) Dayanand Saraswati
(3) Lala Lajpat Rai (4) Harishchandra Mukherjee.
Ans. (4)

72. Which one of the following rivers does not flow on the eastern coastal plain ?
(1) Krishna (2) Godavari (3) Narmada (4) Kaveri
Ans. (3)

73. The plateau between Bhainsrorgarh and Bijauliya in Rajasthan is known as
(1) Bhorat (2) Uparmaal (3) Malwa (4) Royalseema
Ans. (2)

74. Which one of the following is not a Lagoon lake ?
(1) Chilika (2) Pulicat (3) Kolleru (4) Dal
Ans. (4)

75. The duration of summer season according to Indian Meteorological Department is
(1) mid-September to mid-December
(2) December to February
(3) March to mid-june
(4) mid-June to mid-September
Ans. (3)

76. In which district of Rajasthan is Amrita Devi Black Deer Sancturay developed ?
(1) Jodhpur (2) Bikaner (3) Barmer (4) Ganganagar
Ans. (1)

77. The joint project of Gujarat, Madhya Pradesh and Rajasthan states is
(1) Bhakhra Nangal Project (2) Mahi Bajaj Sagar Project
(3) Chambal Valley Project (4) Sardar Sarovar Project
Ans. (4)

78. Match List – I with List – II and select the correct answer using codes given below :

	List – I (District)		List – II (Lake)
(A)	Ajmer	(i)	Sardar Samand
(B)	Tonk	(ii)	Ana Sagar
(C)	Pali	(iii)	Navalakha
(D)	Bundi	(iv)	Tordi Sagar

Code :

	A	B	C	D
(1)	(iii)	(ii)	(iv)	(i)
(2)	(ii)	(iv)	(i)	(iii)
(3)	(i)	(iii)	(ii)	(iv)
(4)	(iv)	(i)	(iii)	(ii)

Ans. (2)

79. The precentage of iron content in magnetite iron-ore is
(1) 40 – 50 % (2) 50 – 60 % (3) 60 – 70 % (4) 70 – 80%
Ans. (3)

80. Which one of the following is cement city of Rajasthan ?
(1) Chittorgarh (2) Bundi (3) Nimbahera (4) Nagaur
Ans. (1)

81. The district having lowest population growth rate in Rajasthan during 2001 – 2011 is
(1) Nagaur (2) Bikaner (3) Bhilwara (4) Ganganagar.
Ans. (4)

82. 'Uni Gauge Project' by Indian Railway was started in
(1) 1982 (2) 1992 (3) 2002 (4) 2012
Ans. (2)

83. In which country is direct democracy found ?
(1) Italy (2) Japan (3) Switzerland (4) India
Ans. (3)

84. Who has the right to promulgate an ordinance when the Parliament is not in session ?
(1) Supreme Court (2) President (3) Prime Minister (4) Lok Sabha speaker
Ans. (2)

85. From whose pleasure does the governor hold office ?
(1) Prime Minister (2) Chief Minister (3) President (4) Vice-President
Ans. (3)

86. What is the maximum age of retirement for judges of Supreme Court ?
(1) 62 years (2) 65 years (3) 60 years (4) 70 years
Ans. (2)

87. The term of the President of India is
(1) 4 years (2) 5 years (3) 2 years (4) 3 years
Ans. (2)

88. On which day was the Constitution of India adopted ?
(1) 15th August, 1947 (2) 9th December, 1946
(3) 26th January, 1950 (4) 26th November, 1949
Ans. (4)

89. Forced labour is prohibited in which Fundamental Right of India ?
(1) Right to equality (2) Right to freedom
(3) Right against Exploitation (4) Right to freedom of Religion
Ans. (3)

90. By which constitutional amendment Fundamental Duties are added in the Constitution of India ?
(1) 42nd (2) 40th (3) 43 rd (4) 45th
Ans. (1)

91. Where is the only Cantonment Board established in Rajasthan at present?
(1) Nasirabad (2) Jaipur (3) Chittorgarh (4) Jodhpur
Ans. (1)

92. Panchsheel is based on which philosophy?
(1) Buddhist philosophy (2) Jain philosophy (3) Islamic philosophy (4) Hindu philosophy
Ans. (1)

93. Match List - I with List - II and Choose the correct code from the give code :

List - I	LIst - II
(A) Nagar Nigam	(i) Zilla Pramukh
(B) Zilla Parishad	(ii) Pradhan
(C) Panchayat Samiti	(iii) Sarpanch
(D) Gram Panchayat	(iv) Mayor (Mahapoura)

Code :

	A	B	C	D
(1)	(i)	(ii)	(iii)	(iv)
(2)	(iii)	(i)	(ii)	(iv)
(3)	(iv)	(iii)	(ii)	(i)
(4)	(iv)	(i)	(ii)	(iii)

Ans. (4)

94. The nation of socialist economy is
(1) Japan (2) China (3) France (4) United States of America
Ans. (2)

95. The Kharif crop is
(1) Wheat (2) Barley (3) Maize (4) Gram
Ans. (3)

96. The function of commercial banks is
(1) Issue of currency (2) Credit Control
(3) Lender of last resort (4) Acceptance of people's deposits
Ans. (4)

97. The formula of measuring per capita income is

(1) Per capita income = $\frac{\text{National income}}{\text{Population}}$ (2) Per capita income = $\frac{\text{Population}}{\text{National income}}$

(3) Per capita income = $\frac{\text{Total consumption}}{\text{Population}}$ (4) Per capita income = $\frac{\text{Population}}{\text{Total consumption}}$

Ans. (1)

98. The characteristic of Indian economy is :

(1) Equality of income (2) Lack of poverty

(3) Lack of unemployment (4) Low per capita income

Ans. (4)

99. In India the first effort to measure poverty was done by :

(1) Dadabhai Naoroji (2) D.T. Lakdawala (3) Prof. Robbins (4) Prof. Keynes

Ans. (1)

100. In India the Consumer Day is celebrated on :

(1) 2nd October (2) 15th August (3) 24th December (4) 26th January

Ans. (3)