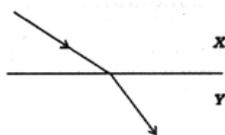


SCHOLASTIC APTITUDE TEST(SAT) PAPER & SOLUTION

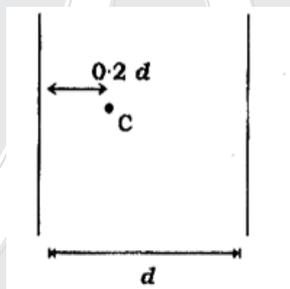
1. A car travels 40 kms at an average speed of 80 km/h and then travels 40 kms at an average speed of 40 km/h. The average speed of the car for this 80 km trip is
(1) 40 km/h (2) 45 km/h (3) 48 km/h (4) 53 km/h
2. The term 'mass' refers to the same physical concept as
(1) weight (2) inertia (3) force (4) acceleration.
3. A 5.0 kg object is moving horizontally at 6.0 m/s. In order to change its speed to 10.0m/s, the net work done on the object must be
(1) 40 J (2) 90 J (3) 160 J (4) 20 J
4. The momentum of an object at a given instant is independent of its
(1) inertia (2) speed (3) velocity (4) acceleration.
5. The pressure exerted on the ground by a man is greatest when
(1) he stands with both feet flat on ground
(2) he Stands flat on one foot
(3) he stands on the toes of one foot
(4) all the above yield the same pressure.
6. A sound wave has a wavelength of 3.0m. The distance from a compression centre to the adjacent rarefaction centre is
(1) 0.75 m (2) 1.5 m (3) 3.0 m (4) 6.0 m
7. Of the following, the copper conductor that has the least resistance is
(1) thin, long and hot (2) thick, short and cool (3) thick, long and hot (4) thin, short and cool.
8. Four $20\ \Omega$ resistors are connected in series and the combination is connected to a 20 V emf device. The potential difference across any one of the resistors is
(1) 5V (2) 2V (3) 4V (4) 20V.
9. The magnetic field lines due to an ordinary bar magnet
(1) form closed curves
(2) cross one another near the poles
(3) are more numerous near the N-pole than near the S-pole.
(4) do not exist inside the magnet.

10. When light travels from medium X to medium Y as shown



- (1) both the speed and the frequency decrease
- (2) both the speed and the frequency increase
- (3) both the speed and the wavelength decrease
- (4) both the wavelength and the frequency are unchanged.

11. A candle C is kept between two parallel mirrors, at a distance $0.2d$ from the mirror 1. Here d is the distance between mirrors. Multiple images of the candle appear in both mirrors. How far behind mirror 1 are the nearest two images of the candle in that mirror?



- (1) $0.2d, 1.8d$
- (2) $0.2d, 2.2d$
- (3) $0.2d, 0.8d$
- (4) $0.2d, 1.2d$

12. For a 1 MW wind energy generator, the minimum land area required for establishment of wind energy farm is about

- (1) 100 hectares
- (2) 50 hectares
- (3) 20 hectares
- (4) 2 hectares.

13. Milk of magnesia is an example of which type of colloid?

- (1) Gel
- (2) Emulsion
- (3) Sol
- (4) Foam.

14. The number of gram moles of aluminium ions present in 0.051 g of aluminium oxide is

- (1) 0.001
- (2) 0.051
- (3) 0.102
- (4) 2

15. Number of valence electrons in Cl atom is

- (1) 16
- (2) 7
- (3) 17
- (4) 18

16. Isotopes of an element have

- (1) the same physical properties
- (2) different chemical properties

- (3) different number of neutrons
- (4) different atomic number.
17. Which of the following hydrocarbons undergoes addition reactions?
- (1) C_2H_6 (2) C_3H_8 (3) C_3H_6 (4) CH_4
18. Which of the following statements is not a correct statement about the trends when going from left to right across the periods of periodic table ?
- (1) The elements become less metallic in nature
- (2) The number of valence electrons increases
- (3) The atoms lose their electrons more easily
- (4) The oxides become more acidic,
19. Acetic acid, with the molecular formula CH_3COOH has
- (1) 8 covalent bonds (2) 7 covalent bonds (3) 9 covalent bonds (4) 10 covalent bonds.
20. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be
- (1) calcium (2) carbon (3) silicon (4) iron.
21. Metals in the middle of the activity series can be easily extracted from their
- (1) Carbonates (2) Sulphides (3) Nitrates (4) Oxides.
22. $Pb_{(s)} + CuCl_{2(aq)} \rightarrow PbCl_{2(aq)} + Cu_{(s)}$
- The above reaction is an example of a
- (1) combination reaction (2) neutralization reaction
- (3) decomposition reaction (4) displacement reaction.
23. Adding an alpha particle to the nucleus of sodium atom produces which new element ?
- (1) Mg (2) P (3) Al (4) Ne.
24. Which among the following cell organelles is able to make its own proteins?
- (1) Lysosome (2) Golgi apparatus
- (3) Plastid (4) Endoplasmic reticulum.
25. Intercalary meristem is present in
- (1) at the base of the leaves and both the sides of node
- (2) in the roots



- (3) at the tip of the leaves
- (4) at the shoot apex.
26. Which among the following is an example of fungi?
- (1) Anabaena (2) Euglena (3) Mycoplasma (4) Agaricus
27. In plants transport of soluble products in the process of photosynthesis occurs in
- (1) xylem (2) phloem
- (3) both of these (4) none of these.
28. Which among the following hormones is associated with wilting of leaves?
- (1) Abscisic acid (2) Gibberellin (3) Cytokinin (4) Auxin.
29. Seed is modification of
- (1) ovary (2) ovule (3) thalamus (4) all of these.
30. How many types of muscle tissue are found?
- (1) Striated and unstriated (2) Striated and cardiac
- (3) Cardiac and unstriated (4) Striated, unstriated and cardiac.
31. Which characters are present in a vertebrate?
- (1) Notochord, triploblastic, coelomate and bilateral symmetry
- (2) Notochord, diploblastic, coelomate and radial symmetry
- (3) Notochord, triploblastic, acoelomate and bilateral symmetry
- (4) Notochord, triploblastic, acoelomate and radial symmetry.
32. Synapse is
- (1) gap between two muscle cells
- (2) gap between two bones
- (3) gap between two neurons
- (4) gap between muscle and bone.
33. Regeneration is found in
- (1) tapeworm (2) leech (3) hydra (4) ascaris.
34. Which of the following groups constitutes a correct food chain?
- (1) Grass → Rabbit → Snake → Eagle
- (2) Grass → Goat → Fox → Lion



(3) Goat → Grass → Elephant → Snake

(4) Grass → Wheat → Frog → Goat.

35. Which cell organelle is known as “powerhouse of the cell”?

(1) Mitochondria

(2) Lysosome

(3) Golgi apparatus

(4) Endoplasmic reticulum,

36. $(1^2 + 2^2 + 3^2 + \dots + 12^2) = 650$, then the value of $(2^2 + 4^2 + 6^2 + \dots + 24^2)$ is

(1) 1300

(2) 2600

(3) 2500

(4) 42250

37. The square root of $x^{b^2} x^{b^{2+2ab}} x^{a^2-b^2}$ is

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

(2) $x^{\frac{a+b}{2}}$

(3) $x^{\frac{(a+b)^2}{2}}$

(4) x^{a+b}

38. If $(x+2)$, is a factor of $2x^3 - 5x + K$, then the value of k is

(1) 6

(2) -6

(3) 26

(4) -26

39. For which value of p the following pair of linear equations $3x + py = 7$,
 $px + 3y = 15$ will have no solutions?

(1) ± 9

(2) ± 5

(3) ± 3

(4) ± 4

40. A tower is on a horizontal plane. The angles of elevation of top of the tower from two points on a line passing through the foot of the tower at distances 49 m and 36 m are 41° and 49° . The height of the tower is

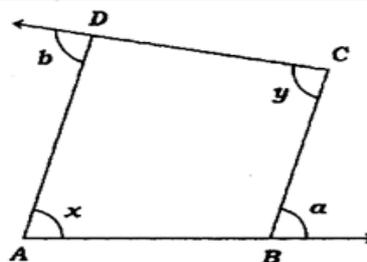
(1) 40m

(2) 42 m

(3) 44m

(4) 46 m

41. Sides AB and CD of a quadrilateral. ABOD are extended as in figure. Then $a + b$ is equal to

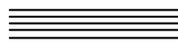


(1) $x+2y$

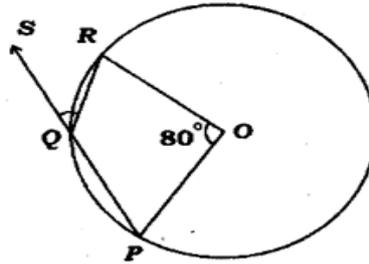
(2) $x-y$

(3) $x+y$

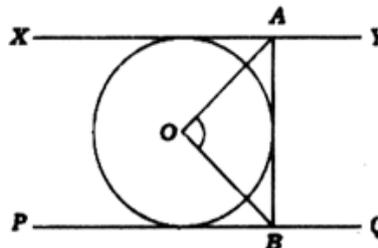
(4) $2x+y$.



42. In the figure O is the centre of the circle and $\angle POR = 80^\circ$. Then $\angle RQS$ is

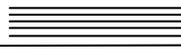


- (1) 30° (2) 40° (3) 1400 (4) 50°
43. If every side of a triangle is doubled then a new triangle is formed. The ratio of areas of these two triangles is
- (1) 1 : 2 (2) 1 : 3 (3) 1 : 4 (4) 2 : 3
44. If the difference of two numbers is 5 and difference of their squares is 300, then sum of the numbers is
- (1) 1500 (2) 6 (3) 12 (4) 60
45. If the equation $ax^2 + 2x - 2 = 0$ has real and distinct roots, then the value of a is
- (1) $a > \frac{-1}{2}$ (2) $a \leq \frac{-1}{2}$ (3) $a \geq \frac{-1}{2}$ (4) $a = \frac{-1}{2}$
46. If $a + b + c = 0$, then the value of $\frac{(a+b)^2}{ab} + \frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca}$ is
- (1) 1 (2) 2 (3) 3 (4) -3
47. In the given figure O is the centre of a circle, XY, PQ, AB are tangents of the circle. If $XY \parallel PQ$, then the value of $\angle AOB$ is



- (1) 800 (2) 90° (3) 70° (4) 100° .

48. $\frac{\cos \theta}{1 - \tan \theta} - \frac{\sin \theta}{\cos \theta - 1}$ is equal to
 (1) $\sin \theta + \cos \theta$ (2) $\cos \theta - \sin \theta$ (3) $2 \sin \theta$ (4) $\frac{1}{\cos \theta - \sin \theta}$
49. A card is drawn from a well shuffled pack of 52 cards. The probability that card is a red ace is
 (1) $\frac{1}{13}$ (2) $\frac{1}{26}$ (3) $\frac{3}{52}$ (4) $\frac{1}{2}$
50. Value of $\tan 20^\circ \tan 40^\circ \tan 50^\circ \tan 70^\circ$
 (1) 0 (2) $\frac{1}{\sqrt{3}}$ (3) $\sqrt{3}$ (4) 1
51. Sum of last two terms of an AP. is 60. If first term is 11 and common differences 2, then the number of terms in the A.P is :
 (1) 22 (2) 20 (3) 11 (4) 19
52. If the difference of circumference and diameter of a circle is 60 cm, then the area of the circle is
 (1) $49\pi \text{ cm}^2$ (2) $14\pi \text{ cm}^2$ (3) $196\pi \text{ cm}^2$ (4) $\frac{49}{4}\pi \text{ cm}^2$
53. If the areas of three adjoining faces a cuboid are a^2 , b^2 and c^2 respectively, then the volume of the cuboid is
 (1) $a^2b^2c^2$ (2) abc (3) $a^3b^3c^3$ (4) \sqrt{abc}
54. In the given figure ABCD is a trapezium in which $AB \parallel DC$ and $AB : DC = 3 : 2$, The ratio of the areas of ΔAOB and ΔCOD is
 (1) 3 : 2 (2) 2 : 3 (3) 4 : 9 (4) 9 : 4
55. If the mean of 5, 9, x, 7, 4, y is 7, then relation between x and y is
 (1) $x + y = 42$ (2) $x + y = 17$ (3) $x - y = 10$ (4) $x - y = 42$.
56. Tithe is
 (1) religious tax (2) implied tax (3) taille tax (4) feudal tax.
57. Who was Rasputin?
 (1) King (2) Monk (3) Revolutionary (4) Prime Minister.
58. The railway line which was to be constructed between Multan and Sukkur was
 (1) North Valley Railway (2) Indus Valley Railway



(3) Southern State Railway (4) West Valley Railway.

59. Who adopted the 'Scorched Earth Policy'?

(1) Portuguese (2) French (3) Dutch (4) German.

60. Raikas belong to the state of

(1) Rajasthan (2) Bihar (3) Uttar Pradesh (4) Karnataka.

61. Young Italy, a secret society was formed by

(1) Metternich (2) Giuseppe Mazzini (3) Bismarck (4) Hitler.

62. The thinker Confucius belonged to the country

(1) England (2) America (3) China (4) Japan.

63. Jallianwalla Bag incident took place on

(1) 10th April, 1919 (2) 13th April, 1919 (3) 14th April, 1919 (4) 18th April, 1919.

64. Dandi is located in

(1) Gujarat (2) Rajasthan (3) Maharashtra (4) Punjab.

65. The Great Depression began in

(1) 1927 AD (2) 1929 AD (3) 1930 AD (4)

66. Which island was known as Amindiv whose name was changed in 1973?

(1) Lakshadweep (2) Maldives (3) New Moore island (4) Car-Nicobar.

67. Match List — I with List — II correctly and choose the correct code from the following

List-I

List-II

(A) Kaveri

(i) Nasik

(B) Godavari

(ii) Betul

(C) Tapi

(iii) Brahmagiri

(D) Krishna

(iv) Mahabaleshwar.

Code :

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

68. Stalagmite and Stalactite caves are located in
- (1) Mawsynram (2) Cherrapunji
(3) Shimla (4) Jammu and Kashmir.
69. Which state(s) has/have the highest reserved forest ratio ?
- (A) Kerala
(B) West Bengal
(C) Jammu and Kashmir
(D) Maharashtra.
- Choose the correct answer from the codes given below:
- (1) only (B) (2) (A) and (D) (3) (A) and (C) (4) all of these.
70. With reference to water availability per person per year India's rank in the world is
- (1) 131st (2) 133rd (3) 137th (4) 157 th
71. Roof water harvesting system is a compulsory structure in which state ?
- (1) Bihar (2) Meghalaya (3) Tamil Nadu (4) Karnataka.
72. Match List — I and List — II and choose the correct code from the following
- | | |
|------------|-----------------------|
| List—I | List—II |
| (A) Waler | (i) Jharkhand |
| (B) Dahiya | (ii) Himalayan region |
| (C) Khil | (iii) Madhya Pradesh |
| (D) Kuruwa | (iv) SE. Rajasthan. |
- A B C .D
- (1) i ii iii iv
(2) iv iii i ii
(3) ii i iii iv
(4) iv iii ii i.
73. Rubber is related to which type of vegetation?
- (1) Tundra (2) Tropical rain forest
(3) Mountain forest (4) Tropical deciduous forest.
74. Koderma mines located in Jharkhand is rich in which minerals?

- (1) Bauxite (2) Mica (3) Iron ore (4) Copper.

75. Which of the following states is not connected with Hajira-Vijaypur-Jagdishpur pipeline ?
- (1) Madhya Pradesh (2) Maharashtra
(3) Gujarat (4) Uttar Pradesh.
76. Which among the following is not correctly matched?
- (1) Popular unity — Salvador Alende
(2) Solidarnosc or solidarity — Lech Walesa
(3) National League for Democracy — Augusto Pinochet
(4) Bath party — Saddam Hussein.
77. Identify the correct order regarding the granting of universal adult franchise
- (1) Argentina, India, Malaysia, Greece
(2) Malaysia, Greece, India, Argentina
(3) India, Argentina, Greece, Malaysia
(4) Greece, Malaysia, India, Argentina.
78. Find out the wrong explanation of functioning of United Nations
- (1) Who lends money to governments when they need it ? International Monetary Fund (I.M.F.) does so.
(2) What happens when a country attacks another country in an unjust manner ? The U.N. Security Council, an organ of U.N. is responsible for maintaining peace and security among countries.
(3) The weightage of vote of every member of International Monetary Fund is equal.
(4) Each permanent member of Security Council has veto power.
79. Find out the correct explanation :
- (1) Referendum— Only used for a specific government policy.
(2) Coup — A coup is legal system, in which system the government hands over all rights and powers to the military.
(3) Martial law — A system of rules, that takes effect when a military authority takes control of the normal administration of justice.
(4) Communist State — In communist state all political parties have complete liberty to compete for power.

80. Pay attention on the following points

- (A) A democratic government is a better government because it is a more accountable form of government.
- (B) Democracy improves the quality of decision making.
- (C) Democracy provides a method to deal with the differences and conflicts.
- (D) Democracy enhances the dignity of citizens.

Which are the factors involved in comprising Indian democracy ?

- (1) A and B (2) A and C (3) A, B and C (4) A,B,C and D.

81. Which among the following statements is a moral reason regarding the desirability of power sharing?

- (1) Power sharing is good because it helps to reduce the possibility of conflict between social groups.
- (2) Social conflict often leads to violence and political instability. Hence power sharing is a good way to ensure the stability of political order.
- (3) Tyranny of the majority is not just oppressive for the minority, it often brings ruin to the majority as well,
- (4) A democratic rule involves sharing power with those affected by its exercise and who have to live with its effects.

82. Let us look at some of the key features of federalism

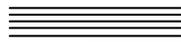
- (A) There are two or more levels (or tiers) of government.
- (B) Different tiers of government govern the same citizens, but each tier has its own jurisdiction.
- (C) The existence and authority of each tier of government is constitutionally guaranteed.
- (D) All states in the Indian Union have identical powers.

Which facts are correct regarding Indian Federalism

- (1) B and D (2) A and D (3) A, B and C (4) A, B ,C and D

83. Find the correct sequence of languages in the ascending order according to the proportion of speakers as described in 8th Schedule of the Constitution of India

- (1) Hindi, Marathi, Telugu, Bangla
- (2) Hindi, Bangla, Telugu, Marathi
- (3) Hindi, Telugu, Bangla, Marathi
- (4) Hindi, Bangla, Marathi, Telugu.



84. Match the following and choose the correct answer from the code

List - I

List — II

(A) Power is shared among different

organs of government such as the

legislature, executive and judiciary

(i) Community Government

(B) Power is shared among different

social groups power

(ii) Horizontal distribution

(C) The fundamental provisions of the

constitution cannot be unilaterally

changed by one level of government

(iii) In 1992

(D) The constitutionalisation of 3rd tier

of Indian democratic system.

(iv) Federalism.

Code:

A B C D

(1) ii i iv iii

(2) i ii iii iv

(3) i iii ii iv

(4) ii iv i iii.

85. Match the following and choose the correct answer from the given code

List — I

List — II

(A) Union list

(i) Computer software

(B) State list

(ii) Banking

(C) Concurrent list

(iii) Education

(D) Residuary powers

(iv) Police.

A B C D

(1) iii ii i iv

(2) ii iii iv i

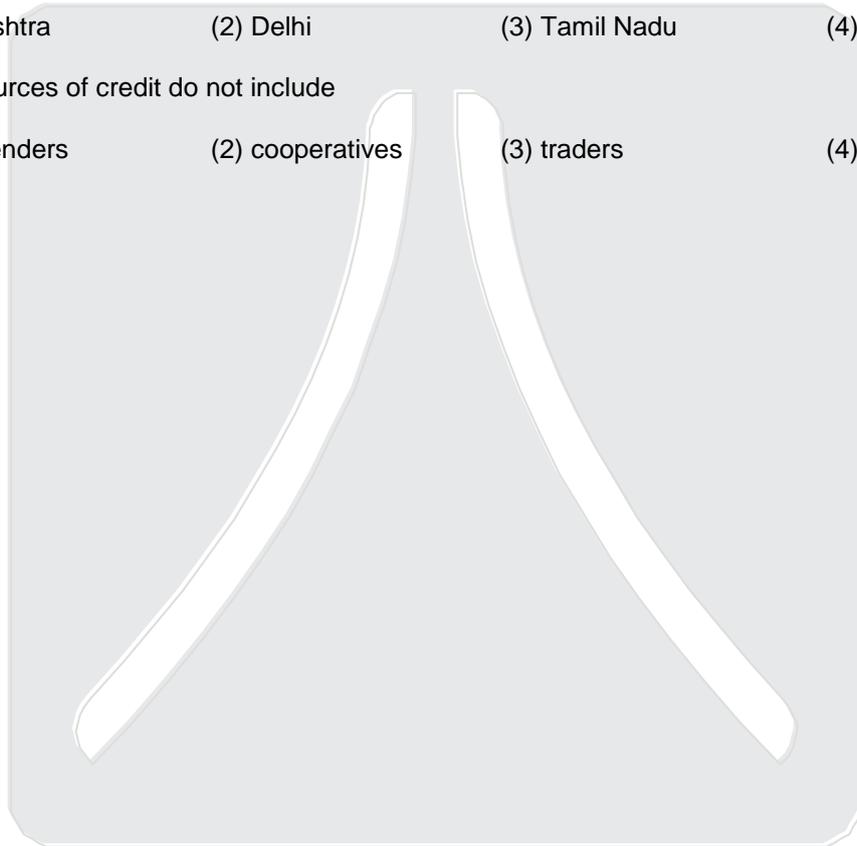
(3) iii i ii iv

(4) ii iv i iii.

86. Which one of the following is an activity of the tertiary sector ?
- (1) Mining (2) Tourism (3) Diary (4) Agriculture.
87. In which state of India, is Amul Dairy situated?
- (1) Rajasthan (2) Bihar (3) Gujarat (4) Karnataka.
88. The 'National Consumers' Day' is celebrated on
- (1) 24th December (2) 24th November (3) 24th September (4) 24th October.
89. National income of any country is divided by its total population, we get
- (1) personal income (2) gross domestic product
 (3) private income (4) per capita income.
90. Among the following which is the method to estimate the poverty line?
- (1) Investment method (2) Income method (3) Capital method (4) All of these.
91. Which of the following statements is correct 2
- (1) Centre of curvature of a concave mirror lies in front of it whereas that of convex mirror lies behind the mirror.
 (2) Centre of curvature of a concave mirror lies behind it whereas that of convex mirror lies in front of the mirror.
 (3) Centres of curvature of both concave and convex mirrors lie in front of the mirror.
 (4) Centres of curvature of both concave and convex minors lie behind the mirror. -
92. Element X forms a chloride with the formula XCl_2 which is solid with a high melting point. X would belong to the same group of periodic table as
- (1) Na (2) Mg (3) Al (4) Si
93. Calculate the number of molecules in 8g O_2
- (1) 8×10^{23} (2) 6.02×10^{23} (3) 1.51×10^{23} (4) 8
94. Which of the following is correct for fungi ?
- (1) Prokaryotic and saprophytic (2) Eukaryotic and autotrophic
 (3) Prokaryotic and autotrophic (4) Eukaryotic and saprophytic
95. Iodine is essential for the synthesis of which hormone?
- (1) Adrenaline (2) Thyroxine (3) Insulin (4) Oxytocin.



96. 'Oriental Cricket Club' first Indian Cricket Club was founded at
(1) Madras (2) Bombay (3) Kanpur (4) Calcutta.
97. Which of the following is not associated with Coriolis force?
(1) Cyclones (2) Ocean currents (3) Prevailing winds (4) Jet streams.
98. The local government structure goes right up to the..... level.
(1) Village (2) Ward (3) State (4) District.
99. In which state of India maximum fair price shops are run by the co-operatives?
(1) Maharashtra (2) Delhi (3) Tamil Nadu (4) Gujarat.
100. Informal sources of credit do not include
(1) moneylenders (2) cooperatives (3) traders (4) friends.





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