

Time : 1½ Hr. Max. Marks : 320

2015-SAMPLE PAPER 1

Test ID :- LTSE-X

Please read the instructions carefully.

- This booklet is your question paper. Answers have to be marked on the provided OMR Sheet (Answer Sheet).
- Before starting the paper, fill up the required details in the blank spaces provided on both sides of the OMR Sheet.
- Blank papers, clip boards, log tables, slide rule, calculators, mobile phone or any other electronic gadgets in any form are not allowed in the examination hall. In case any of the above mentioned things are found with a student his/her paper will stand cancelled.
- This paper contains 80 questions divided in two sections

Section-A	Mental Aptitude	40 questions	160 marks
Section-B	Scholastic Aptitude	40 questions	160 marks

5. Section A :

- (A) This section contains basic questions designed to test Mental Ability, Logical Reasoning & Data Interpretation of the student.
- (B) There are **40** questions in this section and **all the questions have single correct answer**.
- (C) This section contains different type of questions. Students are advised to read the instructions given along with the questions very carefully.

6. Section B :

- (A) This section contains basic questions on school subjects i.e. Science & Mathematics.
- (B) There are **40** questions in this section and **all the questions have single correct answer**.

+4 marks for correct answer; -1 mark for incorrect answer

7. Students are advised not to spend too much time on a particular question.

Advice: (A) It is recommended to select easy questions and optimize your score.

(B) It is recommended to keep your accuracy high by attempting those question which you really know.

8. No extra rough sheet will be provided for rough work. Students are advised to use the blank space given on every page of the question paper.
9. Students are strictly advised to use Pencil or ball point Pen (Black or Blue) for filling the OMR Sheet (Answer Sheet). Use of Gel Pens on the OMR Sheet will not be accepted.

Name of the Candidate

Enrolment No.

(For Regular Lakshya Students)

Signature of Student

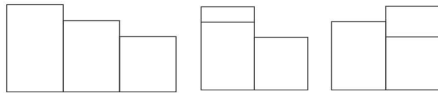




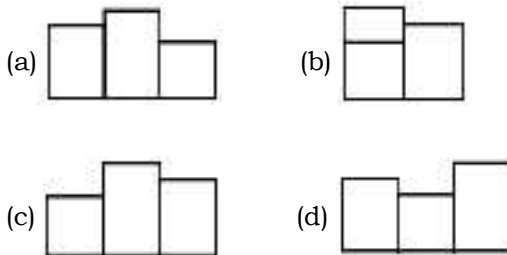
SECTION-A (MAT)
MENTAL APTITUDE

(Marking Scheme : Correct Answer +4 , Incorrect Answer -1)

1.



What comes next ?



2.

	7		8		12	
2	21	8	35	8	?	?
	4		11		7	

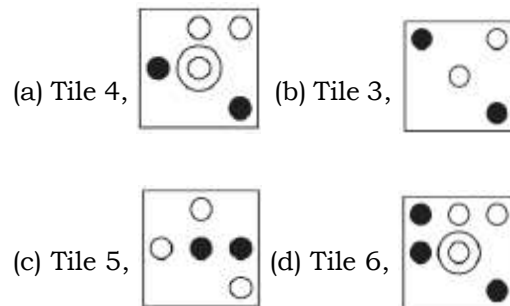
What numbers should replace the question marks?

- (a) 8, 2 (b) 31, 4
(c) 16, 17 (d) 49, 2

3.

1		2		3	
4		5		6	
7		8		9	

Looking at lines across and down, if the first two tiles are combined to produce the third tile, with the exception that like symbols are cancelled out, which of the above tiles is incorrect, and with which of the tiles below should it be replaced?



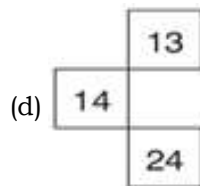
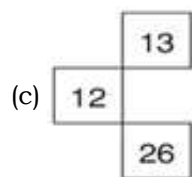
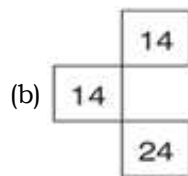
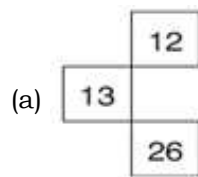
Space for Rough Work

Page no. 1

4.

1	3	5	7
4	8	?	16
7	?	19	25
10	18	?	34

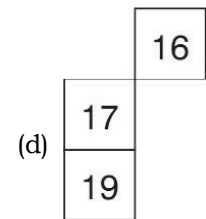
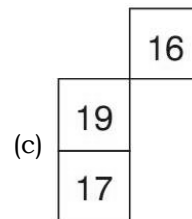
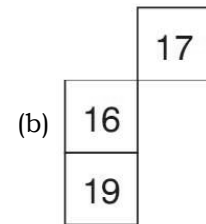
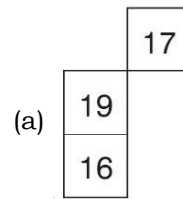
Which is the missing section?



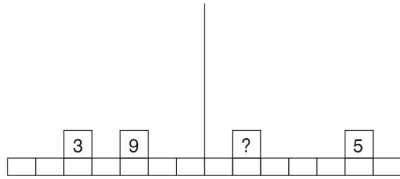
5.

6	10	14	18
9	13	?	21
12	?	20	24
15	?	23	27

Which section is missing?



6.



What weight should replace the question mark in order for the scales to balance?

- (a) 6 (b) 7
(c) 8 (d) 9

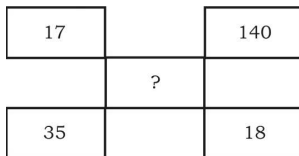
7.

4	9	13	5	86	2	7
82						9
79						24
6						63
35						18
1	6	37	8	49	2	?

What number should replace the question mark?

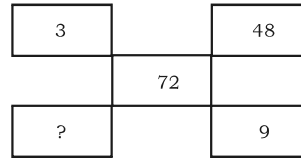
- (a) 45 (b) 5
(c) 63 (d) 3

8.



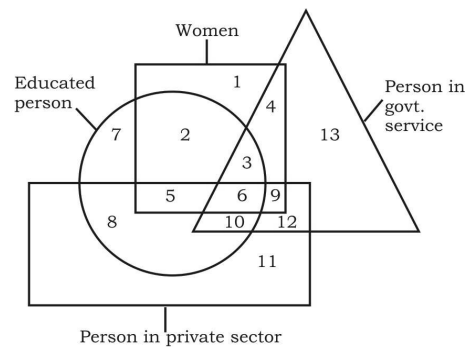
- (a) 35 (b) 24
(c) 16 (d) 19

9.



- (a) 12 (b) 16
(c) 32 (d) 24

Directions (Q.10 & 11) : Read the following information carefully and answer the question based on them. In the venn diagram given below, the square represents women, the triangle represents persons who area in govt. services, the circle represents educated persons and the rectangle represents persons working in private sectors. Each section of the diagram in numbered. Your task is to study the diagram and answer the questions that follow



10. Which number represents educated women, who are in govt. job ?
(a) 2 (b) 3
(c) 6 (d) 4

11. Which number represents the uneducated women, who have government jobs as well as job in private sectors ?

- (a) 6 (b) 4
(c) 12 (d) 9

12. In the following question there is a series with one term missing as shown by (?). This term given as one of the alternatives among the four numbers given below. Find this term.

2 1 2 4 4 5 6 7 8 8 10 11 ?

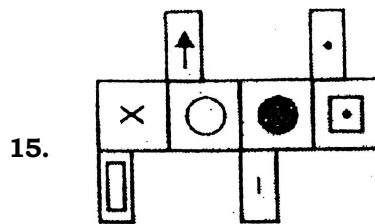
- (a) 9 (b) 10
(c) 11 (d) 12

13. Between two book-ends on your study table, there are your five favourite puzzle books. If you decide to arrange the five books in every possible combination and move just one book every minute, how long will it take?

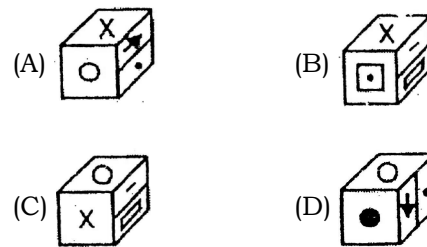
- (a) 1 hour (b) 2 hours
(c) 3 hours (d) 4 hours

14. A, B, C, D and E play a game of cards. A says to B, "If you give me three cards, you will have as many as E has and if I give you three cards, you will have as many as D has". A and B together have 10 cards more than what D and E together have. If B has two cards more than what C has and the total number of cards be 133, how many cards does B have ?

- (a) 22 (b) 23
(c) 25 (d) 35

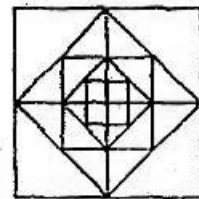


Which of the following is the correct pattern of the dice when folded



- (a) A and B only (b) A and C only
(c) C and D only (d) A, B, C and D

16. How many squares are there in the figure given below ?



- (a) 12 (b) 13
(c) 16 (d) 17

17. At what time between 3 and 4 o'clock will the hands of a clock coincide ?

- (a) 15 min. past 3
- (b) $15\frac{12}{11}$ min. past 3
- (c) $16\frac{4}{11}$ min. past 3
- (d) $16\frac{2}{11}$ min. past 3

18. The six faces of a solid cube have been painted in different colours. The top of the cube is painted Red and the bottom is painted White. The rest of the four faces have been painted Yellow, Blue, Green and Pink, respectively in clockwise direction. The cube is now turned in such a manner that Blue face is at the top. What will be the colour of the bottom face ?

- (a) Pink
- (b) White
- (c) Yellow
- (d) Green

Directions (Q.19 & 20) : A painter is given a task to paint a cubical box with six different colours for different faces of the cube. The detailed account of it was given as:

- (i) Red face should lie between Yellow and Brown faces.
- (ii) Green face should be adjacent to the Silver faces.
- (iii) Pink face should lie adjacent to the Green face.
- (iv) Yellow face should lie opposite to the Brown one.
- (v) Brown face should face down.
- (vi) Silver and Pink faces should lie opposite to each other.

19. The faces adjacent to Green are

- (a) Yellow, Pink, Red, Silver
- (b) Brown, Pink, Red, Silver
- (c) Red, Silver, Yellow, Brown
- (d) Pink, Silver, Yellow, Brown

20. Three of the faces adjacent to Red face are

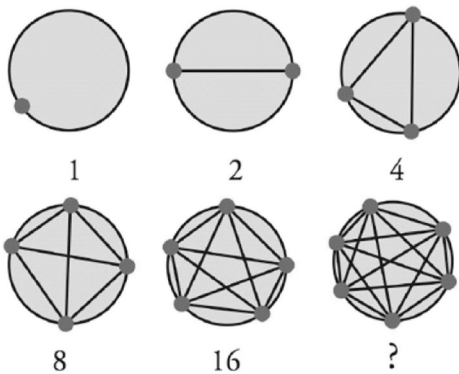
- (a) Silver, Green, Brown
- (b) Silver, Brown, Pink
- (c) Silver, Pink, Green
- (d) Yellow, Pink, Green

- 21.** One night, three naughty boys stole a basketful of apples from the garden, hid the loot and went to sleep. Before retiring they did some quick counting and found that the fruits were less than a hundred in number. During the night one boy awoke, counted the apples and found that he could divide the apples into three equal parts if he first took one for himself. He then took one apple, ate it up and took $\frac{1}{3}$ of the rest, hid them separately and went back to sleep. Shortly thereafter, another boy awoke, counted the apples and he again found that if he took one for himself the loot could be divided into three equal parts.
- He ate up one apple, bagged $\frac{1}{3}$ of the remainder, hid them separately and went back to sleep. The third boy also awoke after sometime, did the same and went back to sleep. In the morning, when all woke up, and counted apples, they found that the remaining apples again totaled 1 more than could be divided into three equal parts. How many apples did the boy steal ?
- (a) 67 (b) 79
(c) 85 (d) None of these
- 22.** A girl counted in the following way on the fingers on her left hand : She started by calling the thumb 1, the index finger 2, middle finger 3, ring finger 4, little finger 5 and then reversed direction calling the ring finger 6, middle finger 7 and so on. She counted upto 1994. She ended counting on which finger ?
- (a) Thumb (b) Index Finger
(c) Middle finger (d) Ring finger
- 23.** Three persons A, B and C wore shirts of black, blue and orange colours (not necessarily in that order) and pants of green, yellow and orange colours (not necessarily in that order). No person wore pant and shirt of the same colour. Further, it is given that
1. A did not wear shirt of black colour.
 2. B did not wear shirt of blue colour.
 3. C did not wear shirt of orange colour.
 4. A did not wear pant of green colour.
 5. B wore pant of orange colour.
- What were the colours of pant and shirt worn by C, respectively ?
- (a) Yellow and Black
(b) Yellow and Blue
(c) Green and Blue
(d) Orange and Black

24. In the horror movie *Cube*, the victims are trapped in a maze of rooms. The maths wiz of the group concludes that a room is booby trapped if any of the three digit numbers labeling the room is prime. Here are a few sets of these room numbers. Assuming the maths wiz is correct, determine (without a calculator!) which of the following room is safe:

- (a) 737
- (b) 476
- (c) 373
- (d) 565

25. What will be the next number :



- (a) 29
- (b) 30
- (c) 31
- (d) 32

26. Study the following information carefully and answer the given questions.

- i. B and E are good in Dramatics and Computer Science.
- ii. A and B are good in Computer Science and Physics
- iii. A, D and C are good in Physics and History
- iv. C and A are good in Physics and Mathematics
- v. D and E are good in History and Dramatics

Who is good in Physics, History, Computer Science and Mathematics?

- (a) A
- (b) B
- (c) D
- (d) E

27. Eight books are kept one over other. Counting from the top, the second, fifth and sixth books are on plays. Two books on plays are between two books on composition. One book of plays is between two books on poetry while the book at the top of the book of literature is a book of composition. Which book is fourth from the top.

- (a) Plays
- (b) Poetry
- (c) Composition
- (d) literature

28. Which number replaces the question mark ?

6	EJI	3
M F K		D P G
9	NRG	?

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

29. Which letter replaces the question mark ?

E	M	H
N	O	A
I	?	D

- (a) J (b) K
(c) L (d) M

Directions (Q.30 to 32) : A, B, C, D, E and F are members of a family. Amongst them there are lawyer, doctor, teacher, salesman, engineer and an accountant. There are two married couples in the family. 'D' who is a salesman is married to the lady teacher. Doctor is married to the lawyer. 'F' who is an accountant is son of 'B' and also brother of 'E'. 'C' who is lawyer is daughter-in-law of 'A'. 'E' is an unmarried engineer. 'A' is grand mother of 'F'.

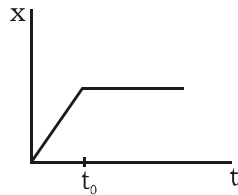
30. What is the profession of B?
(a) Salesman (b) Doctor
(c) Lawyer (d) Teacher
31. What is the relation of D with F?
(a) Husband (b) Brother
(c) Father (d) Grandfather
32. Which of the following is a married couple?
(a) C and D (b) A and B
(c) B and C (d) D and B
33. The unit digit in $(7^{95} - 3^{58})$ is :
(a) 0 (b) 4
(c) 6 (d) 7
34. The capacity of two pots is 120 litres and 56 litres respectively. The capacity of a container which can exactly measure the contents of the two pots, is :
(a) 7500 c.c. (b) 7850 c.c.
(c) 8000 c.c. (d) 9500 c.c.

35. $\left(1-\frac{1}{2}\right)\left(1-\frac{1}{3}\right)\left(1-\frac{1}{4}\right)\dots\left(1-\frac{1}{n}\right)=?$
- (a) $\frac{1}{n}$ (b) $\frac{1}{(n-1)}$
- (c) $\frac{n}{(n-1)}$ (d) None of these
36. A tank is fitted with two taps A and B. A can fill the tank completely in 45 minutes and B can empty the full tank in 1 hour. If both the taps are opened alternatively for 1 minute, then in how much time the empty tank will be filled completely ?
- (a) 2 hrs 55 min
(b) 3 hrs 40 min
(c) 4 hrs 48 min
(d) None of these
37. Two men undertake to do a piece of work for Rs.4000. One alone can do it in 6 days, the other in 8 days. With the help of a boy, they finish it in 3 days. The boy's share is :
- (a) Rs.400 (b) Rs.500
(c) Rs.600 (d) Rs.800
38. A dishonest shopkeeper pretends to sell his goods at cost price but uses false weights and gains $11\frac{1}{9}\%$. For a weight of 1 kg he uses :
- (a) a weight of 875 gm
(b) a weight of 900 gm
(c) a weight of 950 gm
(d) None of these
39. A shopkeeper allows a discount of 10% on the marked price of an item but charges a sales tax of 8% on the discounted price. If the customer pays Rs.680.40 as the price including the sales tax, then what is the marked price of the item ?
- (a) Rs.630 (b) Rs.700
(c) Rs.780 (d) None of these
40. Three equal glasses are filled with mixtures of spirit and water. The ratio of spirit and water is given below :
- 1st glass = 3 : 4, 2nd glass = 4 : 5
and 3rd glass = 5 : 6
- The contents of three glasses are emptied into a single vessel. What is the ratio of spirit to water in the mixture now ?
- (a) 820 : 1149 (b) 920 : 1159
(c) 1010 : 1122 (d) 1120 : 1134

SECTION-B (SAT)
SCHOLASTIC APTITUDE TEST

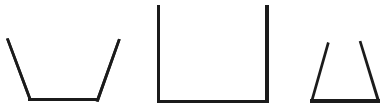
(Marking Scheme : Correct Answer +4 , Incorrect Answer -1)

41. Figure shows the displacement - time graph of a particle moving on the X - axis.



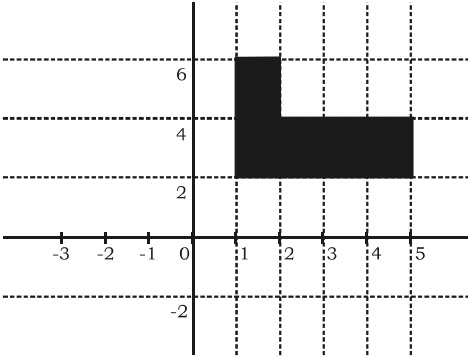
- (a) the particle is continuously going in positive x direction
(b) the particle is at rest
(c) the velocity increases up to a time t_0 and then becomes constant
(d) the particle moves at a constant velocity up to a time t_0 and then stops.
42. A person standing near the edge of the top of a building throws two balls A and B. The ball A is thrown vertically upward and B is thrown vertically downward with the same speed. The ball A hits the ground with a speed v_A and the ball B hits the ground with a speed v_B . We have
- (a) $v_A > v_B$
(b) $v_A < v_B$
(c) $v_A = v_B$
(d) the relation between v_A and v_B depends on height of the building above the ground.
43. A body of weight w_1 is suspended from the ceiling of a room through a chain of weight w_2 . The ceiling pulls the chain by a force
- (a) w_1 (b) w_2
(c) $w_1 + w_2$ (d) $\frac{w_1 + w_2}{2}$.
44. When a particle moves in a circle with a uniform speed
- (a) its velocity and acceleration are both constant
(b) its velocity is constant but the acceleration changes
(c) its acceleration is constant but the velocity changes
(d) its velocity and acceleration both change.

45. The three vessels shown in figure have same base area. Equal volumes of a liquid are poured in the three vessels. The force on the base will be



- (a) maximum is vessel A
 (b) maximum in vessel B
 (c) maximum in vessel C
 (d) equal in all the vessels.
46. Consider a heavenly body that has mass $2M_e$ and radius $2R_e$, where M_e and R_e are the mass and the radius of the earth respectively. The acceleration due to gravity at the surface of this heavenly body is
- (a) 2.45 m/s^2 (b) 4.9 m/s^2
 (c) 9.8 m/s^2 (d) 19.6 m/s^2
47. A person A does 500 J of work in 10 minutes and another person B does 600 J of work 20 minutes. Let the power delivered by A and B be P_1 and P_2 respectively. Then,
- (a) $P_1 = P_2$
 (b) $P_1 > P_2$
 (c) $P_1 < P_2$
 (d) P_1 and P_2 undefined

48. When we increase the loudness of sound produced by a radio, the property of the sound wave that changes is its
- (a) amplitude (b) frequency
 (c) speed (d) wavelength
49. If the atomic mass unit (u) were defined to be $\frac{1}{24}$ th of the mass of an atom of C - 12 isotope what would be the atomic weight of O in u
- (a) 16 u (b) 32 u
 (c) 8u (d) Remains unchanged
50. A vessel Contains 4.4g of CO_2 . It means that it contains
- (a) 0.1 mol of CO_2
 (b) 6.02×10^{22} molecules of CO_2
 (c) both a & b
 (d) None of these
51. If $\frac{1}{4}$ th (in place of $\frac{1}{12}$ th) mass of an atom of C - 12 isotope is taken to be relative atomic mass unit, the mass of one mole of a substance will
- (a) Increase three fold
 (b) Decrease thrice
 (c) Be a function of molecular mass of the substance
 (d) Remains unchanged

- 52.** The formula of the sulphate of an element X is $X_2(SO_4)_3$. The formula of nitride of element X will be
 (a) X_2N (b) XN_2
 (c) XN (d) X_2N_3
- 53.** Which of the following has the maximum number of atoms ?
 (a) 18g of H_2O (b) 18g of O_2
 (c) 18g of CO_2 (d) 18g of CH_4
- 54.** The atomic number of four element A, B, C, and D are 12, 13, 15 and 3 respectively. The element which can't form a cation is :
 (a) A (b) B
 (c) C (d) D
- 55.** The total number of protons in one molecule of Carbon tetrachloride is
 (a) 23 (b) 40
 (c) 57 (d) 74
- 56.** Tincture of iodine has antiseptic properties. The solution is made by dissolving
 (a) Iodine in potassium Iodide
 (b) Iodine in acetone
 (c) Iodine in water
 (d) Iodine in alcohol
- 57.** If perpendicular distance of a point from x-axis is 5 units, then point p has :
 (a) x-co-ordinate = -5 or 5
 (b) y-co-ordinate = 5
 (c) y-co-ordinate = -5
 (d) y-co-ordinate = -5 or 5
- 58.** If $a + b + c = 0$ then
 $x^{a^2b^{-1}c^{-1}} x^{a^{-1}b^2c^{-1}} x^{a^{-1}b^{-1}c^2} =$
 (a) $x^{a^2b^2c}$ (b) $\frac{1}{x^{a^2b^2c^2}}$
 (c) $x^{\frac{1}{2}}$ (d) x^3
- 59.** In the given diagram, the area of the shaded region is :

 (a) 20 sq units (b) 10 sq units
 (c) 12 sq units (d) 24 sq units

60. Set of values of x, if

$$\sqrt{(x+8)} + \sqrt{(2x+2)} = 1 \text{ is}$$

- (a) {1} (b) {1, 17}
 (c) {17} (d) none of these

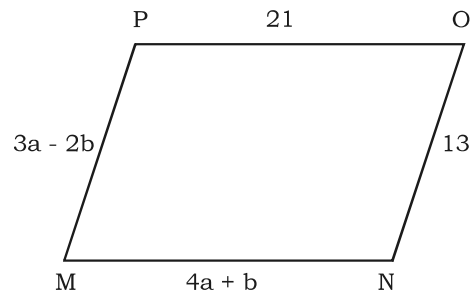
61. The given below question is followed by three statements. You have to study the question and the statements and decide which of the statement(s) are necessary to answer the question.

What is the capacity of the cylindrical tank ?

- (i) The area of the base is 61,600 sq cm.
 (ii) The height of the tank is 1.5 times the radius.
 (iii) The circumference of the base is 880 cm.

- (a) (i) and (ii)
 (b) (ii) and (iii)
 (c) any two of three
 (d) (ii) and either (i) or (iii)

62. What values of a and b make quadrilateral MNOP a parallelogram ?



- (a) $a = 1, b = 5$ (b) $a = 5, b = 1$
 (c) $a = \frac{11}{7}, b = \frac{34}{7}$ (d) $a = \frac{34}{7}, b = \frac{11}{7}$

63. The probability of guessing the correct answer to a certain test question is $\frac{x}{2}$.

If the probability of not guessing the correct answer to this question is $\frac{2}{3}$

then x =

- (a) 2 (b) 3 (c) $\frac{2}{3}$ (d) $\frac{1}{3}$

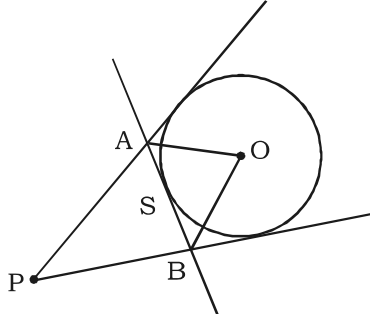
64. The mean of 40 items is 35 and if each item is multiplied by a then new mean will be ?

- (a) 35 a (b) 35 + a (c) 40 a (d) 40 + a

65. If $4^{44} + 4^{44} + 4^{44} + 4^{44} = 4^x$ then x is

- (a) 45 (b) 44 (c) 176 (d) 11

66. Triangle PAB is formed by three tangents to circle with centre O and $\angle APB = 40^\circ$ then $\angle AOB$ equals :



- (a) 45° (b) 50° (c) 55° (d) 70°

67. If $\left(a + \frac{1}{a}\right)^2 = 3$ then $a^3 + \frac{1}{a^3} =$

- (a) $\frac{10\sqrt{3}}{3}$ (b) $3\sqrt{3}$
 (c) 0 (d) $7\sqrt{7}$

68. If $v = gt + v_0$ and $S = \frac{1}{2}gt^2 + v_0t$ then t equal :

- (a) $\frac{2S}{v + v_0}$ (b) $\frac{2S}{v - v_0}$
 (c) $\frac{2S}{v_0 - v}$ (d) insufficient data

69. The expression

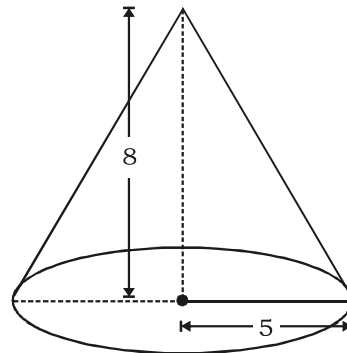
$$2 + \sqrt{2} + \frac{1}{2 + \sqrt{2}} + \frac{1}{\sqrt{2} - 2}$$
 equals :

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

70. Which of the four numbers $\sqrt{\pi^2}$, $\sqrt[3]{0.8}$, $\sqrt[3]{-1}$, $\sqrt{(0.09)^{-1}}$ is (are) rational ?

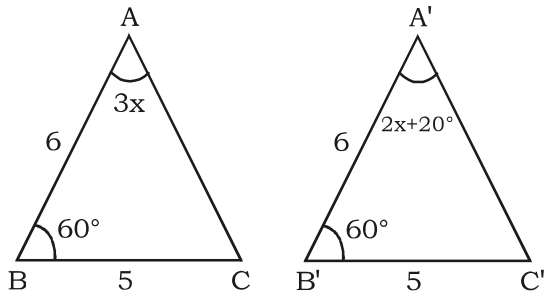
- (a) all (b) first and second
 (c) third and fourth (d) none of these

71. A right circular cone has radius 5cm and height 8 cm. What is the lateral surface area of the cone ?



- (a) 40π sq cm (b) 445π sq cm
 (c) $5\pi\sqrt{39}$ sq cm (d) $5\pi\sqrt{89}$ sq cm

72. In the given figure, measure of $\angle B'A'C'$ is



- (a) 50° (b) 60° (c) 70° (d) 80°
73. Causative agent of chicken pox is:
 (a) *Vibrio cholerae*
 (b) *Treponema*
 (c) *Tetanus bacillus*
 (d) *Varicella zoster*
74. Epithelium lining the kidney tubules is:
 (a) Ciliated epithelium
 (b) Columnar epithelium
 (c) Squamous epithelium
 (d) Cuboidal epithelium
75. Part of cytoplasm containing organelles and non-living inclusions is:
 (a) Protoplasm (b) Deutoplasm
 (c) Trophoplasm (d) Metaplasm
76. Tracheids and vessels are collectively called as:
 (a) Leptome (b) Hadrome
 (c) Both a and b (d) None of these
77. The life supporting gases such as O_2 , CO_2 and N_2 are chiefly concentrated in the:
 (a) troposphere (b) exosphere
 (c) homosphere (d) stratosphere
78. Vascular cryptogams are:
 (a) Fungi (b) Bryophytes
 (c) Gymnosperms (d) Pteridophytes
79. Members of which group are not deuterostomes?
 (a) Chordates
 (b) Echinoderms
 (c) Arthropods
 (d) None of these, all are deuterostomes
80. AIDS virus has
 (a) Single strand DNA
 (b) Double strand DNA
 (c) Single strand RNA
 (d) Double strand RNA

Dream on !!

