

**PART-I**

**IQ (MENTAL ABILITY)**

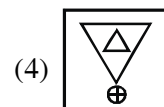
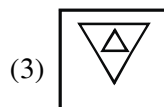
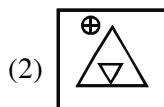
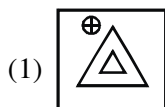
This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. Observe the following sequence and answer the questions that follow :

@ # \$ # @ \$ @ # \$ \$ \$ @ # # @ @ @ @ \$ # # \$ \$

How many times is a # not followed by a \$ ?

- (1) 4 (2) 5  
(3) 6 (4) 7
2. B is the South-West of A, C is to the East of B and South-East of A and D is to the North of C in line with B and A. In which direction of A is D located?
- (1) North (2) East  
(3) South-East (4) North-East
3. In the following question select the mirror reflection from the given alternatives.

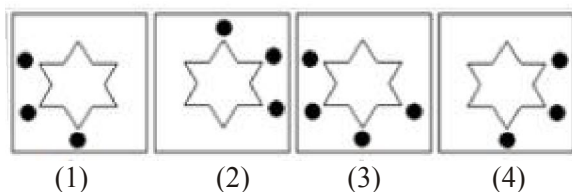


**Direction : (Q.4 to Q.6) :** Read the following information carefully and answer the questions given below:

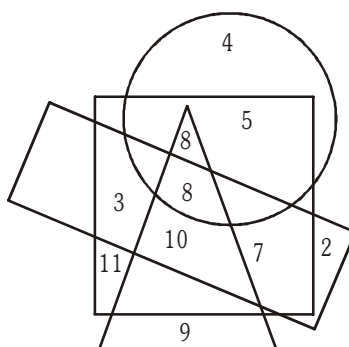
A, B, C, D, E, F and G are seven students in a class. They are sitting on three benches I, II and III in such a way that there are at least two of them on each bench and there is at least one girl on each bench. C, a girl student, does not sit with A, E and D. F, a boy student, sits with only B. A sits with his best friends in bench I. G sits on bench III. E is brother of C.

4. On which bench do three students sit?
- (1) I (2) II  
(3) III (4) I or II
5. How many girl students are there?
- (1) 3 (2) 4  
(3) 3 or 4 (4) Data inadequate
6. Which of the following is a group of boys
- (1) EFA (2) EDA  
(3) ECA (4) EBA

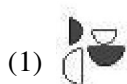
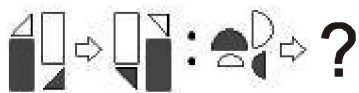
7. Which shape or pattern complete the larger square ?



**Direction : (Q. 8 to Q.10) :** Questions are based on the Venn diagram given below in which the triangle stands for lady, the rectangle stands for doctors, the circle stands for teachers and the square stands for engineers. Find out the correct answer of each question from the alternatives given under it.



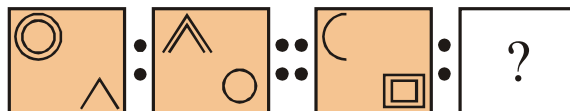
8. How many persons are engineers as well as do teaching job?  
(1) 21 (2) 8 (3) 13 (4) 7
9. The numbers of lady who are neither engineers nor teachers are ?  
(1) 9 (2) 7 (3) 10 (4) 11
10. The number of engineers who are neither doctors nor lady teachers are ?  
(1) 4 (2) 11 (3) 9 (4) 2
11. Which shape or pattern on the right completes the second pair in the same way as the first pair ?



12. The 30 members of a club decided to play a badminton singles tournament. Every time a member loses a game he is out of the tournament. There are no ties. What is the minimum number of matches that must be played to determine the winner?

(1) 15 (2) 29  
(3) 61 (4) None

13. Which figure will complete the second pair in the same way as the first pair ?



14. In the following question, choose the missing term to complete the given series.

1, 4, 2, 8, 6, 24, 22, 88, ?

(1) 86 (2) 98 (3) 90 (4) 154

15. Find the missing character in the following question.

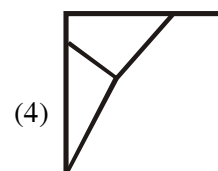
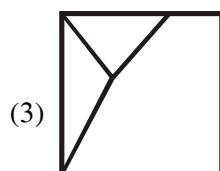
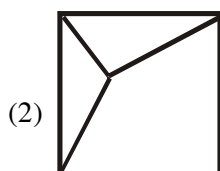
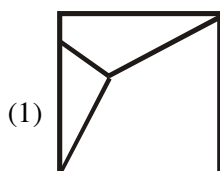
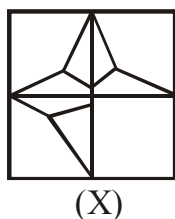
31	12	10
15	2	?
8	5	3

(1) 9 (2) 11 (3) 4 (4) 6

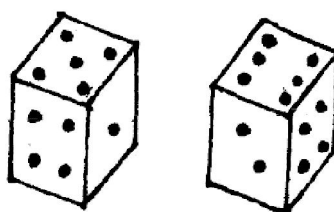
16. In the following question how will the reflection of the given figure in water look, if it is made to stand on the surface of the water ?



17. In the following question, select a figure from amongst the four alternatives, which when placed in the blank space of fig. (X) would complete the pattern.



18. Two positions of a dice are show below:



When three dots are at the top, how many will be at the bottom?

- (1) 1 (2) 2 (3) 4 (4) 5
19. There are deer and peacocks in a zoo. By counting heads they are 80. The number of their legs is 200. How many peacocks are there?
- (1) 20 (2) 30 (3) 50 (4) 60
20. The picture given each have a set of letters, you need to work out the code that applies to the shape in the question.



Find the code for the shape :



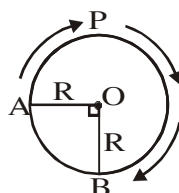
- (1) Q W N U (2) Q V M U (3) Q W M T (4) Q W N T

## PART-II

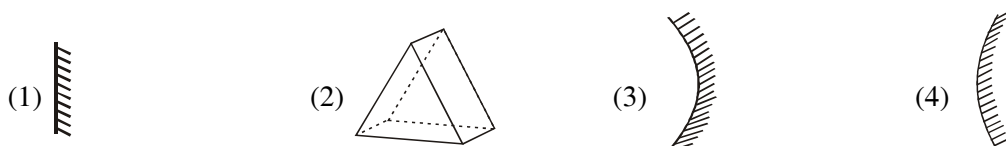
### SECTION-A : PHYSICS

This section contains **12 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

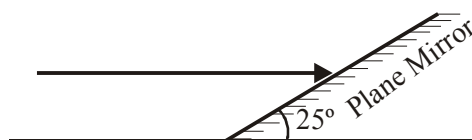
21. In 10 minutes, a car with speed of  $60 \text{ kmh}^{-1}$  travels a distance of  
 (1) 6 km (2) 600 km  
 (3) 10 km (4) 7 km
22. A body moves along the circumference of a circular track of radius R. What is displacement of the body when it follows path APB ?



- (1)  $3R$  (2)  $\frac{3}{4}\pi R$  (3)  $\frac{3}{2}\pi R$  (4)  $\sqrt{2}R$
23. At what temperature a Fahrenheit thermometer will read double that of a Centigrade thermometer?  
 (1)  $160^\circ \text{ C}$  (2)  $120^\circ \text{ C}$  (3)  $80^\circ \text{ C}$  (4)  $240^\circ \text{ C}$
24. Woolen clothes are better than cotton clothes in winter because  
 (1) Wool is good conductor of heat  
 (2) Wool has many tiny air spaces and can trap air better than cotton  
 (3) Cotton is good conductor of heat and cannot, therefore, act as an insulator  
 (4) Wool can supply heat to our body
25. Shipra wants to conduct an experiment to focus sunlight at a point. Which tool should she use?

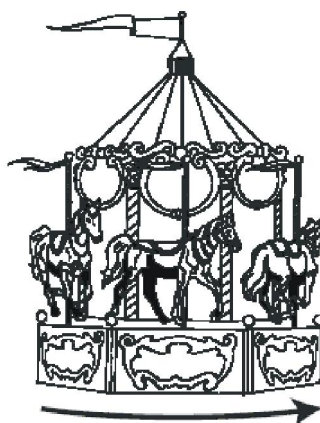


26. A plane mirror is inclined at  $25^\circ$  to the floor. An incident ray parallel to the floor strikes the mirror and a reflected ray is formed. What is the angle of reflection ?



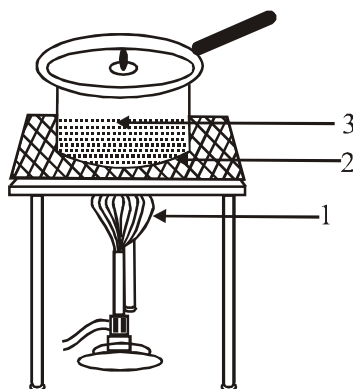
- (1)  $65^\circ$  (2)  $75^\circ$  (3)  $55^\circ$  (4)  $43^\circ$

27.



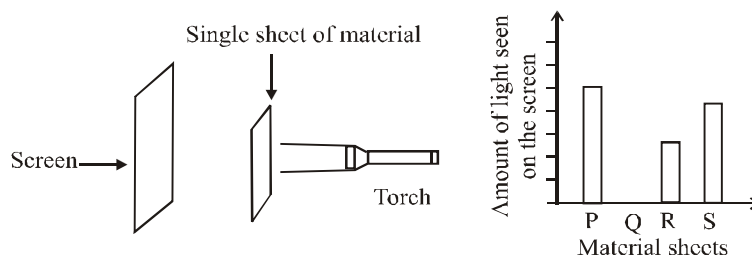
The horses on this merry-go-ground are accelerating because \_\_\_\_\_.

- (1) the speed of the horses is constantly increasing
  - (2) the speed of the horses is constantly decreasing
  - (3) the direction of the horses' motion is constantly changing
  - (4) the travel time is different for every ride
28. A man runs at a constant speed of  $3.2 \text{ ms}^{-1}$  then he covers a distance of
- (1) 6.4 m in 3 seconds
  - (2) 192 m in 1 minute
  - (3) 32 cm in 1 second
  - (4) 1.152 km in 1 hour
29. Look at the diagram and mark the part where the heat is being transferred by conduction.

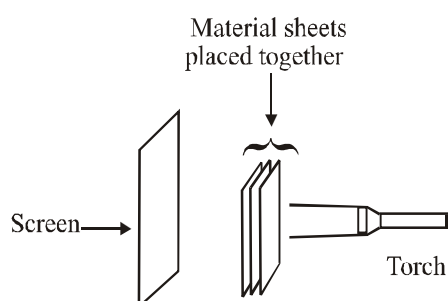


- (1) 1
  - (2) 2
  - (3) 3
  - (4) Both 1 and 3
30. Gaurav has a pan of ice water showing a temperature slightly greater than zero degrees Celsius. As the ice slowly melts from exposure to the warm room air, Gaurav decides to speed up the process. He applies a heat source to the pan. At what point will his thermometer show the temperature of the water beginning to rise?
- (1) after all the ice has melted
  - (2) once the ice begins to melt
  - (3) after the water turns to steam
  - (4) once the water begins to turn to steam
31. Mahi desires to photograph the image of a flower pot placed at a distance of 3 m from the plane mirror. The camera which is at a distance of 4.5 m from the mirror should be focussed for a distance of
- (1) 3 m
  - (2) 4.5 m
  - (3) 6 m
  - (4) 7.5 m

32. Four thin sheets of materials P, Q, R and S were placed one at a time between a bright light source and a screen. The amount of light that passed through the sheets and fell on the screen was measured. The measurements are shown in the graph.



The sheets were then placed together in different combinations.



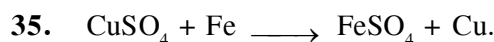
Based on the graph, which of the following is true?

- (1) Sheets S and Q together allow more light to pass through than sheets Q and R together.
- (2) Sheets Q, R and S together allow more light to pass through than sheets P alone.
- (3) Sheets P and R together allow more light to pass through than sheets P alone.
- (4) Sheets P and Q together allow no light to pass through.

### SECTION-B : CHEMISTRY

This section contains **11 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

33. Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved ?
- |                            |                                   |
|----------------------------|-----------------------------------|
| (i) Displacement reaction  | (ii) Precipitation reaction       |
| (iii) Combination reaction | (iv) Double displacement reaction |
| (1) (i) only               | (2) (ii) only                     |
| (3) (iv) only              | (4) (ii) and (iv)                 |
34. **Statement - 1 :-** A mixture of He and O<sub>2</sub> is used for respiration for deep sea divers.  
**Statement - 2 :-** He is soluble in blood.
- (1) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1
  - (2) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1
  - (3) Statement 1 is true and statement 2 is false
  - (4) Both statements 1 and 2 are incorrect.



During this reaction change of colour occurs as

- (1) Blue to pale green (2) Blue to black  
 (3) White to blue (4) White to black

36. Which of the following does not contain silver

- (1) Silver nitrate (2) German silver  
 (3) Silver chloride (4) Horn silver

37. Distillation involves

- (1) Vaporization only (2) Condensation only  
 (3) Condensation followed by vaporization (4) Vaporization followed by condensation

38. Which of the following is not a mixture ?

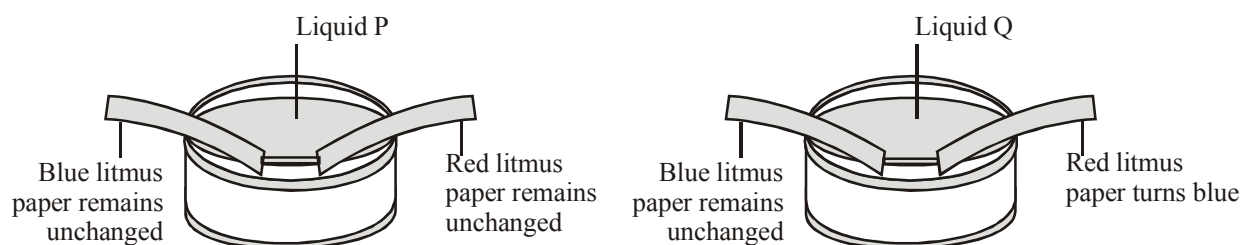
- (1) Sodium chloride solution (2) Brass  
 (3) Bronze (4) Molten sodium chloride

39. **Statement 1:** A chemical change may be accompanied by evolution of a gas and change in colour.

**Statement 2 :** Photosynthesis and digestion are chemical changes.

- (1) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1  
 (2) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1  
 (3) Statement 1 is false and statement 2 is true  
 (4) Both statements 1 and 2 are incorrect.

40. Diagram shows the observation of an experiment on liquid P and liquid Q.



What are the properties of liquid P and liquid Q?

	Liquid P	Liquid Q
(1)	Acidic	alkaline
(2)	Alkaline	Acidic
(3)	Neutral	Acidic
(4)	Neutral	Alkaline

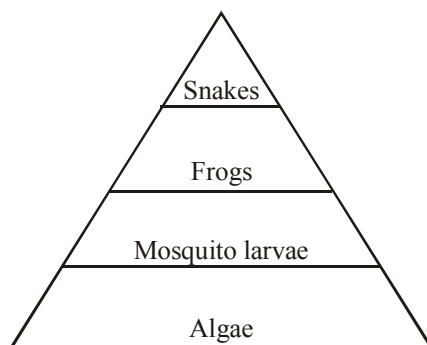


41. A farmer has been using excess quantities of chemical fertilizers in fields for a number of years. The crop yield began to reduce inspite of using chemical fertilizers. Which of the following are true with respect to the above observation ?
- (a) The soil has become more acidic.  
(b) The soil has become more alkaline.  
(c) The yield can be improved by adding slaked lime to the soil.  
(d) The yield can be improved by adding some organic matter.  
(e) The yield can be improved by adding common salt.
- (1) a and e                      (2) b and d                      (3) b and e                      (4) a and c
42. White gold is used in jewellery and contains two elements gold and palladium. A jeweller has two different samples that are both identical in appearance and have a uniform composition throughout. What can be said about the samples?
- (1) They are homogeneous mixtures and can be classified as metallic alloys.  
(2) The materials are heterogeneous mixtures and can be classified by their components.  
(3) The samples have variable composition and are classified as metallic solutions.  
(4) The samples are heterogeneous mixtures that can be separated using magnetic properties.
43. Read the following statements and select the correct statements about greenhouse gases.
- (a) Carbon dioxide is the only gas in the atmosphere which causes global warming.  
(b) The greenhouse gases trap heat and do not allow heat to escape into outer space.  
(c) Water vapours do not contribute to greenhouse effect.  
(d) The presence of excessive greenhouse gases in the atmosphere is responsible for global warming.
- (1) a and b                      (2) b and d                      (3) c and b                      (4) d and a

**SECTION-C : BIOLOGY**

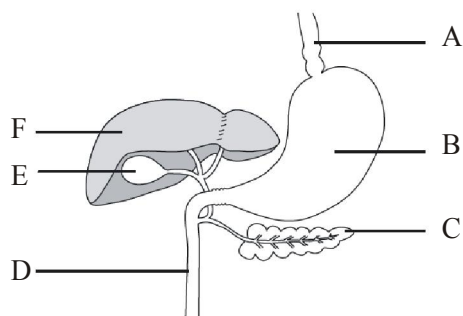
This section contains **12 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

44. According to the energy pyramid shown below, which organisms are the secondary consumers?



- (1) Algae    (2) Mosquito larvae  
(3) Frogs    (4) Snakes
45. Which of the following is natural fiber ?
- (1) Wool    (2) Jute    (3) Silk    (4) All of the above

46. If the average annual rainfall in a forest decreases over many years, what will the trees in the forest MOST likely grow?
- (1) More extensive roots (2) More large leaves  
(3) Floating seeds (4) Crooked trunks
47. Submerged hydrophytes exchange gases through
- (1) Lenticels (2) Stomata  
(3) General body surface by diffusion (4) Chloroplasts
48. Separation of seeds from cotton bolls is called
- (1) Winnowing (2) Threading (3) Ginning (4) Spinning
49. Where is excess bile stored?
- (1) Liver (2) Pancreas (3) Gall bladder (4) Stomach
50. Which is the correct sequence of the following digestive juices as they get mixed with food ?
- (a) Saliva (b) Gastric juice  
(c) Intestinal juice (d) Bile juice
- (1) a - d - b - c (2) a - b - c - d (3) a - b - d - c (4) a - d - c - b
51. Some plants and animals have adaptations that enable them to survive in a desert ecosystem. Most of these adaptations are a response to which abiotic factor?
- (1) Number of consumers (2) Number of producers  
(3) Amount of water available (4) Duration of sunlight
52. Larvae of some fishes cannot tolerate high salinity of sea water so these fishes during breeding time
- (1) Migrate to moist land (2) Migrate to river  
(3) Migrate deep in sea (4) Migrate to surface of the sea
53. Which of these is not a property of nylon?
- (1) Light weight (2) Strong  
(3) High moisture absorbance (4) Wrinkle free
54. In the diagram shown below, where does peristalsis occur?



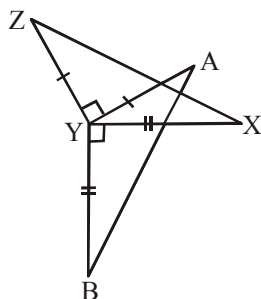
- (1) A and D (2) C and F (3) C and E (4) E and F

55. In a lizard population, there are a few individuals with grey skin, while others can change colours. Why is it more likely that the colour-changing lizards will survive better than grey lizards?
- (1) They can hide from predators more successfully.
  - (2) They will be faster and stronger than the grey lizards.
  - (3) The colour-changing skin is a dominant gene over the grey.
  - (4) Their colour-changing skin will make their offspring more attractive.

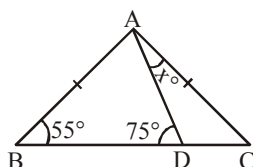
### SECTION-D : MATHEMATICS

This section contains **25 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

56. In the given fig.  $AY \perp ZY$  and  $BY \perp XY$  such that  $AY = ZY$  and  $BY = XY$ , then  $AB = ?$

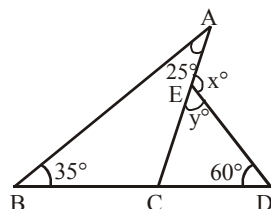


- (1) ZY
  - (2) YB
  - (3) AY
  - (4) ZX
57. If  $\triangle ABC \cong \triangle PRQ$ , then  $\angle B$  and  $PQ$  are respectively equal to
- (1)  $\angle P$  and  $AC$
  - (2)  $\angle R$  and  $BC$
  - (3)  $\angle R$  and  $AC$
  - (4)  $\angle Q$  and  $AB$
58. Find the value of  $x$  :

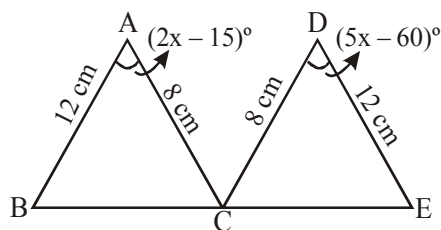


- (1)  $20^\circ$
  - (2)  $45^\circ$
  - (3)  $55^\circ$
  - (4)  $100^\circ$
59. Suhana wants to buy an MP3 player that costs Rs.150. She has Rs.42 saved already. She can earn Rs.6 an hour by baby sitting on weekends. How many hours must Suhana work to save the money she needs?
- (1) 8 hours
  - (2) 18 hours
  - (3) 12 hours
  - (4) 25 hours

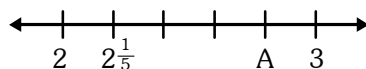
60. From the adjoining figure the value of  $x$  is :



- (1)  $60^\circ$  (2)  $75^\circ$  (3)  $90^\circ$  (4)  $120^\circ$
61. You can convert the temperature in degrees Celsius  $C$  to degrees Fahrenheit  $F$  with the formula  $F = \frac{9}{5}C + 32$ . What is the temperature to degrees, Fahrenheit that is the same as 30 degrees Celsius?
- (1) 10 (2) 86 (3) 68 (4) 14
62. In a triangle  $ABC$ ,  $\angle ABC = 50^\circ$ ,  $\angle BAC = 30^\circ$ , then the longest side is :-
- (1)  $AB$  (2)  $BC$  (3)  $CA$  (4) None
63. In the given figure what must be the value of  $x$  to prove  $\triangle ABC \cong \triangle DEC$  by SAS ?

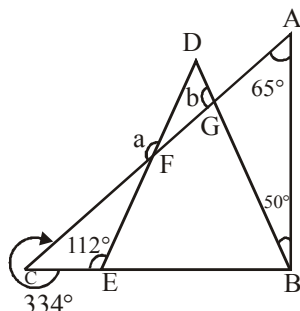


- (1)  $15^\circ$  (2)  $25^\circ$  (3)  $75^\circ$  (4)  $65^\circ$
64. If  $\frac{2A+2}{2} = \frac{4B+4}{4} = \frac{6C+8}{8} = 16$   
then  $A + B + C + 10$  is a ..... ?
- (1) Composite Number (2) Prime Number  
(3) Even Prime Number (4) Odd Number
65. If sum of two numbers is 58 & their difference is 12, then the numbers are :-
- (1) 28, 30 (2) 20, 28 (3) 23, 35 (4) 25, 33
66. The diagram shows a number line. What mixed fraction is represented by A?



- (1)  $2\frac{4}{5}$  (2)  $2\frac{2}{5}$  (3)  $2\frac{1}{2}$  (4)  $2\frac{3}{4}$
67. Simplify:  
 $[0.9 - \{2.3 - 3.2 - (7.1 - 5.4 - 3.5)\}] + 0.9$
- (1) 0 (2) 0.18 (3) 1.8 (4) 0.9

68. Which of the following can be the possible third side of a triangle whose two sides are 12 cm and 17 cm?  
 (1) 4 cm (2) 6 cm (3) 29 cm (4) 31 cm
69. If  $x + \frac{1}{x} = 7$ , then find the value of  $x^4 + \frac{1}{x^4}$   
 (1) 2209 (2) 2401 (3) 2207 (4) 1245
70. A tree broke at a point but did not separate. Its top touched the ground at a distance of 6 dm from its base. If the point where it broke be at a height 2.5 dm from the ground, what was the total height of the tree before it broke ?  
 (1) 9 dm (2) 6.5 dm (3) 8 dm (4) None of these
71. The cost of Mathematics book is Rs  $25\frac{3}{4}$  and that of Science book is Rs.  $20\frac{1}{2}$ . Which cost is more and by how much :  
 (1) Mathematics,  $\frac{21}{4}$  (2) Mathematics,  $\frac{15}{4}$   
 (3) Science,  $\frac{21}{4}$  (4) Science,  $\frac{15}{4}$
72. If  $\sqrt{5} = 2.24$ , then the value of  $\frac{3\sqrt{5}}{2\sqrt{5}-0.48}$  is  
 (1) 0.168 (2) 16.8 (3) 1.68 (4) 168
73. Additive inverse of (pqrs) where p, q, r and s are non-zero integers is:  
 (1)  $(-p)(-q)(-r)(-s)$  (2)  $(-p)qr(-s)$   
 (3) pqrs (4)  $(-p)(-q)(-r)s$
74. The given figure shows two overlapping triangles. The value of  $a - b$  is

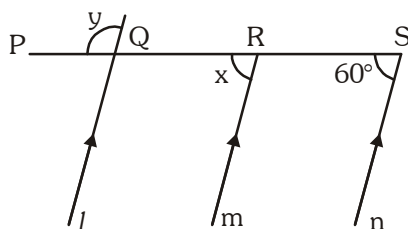


- (1)  $65^\circ$  (2)  $138^\circ$  (3)  $73^\circ$  (4)  $48^\circ$

75. Which of the following statements is false?

- (1) 4 days is  $\frac{4}{7}$  of a week (2) 1 month is  $\frac{1}{12}$  of an year  
(3) 6 months is  $\frac{1}{2}$  of an year (4) 5 hours is  $\frac{1}{6}$  of a day.

76. In the figure below, PQRS is a straight line and  $l \parallel m \parallel n$ . Find the value of x and y.



- (1)  $x = 60^\circ$ ,  $y = 60^\circ$  (2)  $x = 120^\circ$ ,  $y = 60^\circ$   
(3)  $x = 60^\circ$ ,  $y = 120^\circ$  (4)  $x = 120^\circ$ ,  $y = 120^\circ$

77. In a scalene triangle, if from the same vertex a median and an altitude is drawn to the opposite side, then the measure of:

- (1) Median < Altitude (2) Median > Altitude  
(3) Median = Altitude (4) 2 Median = Altitude

78. If  $5\frac{1}{6} - \left[ 1\frac{1}{5} + \left\{ 2\frac{3}{4} \div 5\frac{1}{2} \div x - \left( \frac{5}{6} - \frac{2}{3} \right) \right\} \right] = 2\frac{61}{120}$ , then the value of x is

- (1)  $\frac{4}{13}$  (2)  $\frac{3}{13}$  (3)  $\frac{4}{11}$  (4)  $\frac{3}{11}$

79. Mr. Rawat earns ₹ 24,500 per month. He spends  $\frac{9}{10}$  of his income and deposits the remaining money in his bank. How much money does he save in a year?

- (1) 27, 500 (2) 29, 500 (3) 29, 400 (4) 23, 750

80. If  $a = \left( \frac{1}{10} \right)^2$ ,  $b = \left( \frac{1}{5} \right)$ ,  $c = \frac{1}{10}$ , then which of the following statement is correct ?

- (1)  $a < b < c$  (2)  $a < c < b$  (3)  $b < c < a$  (4)  $c < a < b$

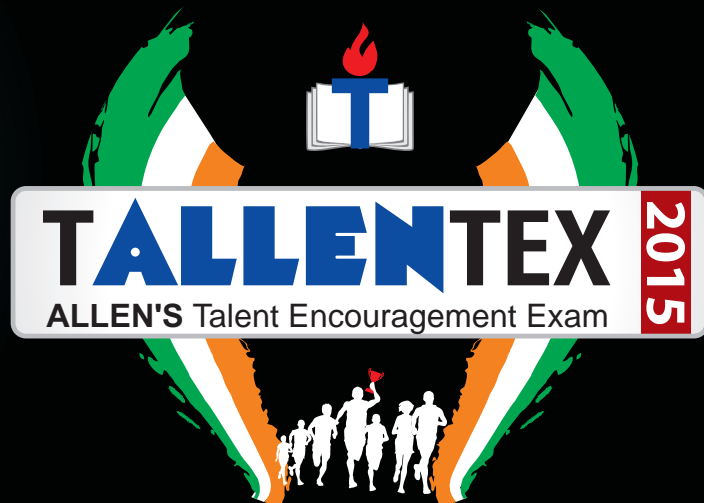
**SPACE FOR ROUGH WORK**

**SPACE FOR ROUGH WORK**





PAPER CODE  
**Y**



# ANSWER KEY : CLASS - 7<sup>th</sup> (VII)

## (Held on : 16-11-2014)

Q. No.	1	2	3	4	5	6	7	8	9	10
Ans.	2	4	2	1	3	1	1	1	1	BONUS
Q. No.	11	12	13	14	15	16	17	18	19	20
Ans.	4	2	2	1	3	4	1	3	4	1
Q. No.	21	22	23	24	25	26	27	28	29	30
Ans.	3	4	1	2	3	1	3	2	2	1
Q. No.	31	32	33	34	35	36	37	38	39	40
Ans.	4	4	4	3	1	2	4	4	2	4
Q. No.	41	42	43	44	45	46	47	48	49	50
Ans.	4	1	2	3	4	1	3	3	3	3
Q. No.	51	52	53	54	55	56	57	58	59	60
Ans.	3	2	3	1	1	4	3	1	2	4
Q. No.	61	62	63	64	65	66	67	68	69	70
Ans.	2	1	1	1	3	1	4	2	3	1
Q. No.	71	72	73	74	75	76	77	78	79	80
Ans.	1	3	4	3	4	3	2	1	3	2

