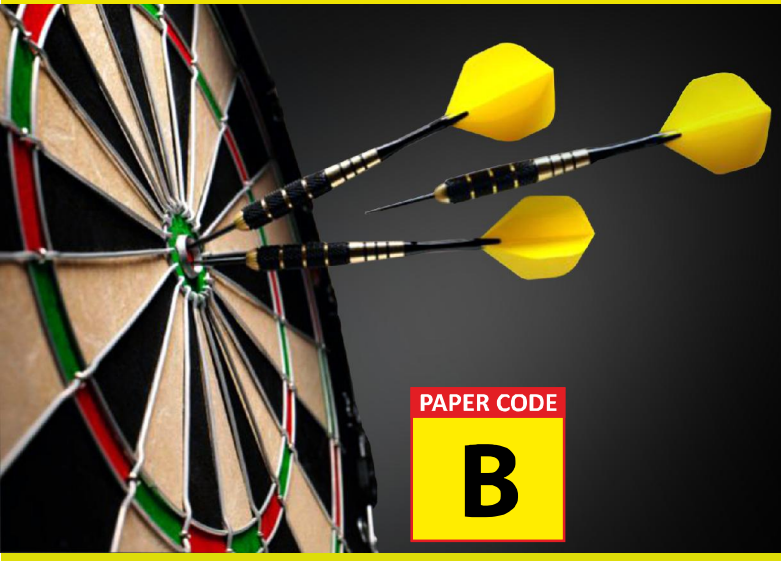
Form No. | | | | | | | | |



PAPER CODE

B

TALLENTEX (Pre) 2015 : (12, October 2014)

TALLENTEX 2015
ALLEN'S Talent Encouragement Exam

CLASS - 6th (VI)

Duration : 2 Hrs. **Maximun Marks : 320**

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

Things NOT ALLOWED in EXAM HALL : Blank Paper, clipboard, log table, slide rule, calculator, camera, mobile and any electronic or electrical gadget. If you are carrying any of these then keep them at a place specified by invigilator at your own risk

INSTRUCTIONS

1. This booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so.
2. Fill your TALLENTEX Form No. in the space provided on the top of this page.
3. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black ball point pen.
4. Total Questions to be Attempted 80. Part-I : 20 Questions & Part-II : 60 Questions.
5. After breaking the Question Paper seal, check the following:
   a. There are **16 pages** in the booklet containing question no. 1 to 80 under 2 Parts i.e. Part-I & Part-II.
   b. Part-I contains total 20 questions of IQ (Mental Ability).
   c. Part-II contains total 60 questions under 4 sections which are - Section (A) : Physics, Section (B) : Chemistry, Section(C) : Biology & Section (D): Mathematics.
6. Marking Scheme:
   a. If darkened bubble is RIGHT answer : 04 Marks.
   b. If darkened bubble is WRONG answer: -01 Mark (Minus One Mark).
   c. If no bubble is darkened in any question: No Mark.
7. Think wisely before darkening bubble as there is negative marking for wrong answer.
8. If you are found involved in cheating or disturbing others then your ORS will be cancelled.
9. Do not put any stain on ORS and hand it over back properly to the invigilator.
10. You can take along the question paper after the test is over.

A Specially Designed initiative at National Level to Encourage Young Talent

by

ALLEN CAREER INSTITUTE
KOTA (RAJASTHAN)
path to success

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. If TABLE is coded as VCDNG then CLASS is coded as:
(1) DMBSS (2) ENCUU (3) ENBUU (4) ELBUU

2. Which fraction comes next in the sequence $\frac{1}{2},\frac{3}{4},\frac{5}{8},\frac{7}{16},?$

(1) $\frac{9}{32}$ (2) $\frac{10}{17}$ (3) $\frac{11}{34}$ (4) $\frac{12}{35}$

3. Find the missing number in place of question mark?

(1) 1
(2) –1
(3) –2
(4) 4

0	–1	–2
1	0	–1
2	?	0

4. A person if facing North-West. He turns 45° in the clockwise direction and then 135° in the anticlockwise direction. Which direction is he facing now?
(1) South-West (2) North-West (3) North-East (4) South-East

5. Anil introduces Rohit as the son of the only brother of his father's wife. How is Rohit related to Anil?
(1) Cousin (2) Son (3) Uncle (4) Son-in-law

6. Letters of the word given below have been jumbled up. You are required to construct the word. Each letter has been numbered. Choose the option which gives the correct order of the letters as indicated by the numbers to form the word.

R T A O U H
1 2 3 4 5 6

(1) 1, 3, 4, 5, 6, 2 (2) 2, 3, 6, 4, 5, 1 (3) 3, 5, 2, 6, 4, 1 (4) 6, 3, 2, 4, 5, 1

7. In a certain code MEDICO is coded as DEMOCI, write code for PICNIC
(1) ICICPN (2) CIPCIN (3) PNICIC (4) CCIINP

8. Standing on a platform, Amit told Sunita that Aligarh was more than ten kilometres but less than fifteen kilometres from there. Sunita knew that it was more than twelve but less than fourteen kilometres from there. If both of them were correct, which of the following could be the distance of Aligarh from the Platform ?
(1) 11 km (2) 12 km (3) 13 km (4) 14 km

9. A honeybee colony that contains 50,000 bees in late fall, may have only 10,000 bees at the end of winter. What percent of the bees live through the winter season ?
(1) 80% (2) 20% (3) 25% (4) 50%

10. Find out which number stands for AB in the following operation

(1) 12
(2) 22
(3) 24
(4) 132

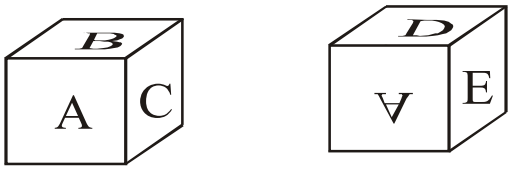
$$\begin{array}{rcc} & A & B \\ + & 7 & 2 \\ \hline & 9 & 6 \end{array}$$

11. Find the mirror image of REASONING from the options given below

(1) ꓤEꓭꓭOꓤIꓤG (2) ꓤꓤIꓤOꓭAꓭꓤ (3) ꓤEꓭAꓭOꓤIꓤG (4) ꓤꓤIꓤOꓭAꓭꓤ

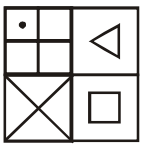
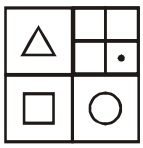
12. In the question, the second dice is obtained by rotating the first dice vertically downwards, by an angle of 180°. Observe the dice and answer the question.The faces of this dice show letter A, B, C, D, E and F.

Letter on the face opposite to the face showing the letter A is



(1) F (2) C (3) D (4) B

13. Which of the following designs can be made using 4 out of 5 given set of tiles ?

(1)  (2) (3)  (4) All of these

14. How many squares are there in a 6 × 4 square grid ?

(1) 45 (2) 50 (3) 55 (4) 60

15. There are three forms X, Y and Z of a sheet of paper. Figures X and Y respectively show the two consecutive folds of the sheet and the figure Z shows punch on the folded sheet. Choose one figure from the four option (1), (2), (3) and (4), that is similar to the unfolded form of the sheet Z.

(1) (2) (3) (4)

Direction (Q.16 & Q.17) : Six persons are sitting in a circle. A is facing B. B is to the right of E and left of C. C is to the left of D. F is to the right of A. Now D exchanges his seat with F and E with B.

16. Who will be sitting to the left of D ?

(1) B (2) D (3) E (4) A

17. Who will be sitting to the left of C ?

(1) E (2) F (3) A (4) B

18. Here are some words translated from an artificial language.

granamelke means big tree

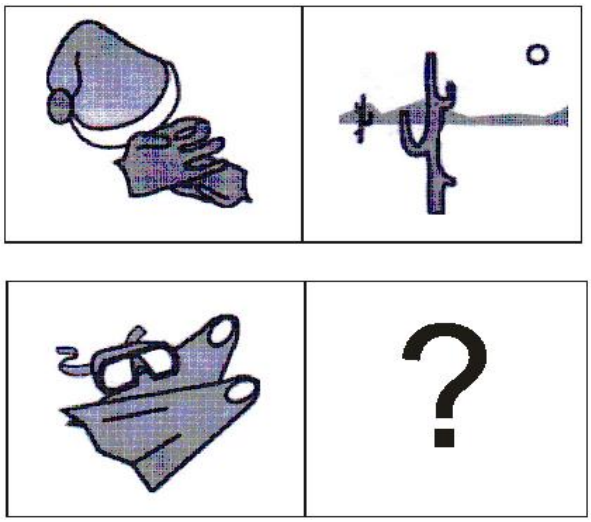
pinimelke means little tree

melkehoon means tree house

Which word could mean "big house" ?

(1) Granahoon (2) Pinishur (3) Pinihoon (4) Melkegrana

19. Of the four choices, you must identify the one that would best complete the second set so that it expresses the same relationship as the first set.



(1)

(2)

(3)

(4)

20. In a family there are husband wife, two sons and two daughters. All the ladies were invited to a dinner. Both sons went out to play. Husband did not return from office. Who was at home?

(1) Only wife was at home (2) All ladies were at home

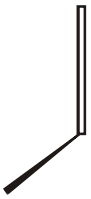
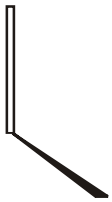
(3) Only sons were at home (4) No body was at home

PART-II

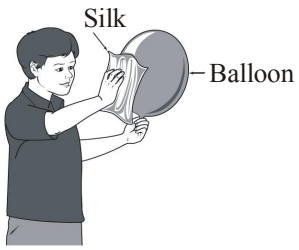
SECTION-A : PHYSICS

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. Krish conducted an experiment with shadow sticks. The pictures below were drawn from his observations of the Sun's movement across the sky. Which picture shows the time of the day when the Sun was highest in the sky?

(1)  (2) (3)  (4)

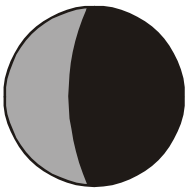
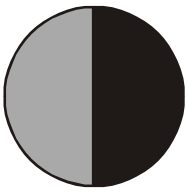
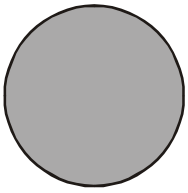
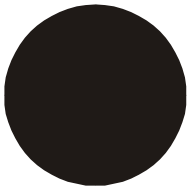
22. A student rubbed a piece of silk over a balloon filled with air. The student put the balloon and the piece of silk down on a table.



Which will most likely happen when the student moves the balloon near the silk?
(1) The balloon will float towards the ceiling. (2) The silk will fall to the floor.
(3) The balloon will be attracted to the silk. (4) The silk will be repelled by the balloon.

23. One side of a square chessboard is 24 inches long. The length of its other side is equal to
(1) 1 foot (2) 2 feet (3) 12 feet (4) 24 feet

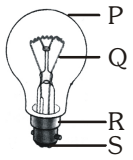
24. Which of the following pictures shows the appearance of the Moon when a solar eclipse occurs?

(1)  Waning Moon
(2)  Quarter Moon
(3)  Full Moon
(4)  New Moon

25. Ten coins were around are above the other. Their total height was 4 cm and 6 mm. The thickness of each coin is
(1) 4.0 mm (2) 4.5 mm (3) 4.6 mm (4) 46 mm

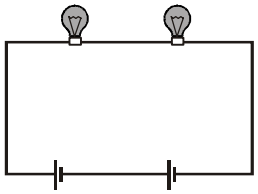
26. **Statement-A :** Rotation of earth on its axis is a periodic motion but it is not a rotatory motion.
Statement-B : Motion of an engine piston is a translatory motion.
(1) Statement A is correct but statement B is incorrect
(2) Statement A is incorrect but statement B is correct
(3) Both the statements are correct
(4) Both the statements are incorrect

27. Which part of the bulb is an insulator ?



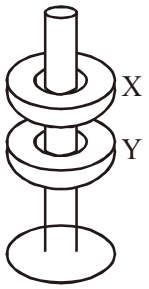
(1) P (2) Q (3) R (4) S

28. Nidhi has two bulbs connected across two cells in a simple circuit as shown. How can she make the bulbs glow dimmer?



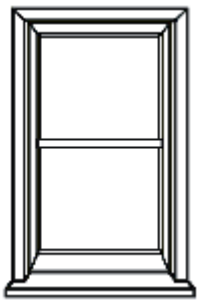
(1) Replace one cell with a piece of chalk. (2) Replace one cell with a piece of wire.
(3) Replace one bulb with a piece of wire. (4) Replace one bulb with another cell.

29. The figure shows a ring magnet X, 'floating' above another ring magnet Y. This is because

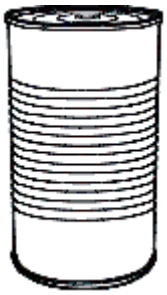


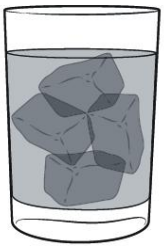
(1) Magnet X is lighter than magnet Y.
(2) Magnet Y is more powerful than magnet X.
(3) The like poles of both magnets are facing each other and they repel each other.
(4) The unlike poles of both magnets are facing each other and they attract each other.

30. Which object is most likely to be an opaque object ?

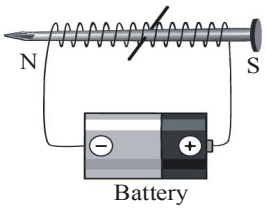
(1)  Glass Window

(2) Glass Jar

(3)  Steel Can

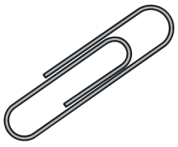
(4)  Drinking Glass

31. Students built the electromagnet below.

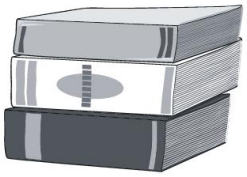


Which object would be attracted to the electromagnet?

(1)
Aluminium Can

(2) 
Steel Paper Clip

(3)
Wooden Spoon

(4) 
Paperback Books

32. Rina explored the strength of a magnet by testing the number of paper clips the magnet could hold by following these steps:

Step 1 - She opened a large paper clip to make a hook.

Step 2 - She placed the hook on the magnet at the edge of the magnet's north pole.

Step 3 - She added one paper clip at a time until the hook fell off the magnet.

Step 4 - She recorded the highest number of paper clips the hook could hold.

Steps 5 through 10 - She repeated this test every 2 cm until she reached the magnet's south pole and recorded the data each time (see Table 1).

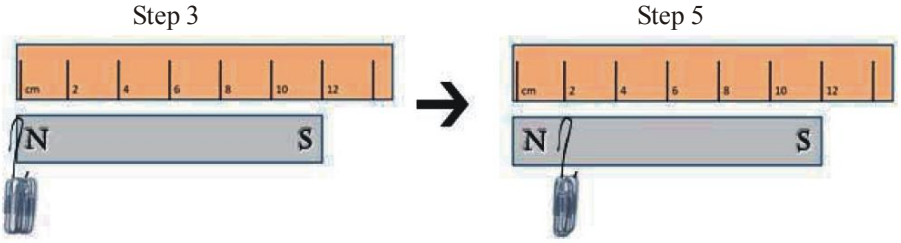


Table 1: Rina's data

Distance from N pole of magnet	Number of paper clips held
0 cm	20
2 cm	9
4 cm	0
6 cm	0
8 cm	0
10 cm	9
12 cm	20

Based on the data collected, what can Rina conclude about the strength of magnetic fields?

(1) Magnet is stronger at its north pole and weaker at its south pole.

(2) Magnet is stronger at its south pole and weaker at its north pole.

(3) Magnet is stronger near its poles and gets weaker as you move away from its poles.

(4) Magnet is weaker near its poles and gets stronger as you move away from its poles.

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.

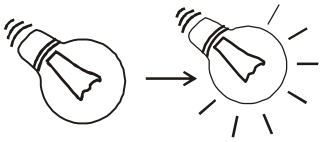
33. Metals can be beaten into thin sheets. This property is called :
(1) Ductility (2) Elasticity (3) Volatility (4) Malleability

34. Muslin cloth is used for :
(1) Filtration (2) Sedimentation (3) Decantation (4) Condensation

35. Which of the following combination is **INCORRECT** ?
(1) Boiling, Evaporation, Rain (Physical change)
(2) Snow fall, Burning of paper, Rusting (Chemical change)
(3) Formation of curd, growth of plant (Chemical change)
(4) Breaking of glass, melting of wax, Ice formation (Physical change)

36. The most essential property of a substance to be used as a cooking vessel is
(1) Conductance of heat (2) Ductility
(3) Conductance of electricity (4) All of the above

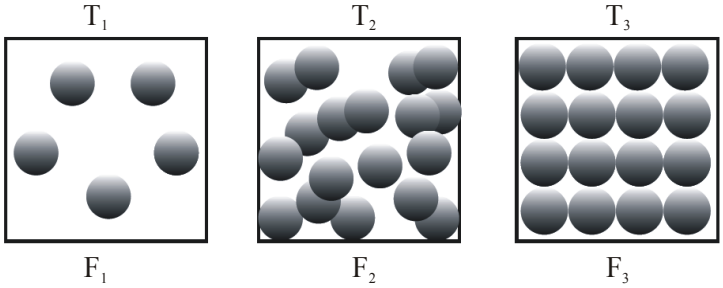
37.



Lighting an electric bulb is_____change.
(1) reversible (2) irreversible (3) chemical (4) biological

38. Karan cuts a piece of wire and then bends to form pattern. Identify the change undergone by the wire.
(1) Irreversible physical change (2) Reversible physical change
(3) Chemical change (4) Initially chemical change later physical change

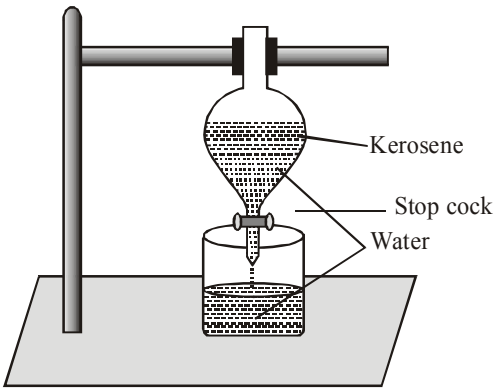
39. The microscopic view of three different substances are shown in the given diagram. Where T_1, T_2 and T_3 are temperatures and F_1, F_2 and F_3 are the forces of attraction of the particles of the respective states. Choose the correct order among the following.



(1) $T_1 < T_2 < T_3$ and $F_1 < F_2 < F_3$ (2) $T_1 > T_2 > T_3$ and $F_1 > F_2 > F_3$
(3) $T_1 < T_2 < T_3$ and $F_1 > F_2 > F_3$ (4) $T_1 > T_2 > T_3$ and $F_1 < F_2 < F_3$

40. Rohan observed formation of the green layer on a copper statue in his home. This formation is due to
(1) Chemical change (2) Physical change
(3) Periodic change (4) Both 2 and 3

41. Which of the following mixture can be separated by given apparatus ?



(1) Sulphur and Carbondisulphide (2) Sugar and water
(3) Olive oil and water (4) Oxygen in water

42. If a cold steel plate is held in the steam, water droplets can be seen on the plate. This change is called
(1) Evaporation (2) Boiling (3) Melting (4) Condensation

43. When ammonium chloride is heated it turns directly into the vapour state. This process is called
(1) sublimation (2) condensation (3) melting (4) freezing

SECTION-C : BIOLOGY

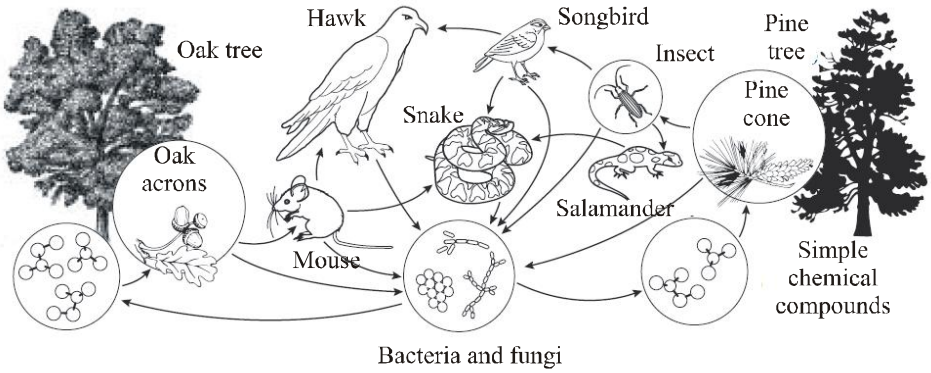
This section contains **12 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

44. The most common and simple carbohydrate is
(1) Amino acid (2) Phospholipid (3) Maltose (4) Glucose

45. First man made fibre is
(1) Nylon – Semisynthetic (2) Rayon – Synthetic
(3) Nylon – Synthetic (4) Rayon – Semisynthetic

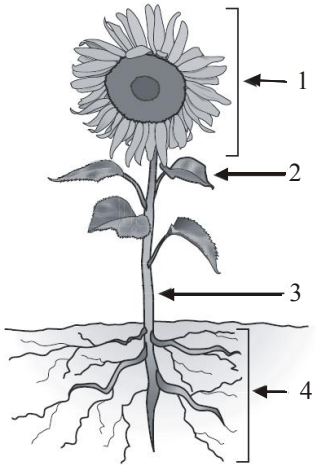
46. A cactus is an example of
(1) a biotic element found in a desert (2) an abiotic element found in a desert
(3) a biotic element found in a rain forest (4) an abiotic element found in a rain forest

47. In this woodland food web, which organisms feed on the hawk?



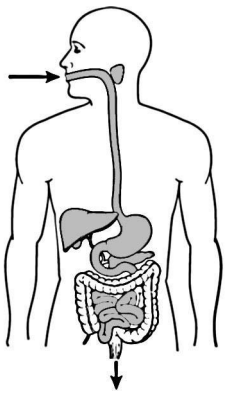
(1) Bacteria and fungi (2) Insects and snakes
(3) Songbirds and mice (4) Mice and salamander

48. Four parts of a sunflower plant are identified by numbers in the picture below. Which numbered part of the sunflower plant is mainly responsible for reproduction?



(1) Part 1 (2) Part 2
(3) Part 3 (4) Part 4

49. The diagram below shows organs that enable humans to eat food and eliminate waste. Which system is represented in the diagram?



(1) Circulatory (2) Endocrine
(3) Digestive (4) Nervous

50. Cotton fibres contain the largest amount of

(1) Starch (2) Fats (3) Cellulose (4) Keratin

51. Read the comprehension and fill in the gaps (A) and (B).

From birth until about the age of eighteen, bones are forming and growing. As children grow, it is important that their diet includes a lot of ....(A).... It keeps your heart beating steadily. It keeps your blood, nerves and ....(B).... working correctly. It helps your blood to clot.

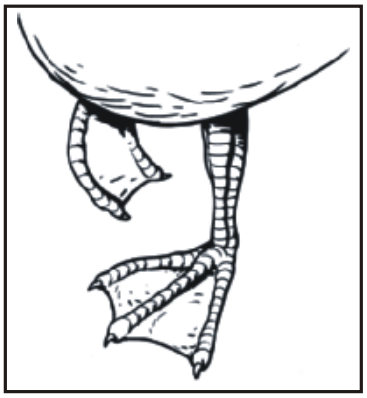
(1) A – Magnesium, B – Hair (2) A – Iron, B – Nails
(3) A – Iodine, B – Kidney (4) A – Calcium, B – Muscles

52. Which food items do you suggest to include in the diet of a person suffering from bleeding of gums?
(1) Amla (2) Guava
(3) Both 1 and 2 (4) Milk

53. From which parts of the plant Cotton and Jute are obtained ?
(1) Both from stem (2) Cotton from fruit and Jute from roots
(3) Both from roots (4) Cotton from fruit and Jute from stem

54. Which of the following statement is not true?
(1) Polymers occur in nature.
(2) Cellulose is made up of glucose units.
(3) Nylon is used to make parachute.
(4) Cotton thread is stronger than Nylon thread.

55. Look at the picture of a duck's webbed feet.



How do webbed feet help ducks survive?
(1) They allow ducks to run faster. (2) They help ducks shred their food.
(3) They help ducks swim. (4) They allow ducks to walk better.

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. $4\frac{7}{8} = ?$

(1) 4.78 (2) 4.87 (3) 4.875 (4) None of these

57. With the angles given below, in which case the construction of triangle is possible?
(1) 30º, 60º, 70º (2) 50º, 70º, 60º
(3) 40º, 80º, 65º (4) 72º, 28º, 90º

58. Which of the symbols are never repeated?
(1) V, X and C (2) V, X and D (3) V, L and D (4) L, K and C

59. (–7) + (–9) + 12 + (–16) = ?

(1) –20 (2) 20 (3) –12 (4) 12

60. What do you mean by a regular quadrilateral?

(1) A rectangle (2) A rhombus

(3) A square (4) A trapezium

61. Ankur sold 13.375 kg of cheese on a day. On the next day he sold 725 gm of cheese. On the third day he sold 12.125 kg of cheese. How much of cheese in all did the Ankur sell?

(1) 26.225 kg (2) 750.5 kg

(3) 14.225 (4) none of these

62. AB and CD are two chords of a circle, if only AB passes through the centre of the circle, then

(1) AB = CD (2) AB > CD

(3) AB < CD (4) None of these

63. Which of the following is incorrect.

(1) 4,02,81,008 → Four crore two lakh eighty one thousand eight.

(2) 83,07,80,120 → Eighty three crore seven lakh eighty thousand one hundred twenty.

(3) face value of 9 in 9,74,214 is 9 lakh.

(4) 648340021 is written with commas as (International system) 648,340,021.

64. The difference of the smallest five digit number and the greatest five digit number formed by using 2, 1, 5, 7, 0 only (Digits should not be repeated) is

(1) 73953 (2) 65053 (3) 64953 (4) 65953

65. A curve which begins and ends at the same point is called a _____

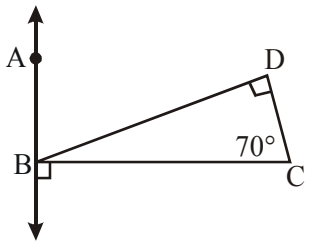
(1) closed curve (2) open curve

(3) normal curve (4) definite curve

66. The smallest possible decimal fraction upto 3 decimal places is

(1) 0.101 (2) 0.111 (3) 0.001 (4) 0.011

67. What is the measure of ∠ABD ?



(1) 20° (2) 70°

(3) 140° (4) 160°

68. Which of the following Roman numeral is not meaningful?

(1) CI (2) C II

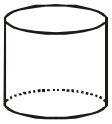
(3) IC (4) XC

69. Arpit has some marbles in his bag. He puts half of the marbles in a jar and one-sixth in his pocket. If total marbles are 10 more than twice of the remaining marbles in the bag, then find the number of marbles in the jar.

(1) 30 (2) 60

(3) 25 (4) 5

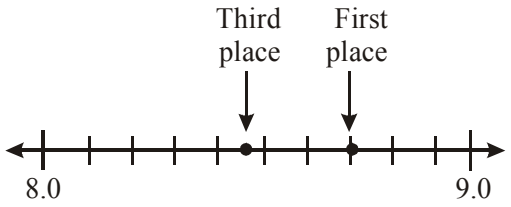
70. Which of the following characteristics describes the geometric figure below?



(1) 2 faces and 2 vertices (2) 1 rectangular base and 2 vertices

(3) 2 circular bases and 0 vertices (4) 6 faces and 8 vertices

71. This number line shows the scores of the first-place winner and the third-place winner earned in a gymnastics event.



Which score could the second-place winner have earned in the event?

(1) 8.40 (2) 8.75 (3) 8.06 (4) 8.65

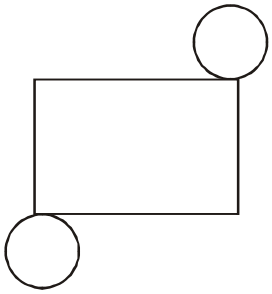
72. How many lines of symmetry does the figure below have?

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

73. The sum of two integers is –20. If one of them is 20 then the other is

(1) –20 (2) 20 (3) 0 (4) –40

74. The drawing below represents the surface of which solid geometric figure?

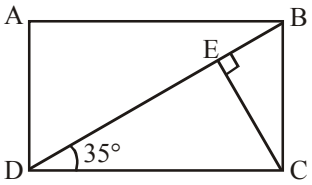


(1) cylinder (2) cone (3) sphere (4) prism

75. How many one-sixths need to be added to $5\frac{1}{6}$ to make 9 ?

(1) 31 (2) 23 (3) 4 (4) None of these

76. Figure ABCD is a rectangle, m∠BDC is 35° and ∠DEC is a right angle. Find ∠DBA?



(1) 35° (2) 55° (3) 90° (4) 45°

77. At a bookstore the charge is \$2.50 to use a computer for the first hour, plus \$0.50 for each additional hour. Which of the following tables correctly displays the charges for the first four hours of using a computer at this bookstore?

(1)

Bookstore Hourly Computer Charges

Time (hours)	Charge
1	\$0.50
2	\$1.00
3	\$1.50
4	\$2.00

(2)

Bookstore Hourly Computer Charges

Time (hours)	Charge
1	\$2.50
2	\$3.50
3	\$4.50
4	\$5.50

(3)

Bookstore Hourly Computer Charges

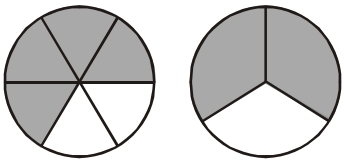
Time (hours)	Charge
1	\$2.50
2	\$3.00
3	\$3.50
4	\$4.00

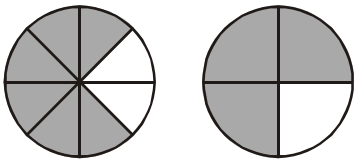
(4)

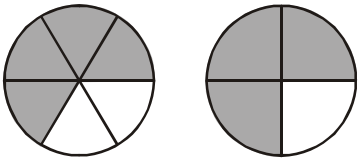
Bookstore Hourly Computer Charges

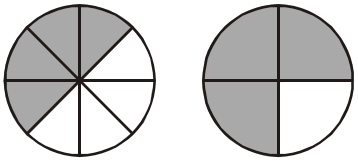
Time (hours)	Charge
1	\$2.50
2	\$5.00
3	\$7.50
4	\$10.00

78. Which of the following models shows that $\frac{6}{8}$ is equivalent to $\frac{3}{4}$?

(1) 

(2) 

(3) 

(4) 

79. A triangle with two obtuse angles and one acute angle is

(1) right angled triangle
(2) acute angled triangle
(3) obtuse angled triangle
(4) triangle cannot be formed

80. Ken has $\frac{3}{4}$ of a box of cards. He wants to split the cards evenly among his three friends. Which operation should he use to find out how many each friend should receive?

(1) Addition
(2) Subtraction
(3) Multiplication
(4) Division

SPACE FOR ROUGH WORK

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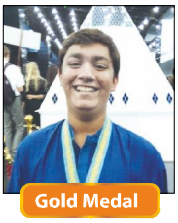
International Physics Olympiad-2014

45th IPhO 2014 Kazakhstan-Astana



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IBO

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TALLENTEX 2015

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(Held on : 12-10-2014)

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

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