

A Specially Designed Initiative
to Encourage Young Talent by



TALLENTEX 2017 : (23, October 2016)

PAPER CODE

I



TALLENTEX

ALLEN'S Talent Encouragement Exam

2017

CLASS - 9th (IX)

Duration: 2 Hrs. | Maximum Marks : 320

Tallentex Roll No.

5

Answer Sheet No.

T

5

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 responsibility.

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 Roll No. & Answer Sheet No. in the space provided on the cover page.
3. Carefully fill your **PAPER CODE** and present **CLASS** in space provided (**Serial No. 6 & 12**) of optical response sheet.
4. Please make sure that paper you received is of your class only.
5. 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 or blue ball point pen.
6. After breaking the Question Paper seal, check there are **16 pages** in the booklet. This Question Paper contains 80 MCQs with 4 choices (Subjects: Physics: 15, Chemistry: 15, Biology: 15, Maths: 15 & Mental ability: 20).
7. Think wisely before darkening bubble as **there is negative marking for wrong answer**. Answer once marked by pen cannot be cancelled.
8. Marking Scheme:
 - a. If darkened bubble is RIGHT answer : 4 Marks.
 - b. If darkened bubble is WRONG answer: -1 Mark (Minus One Mark).
 - c. If no bubble is darkened in any question: No Mark.
9. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
10. Do not put any stain on ORS and hand it over back properly to the invigilator.
11. You can take along the question paper after the test is over.

ALLEN RESULT: JEE ADVANCED-2016

4 in Top 10 | 12 in Top 50 | 25 in Top 100 AIR



AIR : 2	AIR : 3	AIR : 9	AIR : 18	AIR : 19	AIR : 23
Bhavesh Dhingra Classroom	Kunal Goyal Classroom	Gaurav Didwania Classroom	Rohan Garg Classroom	Animesh Bohra Distance	Ritesh Goenka Classroom
AIR : 27	AIR : 29	AIR : 33	AIR : 36	AIR : 48	
Vikrant Garg Classroom	Sharvik Mittal Classroom	Ishan Tarunesh Distance	Naman Jain Classroom	Sushil Khyalia Classroom	

Total Selections

3883

Classroom : 2857 | Distance : 1026

ALLEN RESULT: NEET (UG)-2016

7 in Top 10 | 35 in Top 50 | 58 in Top 100 AIR



AIR : 2	AIR : 3	AIR : 4	AIR : 6	AIR : 7	AIR : 10
Ekansh Goyal Classroom	Nikhil Bajiya Classroom	Ashank Khaitan Distance	Dyuti Shah Distance	Japnoor Kaur Distance	Utkarsh Anand Classroom
AIR : 12	AIR : 13	AIR : 15	AIR : 18	AIR : 19	AIR : 20
Prakhar Bansal Classroom	Lajjaben Patel Classroom	Gurasis Singh Distance	Swetank Anand Classroom	Mahak Kr. Surana Classroom	Prachi Singh Classroom

Total Qualified

33106

Classroom : 26198 | Distance : 6908

Authenticity of Result : Power of **ALLEN**

ALLEN RESULT: AIIMS-2016


























8 in Top 10 | 25 in Top 36



AIR : 3 Lajjaben Patel Classroom	AIR : 4 Het Sanjay Shah Classroom	AIR : 5 Mridul Sharma Classroom	AIR : 6 Dyuti Shah Distance	AIR : 7 Aishvary Gupta Classroom	AIR : 8 Kushagra Pandey Distance	AIR : 9 Ekansh Goyal Classroom
AIR : 11 Ira Pachori Distance	AIR : 12 Ritik M Goyal Classroom	AIR : 13 Amol Sood Classroom	AIR : 17 Ashank Khaitan Distance	AIR : 19 Dhruvil D. Shah Classroom	AIR : 20 Swetank Anand Classroom	AIR : 21 Ankush Garg Classroom
AIR : 23 Sanil Garg Distance	AIR : 25 Aditya Agarwal Distance	AIR : 27 Vishal Saini Distance	AIR : 28 Gurasis Singh Distance	AIR : 29 Manavi Gupta Classroom	AIR : 30 Anubhav Das Distance	AIR : 31 Prachi Singh Classroom
AIR : 32 Japnoor Kaur Distance	AIR : 33 Ayush Jain Classroom	AIR : 36 Sukriti Chaudhri Distance	Total Qualified 602 Classroom : 405 Distance : 197			

ALLEN RESULT: JEE Main-2016

8 in Top 100 | 25 in Top 200 | 65 in Top 500 | 136 in Top 1000

AIR 30  Syamantak Kumar Classroom	AIR 45  Mudit Surana Classroom	AIR 47  Utkarsh G. Patel Classroom	AIR 57  Bhavishya Distance	AIR 68  Kapil Shobhnani Classroom	AIR 71  Aman Bansal Classroom	AIR 90  Ambatwar Ajinkya G. Distance	AIR 95  Surya Suresh Distance			
AIR-105  Megh V. Thakkar Classroom	AIR-112  Shashwat Agrawal Classroom	AIR -127  Rohan Garg Classroom	AIR -130  Amey Ravindra Patil Distance	AIR-132  Akash Bhardwaj Classroom	AIR-137  Rahul Agrawal Classroom	AIR-145  Sharvik Mittal Classroom	AIR-151  Shashwat Shivam Distance	AIR-158  Ankit Dhankhar Classroom	AIR-168  Sukriti Gupta Distance	AIR-169  Georgi Joseph Boby Distance
AIR-171  Rushikesh Vitthal Distance	AIR-177  Koustav Yacha Classroom	AIR-178  Rahul M. Chanduka Classroom	26660 Students secured JEE Main All India Ranks from all Courses of ALLEN				AIR-185  Gavali H. Abhiman Distance	AIR-190  Atri Dutta Distance	AIR-197  Vansh J. Chiripal Classroom	

Authenticity of Result : Power of **ALLEN**

TALLENTEX Success Power Session & Rewards Ceremony

(29 November 2015)



SECTION - A : PHYSICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. Match the following columns :

Column A

(A) Asteroid

(B) Comet

(C) Meteorites

(D) Meteors

(1) (A)-(i), (B) - (ii), (C)-(iii), (D)-(iv)

(3) (A)-(iii), (B) - (ii), (C)-(i), (D)-(iv)

Column B

(i) Reach the earth without burning completely

(ii) Ceres

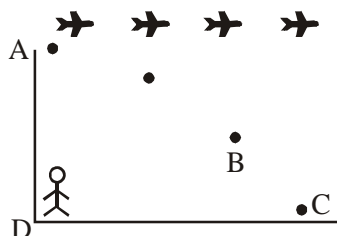
(iii) Halley

(iv) Small pieces of stones

(2) (A)-(ii), (B) - (iii), (C)-(iv), (D)-(i)

(4) (A)-(ii), (B) - (iii), (C)-(i), (D)-(iv)

2. An object is dropped from an aeroplane which is moving horizontally when it is at point A, then among the following, the correct statements are



A. The path of the object as seen by the pilot is vertically downwards.

B. The path of the object as seen by the observer on the ground is the curve ABC

C. The path of the object as seen by the observer on the ground is AD

D. The path of the object as seen by the pilot is ABD

(1) A, B and C are correct

(2) A, B and D are correct

(3) A and B are correct

(4) B and C are correct

3. Which of the following words do not suffer lateral inversion ?

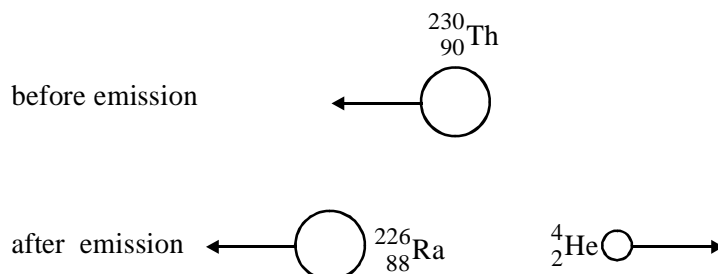
(1) HGA

(2) HOX

(3) VET

(4) YUL

4. A moving thorium nucleus ${}^{230}_{90}\text{Th}$ spontaneously emits an α -particle. The nucleus formed is radium nucleus ${}^{226}_{88}\text{Ra}$, as shown



Which statement(s) is/are correct?

(i) The velocity of the α -particle equals the velocity of the radium nucleus.

(ii) The momentum of the α -particle equals the momentum of the radium nucleus.

(iii) The total momentum before the emission equals the total momentum after the emission.

(1) (i) only

(2) (ii) only

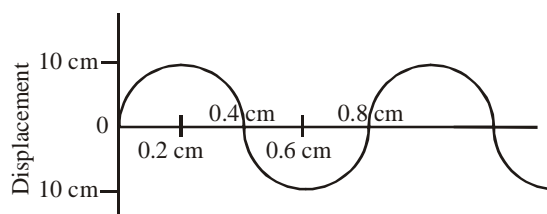
(3) (iii) only

(4) (i), (ii) and (iii)

5. A bus starts from rest, moves with a uniform acceleration 'a'. Simultaneously a passenger at a distance X from the bus starts running to catch the bus. The minimum velocity of the passenger to catch the bus is

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

6. Figure shows the shape of part of a long string in which transverse waves are produced by attaching one end of the string to tuning fork of frequency 500 Hz. What is the velocity of the waves ?



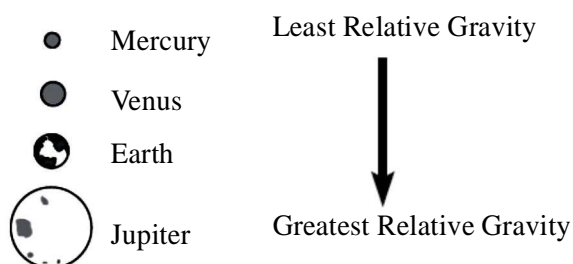
(1) 1.0 ms^{-1} (2) 1.5 ms^{-1} (3) 4.0 ms^{-1} (4) 2.0 ms^{-1}

7. Two objects X and Y are identical in size and shape but X has 3 times the mass of Y. When they are both released at the same time from the same height in an evacuated container, they reach the floor of the container at the same time. Which of the following statement(s) is/are true?

(i) The rate of change of velocity is the same for X and Y.
(ii) On reaching the floor, the speed of X is the same as the speed of Y.

(1) (i) only (2) (ii) only
(3) both (i) and (ii) (4) neither (i) nor (ii)

8. The gravitational force of each planet in our solar system is different. The diagram below shows four planets listed in order from least amount of relative gravity to greatest amount of relative gravity. A person would weigh the most standing on which planet?



(1) Mercury (2) Venus (3) Earth (4) Jupiter

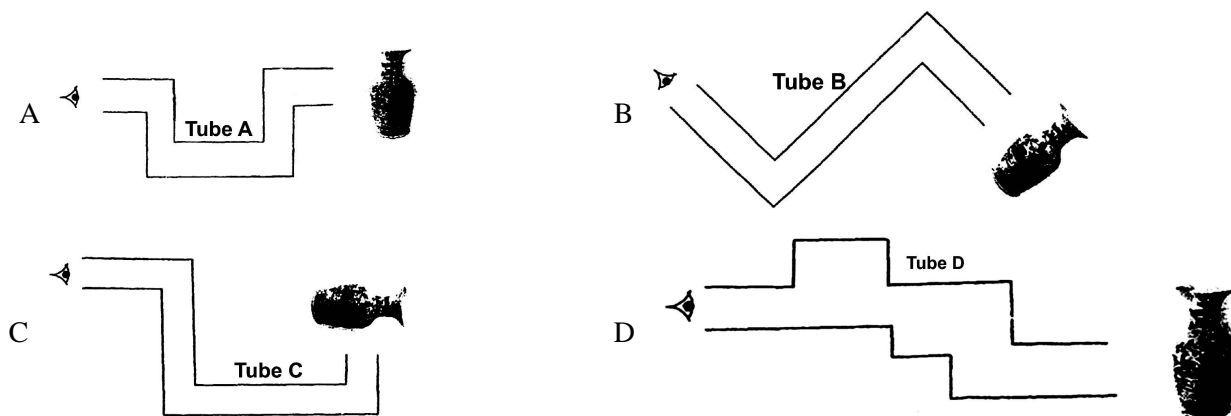
9. One way in which light waves are different from sound waves is that light waves

(1) can move through vacuum (2) cannot travel through liquid
(3) travel more slowly (4) can be reflected

10. A body falls from rest through a distance h in certain time on the earth. If the same body is released on another planet having mass and radius twice as that of the earth, the distance through which it falls in the same time is

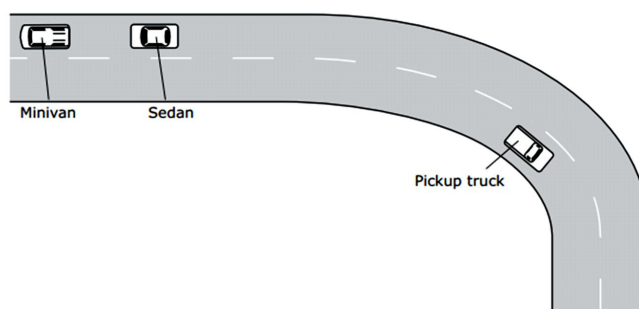
(1) $h/2$ (2) $2h$ (3) h (4) $4h$

11. Shawn was given 4 tubes as shown made of the same type of opaque plastic.



If Shawn was given only three mirrors to work with each tube, which tube(s) do you think Shawn will look through and be able to see the vase? (Not all three mirrors need to be used)

- (1) A only (2) A and B only (3) C and D only (4) B, C and D only
12. The three vehicles shown below are all traveling at a speed of 15 m/s but only the pickup truck has a changing velocity.



The pickup truck has a changing velocity because the pickup truck

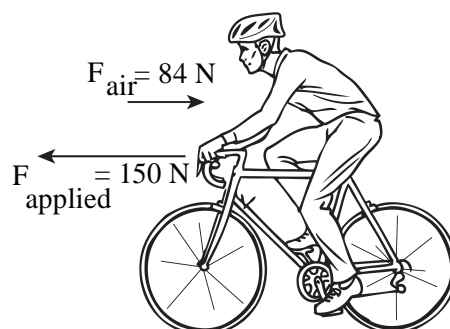
- (1) can accelerate faster than the other two vehicles
(2) is traveling in the opposite direction from the other two vehicles
(3) is traveling on a curve in the road
(4) needs a large amount of force to move
13. A ball of mass m strikes a wall with a speed x and retraces its path with the speed y . If the ball is in contact with the wall for time t , then the magnitude of average force exerted by the wall on the ball is

- (1) $\frac{m(x-y)}{t}$ (2) $\frac{mt}{(x+y)}$ (3) $\left(\frac{x+y}{m}\right)$ (4) $\frac{m(x+y)}{t}$

14. The diagram below shows two different forces acting on a cyclist riding a bicycle.

The total mass of the cyclist and the bicycle is 100.0 kg. Based on this information, what is the acceleration of the cyclist?

- (1) 0.66 m/s^2 backward, because the force of the air slows the cyclist down.
(2) 0.66 m/s^2 forward, because the applied force is greater than the force of the air.
(3) 2.3 m/s^2 backward, because the forces are opposite and not equal.
(4) 2.3 m/s^2 forward, because the cyclist's inertia is greater than the force of the air.



15. A carrom board ($40\text{ cm} \times 40\text{ cm}$) has the queen at the centre. When the queen is hit by the striker, it moves to the front edge, rebounds and goes into the hole behind the striking line. The displacement of the queen is

(1) 40 cm (2) $20\sqrt{2}\text{ cm}$ (3) 20 cm (4) $40\sqrt{2}\text{ cm}$

SECTION-B : CHEMISTRY

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

16. Select the one that is not derived from fossil fuel.
(1) LPG (2) Kerosene
(3) Diesel (4) Biogas
17. When Mg is burnt in the atmosphere of an element X white powder is obtained. When this is dissolved in water it gives a gas Y with pungent smell. What are X and Y ?
(1) C, CH_4 (2) N_2 , NH_3 (3) P, H_3PO_4 (4) S, H_2S
18. Metals generally have _____ number of electrons in their valence shell.
(1) 1, 2 or 3 (2) 7, 8, or 9 (3) 10, 11, or 12 (4) 20, 30 or 40
19. Which of the following statements is not true ?
(1) Flame can be seen over burning solids and liquids.
(2) Type of flame depends upon the amount of oxygen available.
(3) Outermost zone of a flame is the least hot zone.
(4) Blue zone indicates combustion of fuel.
20. Nature of products obtained on complete combustion of methane are
(1) acidic, basic (2) acidic, neutral
(3) basic, neutral (4) neutral, neutral
21. In which of the following conditions, the distance between the molecules of hydrogen gas in a container would increase?
(i) Increasing pressure on hydrogen contained in a closed container.
(ii) Some hydrogen gas leaking out of the container.
(iii) Increasing the volume of the container of hydrogen gas.
(iv) Adding more hydrogen gas to the container without increasing the volume of the container.
(1) (i) and (iii) (2) (i) and (iv)
(3) (ii) and (iii) (4) (ii) and (iv)
22. During summer, water kept in an earthen pot becomes cool because of the phenomenon of
(1) diffusion (2) transpiration
(3) osmosis (4) evaporation
23. A student adds 6.00 g of a solid to 30.0 mL of water. What is the concentration of this solution expressed as mass/mass percent? (Assume the density of water is 1 g/mL)
(1) 0.167% (2) 0.200%
(3) 16.7% (4) 20.0%
24. Which of the following will show Tyndall effect?
(1) Starch in water (2) Sodium chloride in water
(3) Copper sulphate in water (4) Sugar in water

25. Ram was cooking potato curry on a chulha. He was surprised to observe that the copper vessel was getting blackened from outside. It may be due to
 (1) proper combustion of the fuel (2) improper cooking of potato curry
 (3) improper combustion of the fuel (4) burning of copper vessel
26. **Assertion (A) :** A gas can be easily liquefied at any temperature below its critical temperature.
Reason (R) : Liquefaction of a gas takes place when the average kinetic energy of the molecules is low.
 (1) Both (A) and (R) are correct and (R) is the correct explanation of (A).
 (2) Both (A) and (R) are correct, but (R) is not the correct explanation of (A).
 (3) (A) is correct, but (R) is incorrect.
 (4) (A) is incorrect, but (R) is correct.
27. Which of the following is/are carbon fuel ?
 (1) Wood (2) Coal
 (3) Petroleum (4) All of these
28. Read the following statements carefully and identify X, Y and Z.
 X: Hard as stones, used to cook food and to produce electricity in thermal power plants.
 Y: A petroleum product, used in the place of coal tar for metalling the roads.
 Z: A pure form of carbon, used in the manufacture of steel and in the extraction of many metals.
- | X | Y | Z |
|--------------|---------|--------------|
| (1) Coal | Bitumen | Coke |
| (2) Coal tar | Coal | Paraffin wax |
| (3) Coal tar | Diesel | Coke |
| (4) Coke | Bitumen | Coal |
29. Shami weighed some naphthalene balls and then placed them in his cupboard, on the top of his clothes. After a month, he finds that the clothes in the cupboard are smelling of naphthalene. He weighs the balls again. What is he likely to find?
 (1) All the balls have increased in weight.
 (2) All the balls have decreased in weight.
 (3) There is no change in the weight of any ball.
 (4) Some balls have increased and some decreased in weight.
30. Arrange the solutes a, b, c and d in decreasing order of amount of solute precipitated when their respective hot saturated solutions are cooled from 100°C to 30°C. Below given table shows the amount of solute in grams dissolved in same amount of water at different temperatures.

	30°C	60°C	100°C
(a)	120	140	160
(b)	130	120	150
(c)	125	130	140
(d)	130	135	140

(1) c b d a

(2) a c b d

(3) b d c a

(4) a b c d

SECTION-C : BIOLOGY

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

31. Which of the following process is shown in the below diagram?



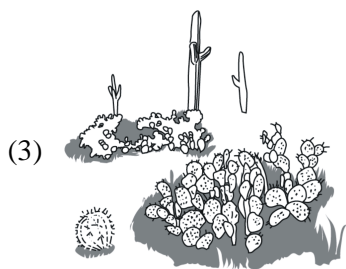
(1) Harvesting

(2) Irrigation

(3) Transplantation

(4) Transpiration

32. Which one of the following types of plants is usually found in coniferous forest ?



33. Which tissue is found in blubber of whale?



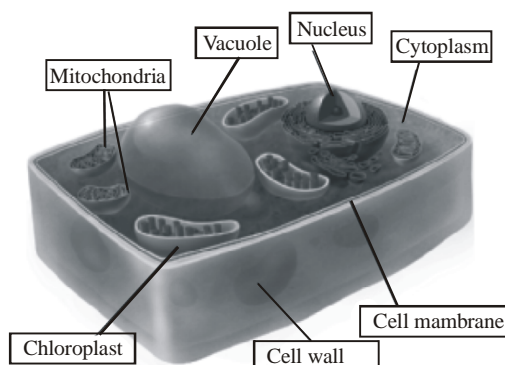
(1) Squamous epithelial tissue

(2) Nervous tissue

(3) Skeletal tissue

(4) Adipose tissue

34. Look at the diagram of a plant cell.



Which structures are also found in animal cells?

- (1) Nucleus, Mitochondria, Cell membrane (2) Nucleus, Chloroplasts, Vacuoles
(3) Mitochondria, Cell wall, Cell membrane (4) Vacuoles, Mitochondria, Chloroplasts

35. Match the column I with column II and choose the correct option.

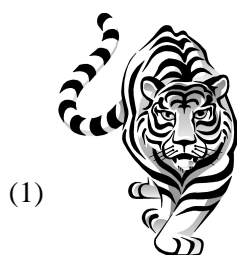
Column I		Column II	
P	Fungicide	W	ZnSO ₄
Q	Rodenticide	X	DDT
R	Nematocide	Y	Bordeaux
S	Insecticide	Z	Methyl bromide

- (1) P-Y, Q-Z, R-X, S-W (2) P-Y, Q-W, R-Z, S-X
(3) P-Z, Q-W, R-X, S-Y (4) P-X, Q-Y, R-W, S-Z

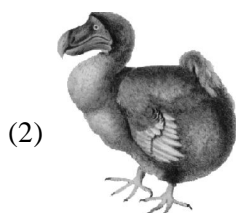
36. Which of the following group of minerals is macro nutrients of soil?

- (1) Iron and Nickel (2) Boron and Zinc
(3) Chlorine and Copper (4) Calcium and Nitrogen

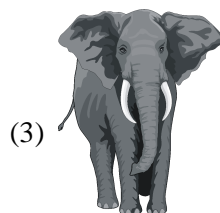
37. "Species which cannot be found in the area where they once lived or any other habitat are called extinct species." Many species die or disappear from the earth if they are not able to reproduce and adapt to climate as are able to compete with other organisms. There are some species given below. Which one is the extinct species ?



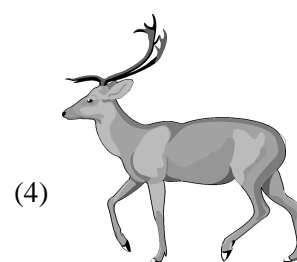
Tiger



Dodo

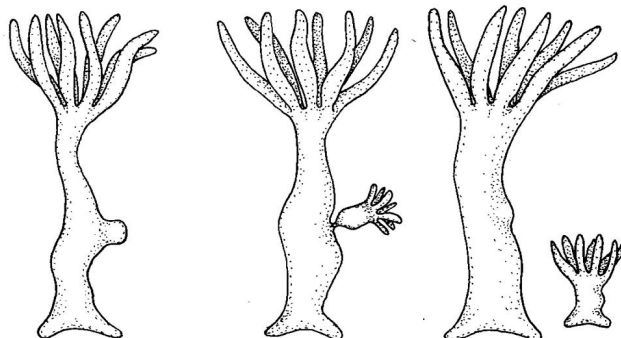


Elephant



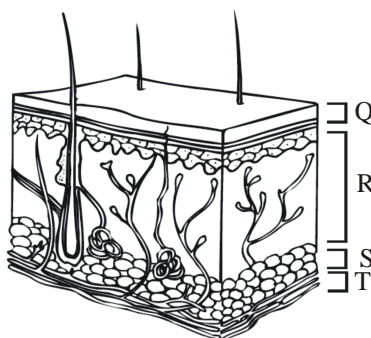
Deer

38. Identify the type of asexual reproduction in hydra from the given image.



- (1) Budding (2) Fission (3) Fragmentation (4) Spore formation

39. Look at the picture given below. It shows a cross section of human skin. Which section is the dermis?



- (1) Q (2) R (3) S (4) T

40. Arrange the following in correct order.

- a. Manuring b. Sowing c. Irrigation d. Harvesting
(1) $b \rightarrow a \rightarrow c \rightarrow d$ (2) $a \rightarrow b \rightarrow c \rightarrow d$ (3) $b \rightarrow c \rightarrow d \rightarrow a$ (4) $c \rightarrow a \rightarrow b \rightarrow d$

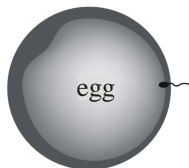
41. The diagrams given below show the developmental stages of a human.



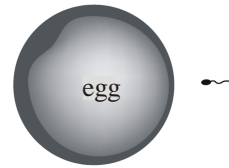
Q



S



R



T

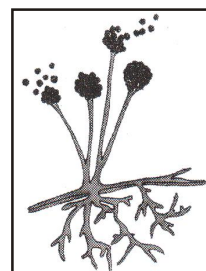
What is the correct order of development?

- (1) Q, R, T, S (2) T, R, Q, S (3) R, Q, T, S (4) R, T, Q, S

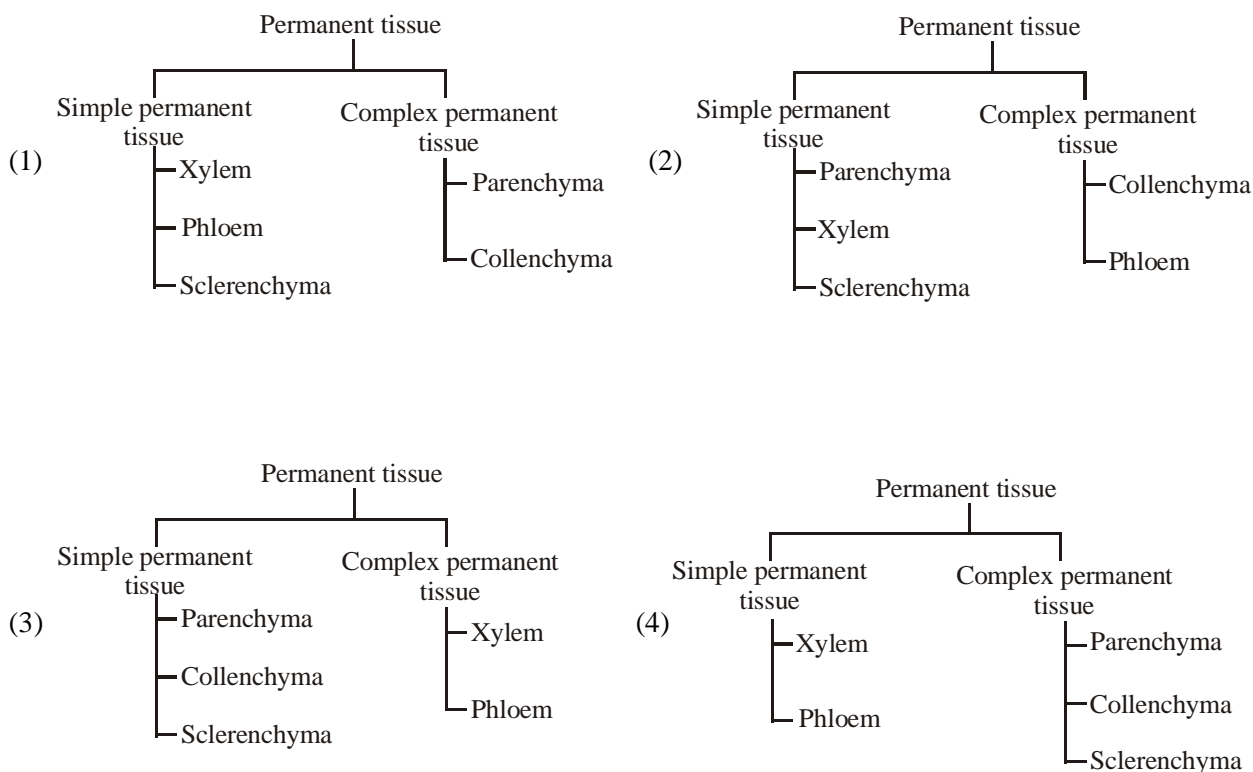
42. The figure given below shows the method of reproduction of a microorganism.

Which of the following combination is correct regarding below figure ?

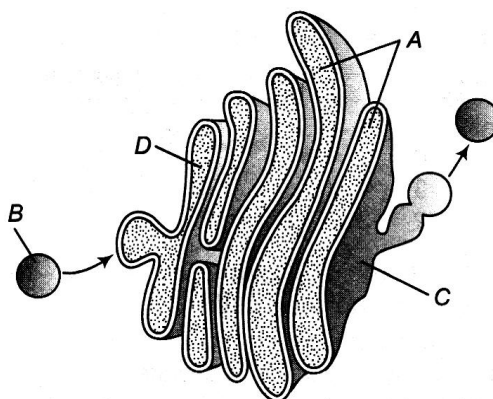
- | Microorganisms | Method of reproduction |
|----------------|------------------------|
| (1) Viruses | Binary fission |
| (2) Fungi | Budding |
| (3) Algae | Conjugation |
| (4) Fungi | Spore formation |



43. Which of the following flow chart is correct ?

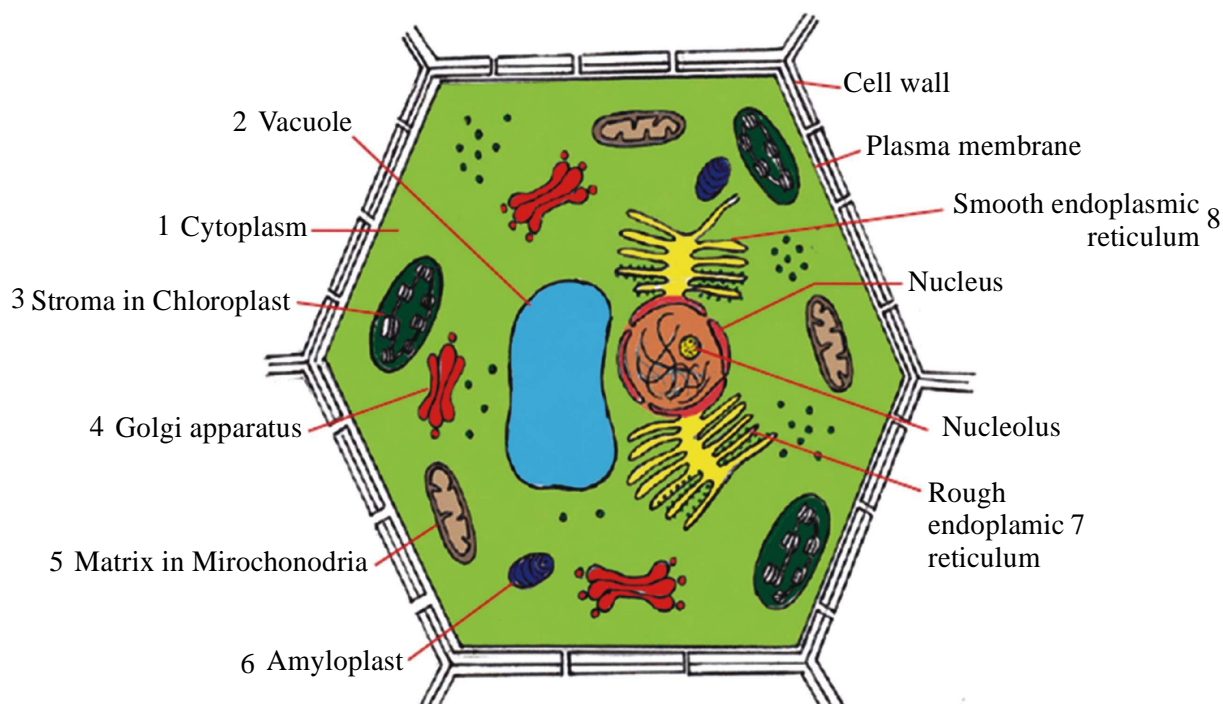


44. Look at the diagram given below and choose the option which correctly represents A, B, C & D.



- (1) A-Cisternae, B-Vesicle, C-Cis face, D-Trans face
- (2) A-Cisternae, B-Vesicle, C-Trans face, D-Cis face
- (3) A-Tubules, B-Vesicle, C-Trans face, D-Cis face
- (4) A-Vesicle, B-Cisternae, C-Cis face, D-Trans face

45. Which of the following option represents the correct locations of ribosomes from the diagram of plant cell given below?



- (1) 1, 3, 6 and 8
 (2) 1, 2, 4 and 7
 (3) 1, 4, 6 and 8
 (4) 1, 3, 5 and 7

SECTION-D : MATHEMATICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

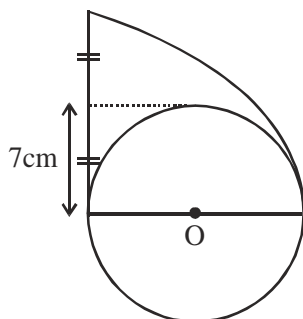
46. If $A = (x-a)(x-b)(x-c)\dots\dots\dots(x-z)$. Then number of terms in the expansion of $(a+A)(b+A)(c+A)\dots\dots\dots(z+A)$ is
 (1) 1 (2) 27 (3) 56 (4) 43
47. If $x = 2^{1/3} - 2^{-1/3}$, find the value of $2x^3 + 6x$.
 (1) 2 (2) 3 (3) 10 (4) 8.

48. Find the value of $\left(\frac{64}{125}\right)^{-\frac{2}{3}} + \frac{1}{\left(\frac{256}{625}\right)^{\frac{1}{4}}} + \left(\frac{\sqrt{2.5}}{3\sqrt{64}}\right)^0$.

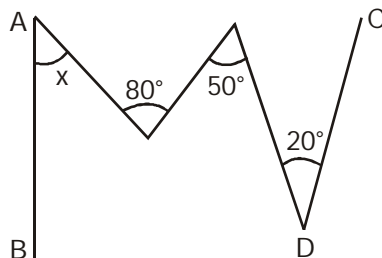
- (1) $\frac{9}{2}$ (2) $\frac{61}{16}$ (3) 4 (4) 2

49. Factorize $a^2 + 2ab - ac - 3b^2 + 5bc - 2c^2$
 (1) $(a - b + c)(a + 3b - 2c)$ (2) $(a - b + c)(a - 3b - 2c)$
 (3) $(a + b + c)(a + 3b - 2c)$ (4) $(a + b + c)(a - 3b + 2c)$

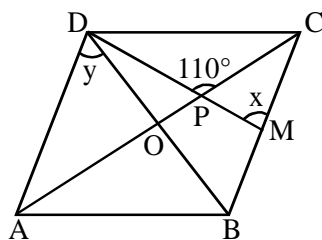
50. Solve for x : $\sqrt[3]{68921} + \sqrt[3]{3375} - \sqrt[3]{6859}$
 (1) 27 (2) 47 (3) 37 (4) 57
51. Find the fourth root of $89 - 28\sqrt{10}$.
 (1) $\pm(\sqrt{5} - \sqrt{2})$ (2) $(\sqrt{5} - \sqrt{2})$ (3) $(-\sqrt{5} + \sqrt{2})$ (4) none of these
52. If $x = (\sqrt{15} + 4)^{\frac{1}{3}} + (-\sqrt{15} + 4)^{\frac{1}{3}}$, then find the value of $x^3 - 3x$.
 (1) 2 (2) 4 (3) 6 (4) 8
53. If $x * y = \sqrt{x^2 + xy + y^2}$, then find the value of $7 * 9$.
 (1) $\sqrt{193}$ (2) $\sqrt{123}$ (3) $\sqrt{180}$ (4) can't be determined
54. The figure below is made up of a circle and a quadrant. O is the center of the circle. Then the perimeter of the figure is ($\pi = 22/7$)



- (1) 47 cm (2) 58 cm (3) 80 cm (4) 94 cm
55. In the given figure $AB \parallel CD$, then find x .

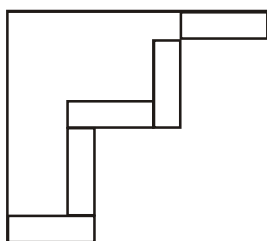


- (1) 40° (2) 60° (3) 50° (4) 80°
56. In the adjoining figure, ABCD is a rhombus and $\angle BCD = 80^\circ$, then the value of x and y respectively are



- (1) $70^\circ, 50^\circ$ (2) $80^\circ, 50^\circ$
 (3) $70^\circ, 60^\circ$ (4) $60^\circ, 50^\circ$

57. In a family which consists of husband, wife and a daughter, the sum of the husband's age, twice the wife's age and thrice the daughter's age is 85; while the sum of twice the husband's age, 4 times the wife's age and 6 times the daughter's age is 170. It is also given that the sum of 5 times the husband's age, ten times the wife's age and 15 times the daughter's age equals 450. The number of possible solutions, in terms of the ages of the husband, wife and the daughter, to this problem is
 (1) 0 (2) 1 (3) 2 (4) infinitely many
58. If after successive discounts of 10% and 20% have been allowed on the list price, the profit earned was 26%. Then by what percentage was the price marked up over the cost price.
 (1) 40% (2) 60% (3) 72% (4) 75%
59. Five identical rectangles are placed inside a square with side 24 cm, as shown in the diagram. What is the area of one rectangle ?



- (1) 12 cm^2 (2) 16 cm^2 (3) 24 cm^2 (4) 32 cm^2
60. Factorize : $abx^4 - x^2(ac + b^2 + b) + c(b + 1)$
 (1) $(ax^2 + b - 1)(bx^2 - c)$ (2) $(ax^2 + b + 1)(bx^2 - c)$
 (3) $(ax^2 + b - 1)(bx^2 + c)$ (4) $(ax^2 - b - 1)(bx^2 - c)$

SECTION-E : 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.

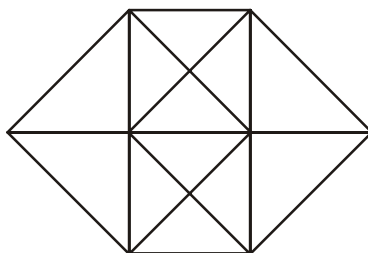
61. Naresh is facing West, he first turns 180° and then 45° in clockwise direction and then 270° in anti-clockwise direction. Finally he turns 180° in clockwise direction. In which direction he is facing now ?
 (1) North-East (2) South-East
 (3) South- West (4) Data Inadequate
62. Aman starts from his home for market. Straight from his house he walked 5 km and then took a right turn, walk another 4 km and turn left to walk 2 km, and finally he took another left to reach the market. If he now faces towards North, then in which direction he started initially ?
 (1) East (2) West (3) North (4) South
63. In a certain code BAG is coded as A2A1A7, then how is POCKET coded ?
 (1) B 8 C 5 A 3 C 2 A 5 E 4 (2) B 8 C 5 A 3 A 1 1 A 5 E 4
 (3) B 8 C 5 A 3 A 1 1 A 6 E 4 (4) A 8 B 5 A 3 A 1 1 B 5 E 4
64. In a row of persons, position of A from left side of the row is 9^{th} & position of B from right side of the row is 8^{th} . If C is sitting just in middle of A & B and position of C from left side of the row is 15^{th} . Find the total number of persons in the row ?
 (1) 20 (2) 28 (3) 27 (4) 26

65. Two equi-dimensional cubes are joined face-to-face, and are coloured red on all of their available, open faces. One cube is then cut into eight equal smaller cubes and the other cube is cut into 27 equal smaller cubes.

How many smaller cubes have none of their faces coloured ?

- (1) 0 (2) 1 (3) 2 (4) 4

66. Find the number of triangles in the given figure.

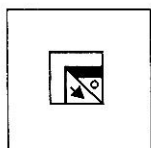


- (1) 24 (2) 28 (3) 26 (4) 30

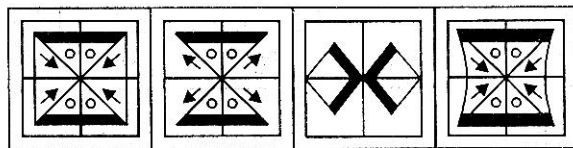
67. In a certain code language, JUNE is coded as 58 then how is MARCH coded in that language ?

- (1) 62 (2) 72 (3) 82 (4) 92

68. A figure (X) followed by four figures (1), (2), (3) and (4) such that (X) is embedded in one of them. Trace out the correct alternative.



(X)



(1)

(2)

(3)

(4)

69. Some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

aba — baca — ba — bacaabac — aca :

- (1) cacb (2) ccab (3) cabc (4) abcc

70. A dice has been shown in three different faces on which letters have been written randomly. Carefully study the faces of the dice and answer the questions based on it.

Which letter come in place of '?'.



- (1) H

- (2) I

- (3) J

- (4) L

71. Find the value of $\frac{(6+6+6+6) \div 6}{4+4+4+4 \div 4}$

- (1) 1

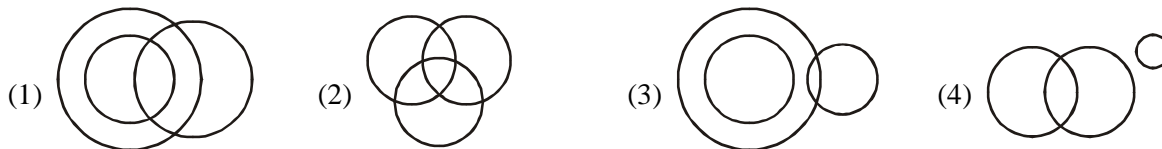
- (2) $\frac{4}{5}$

- (3) $\frac{4}{11}$

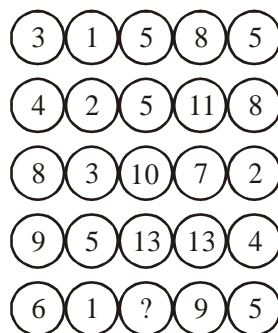
- (4) $\frac{4}{13}$

72. Which of the following is the best relationship among these three objects which can be represented by one of the Venn diagrams given below.

Doctors, Poets, Triangle

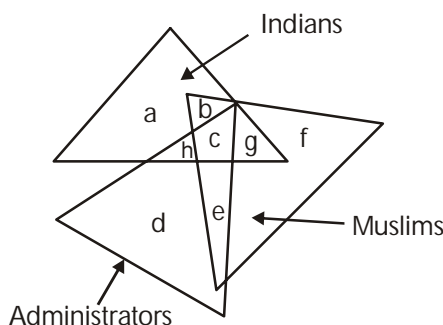


73. Which number replaces the question mark ?



- (1) 6 (2) 7 (3) 8 (4) 9

74. Diagram is given in which the figures are interlocking each other. Each figure represents a certain section of people which is indicated there on. Different regions of the diagram are lettered. Write down the letter of the region which represents the : Indians who are neither Muslims nor administrators.



- (1) b (2) c (3) a (4) h

75. Pointing to a man in a photograph, a women said ' His brother's father is the only son of my grandfather'. How is the woman related to the man in the photograph ?

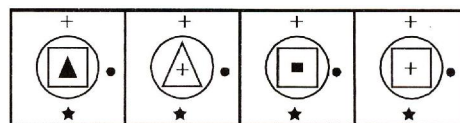
- (1) Aunt (2) Grandmother
(3) Mother (4) Sister

76. Pick up from the answer figures, one which will continue the series of the problem figures.

Problem figures



Answer figures



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

77. $A + B$ means 'A is the mother of B'.

$A \div B$ means 'A is the father of B'.

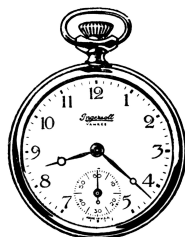
$A - B$ means 'A is the brother of B'.

$A \times B$ means 'A is the sister of B'.

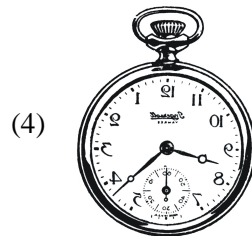
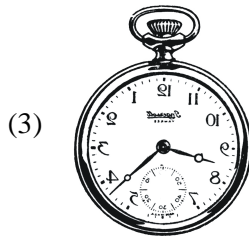
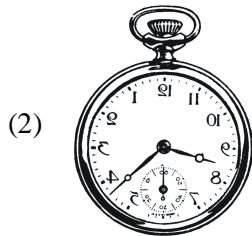
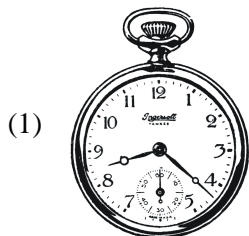
If $P + Q \div R - S$, then how is P related to S ?

- (1) Grandfather (2) Father (3) Grandmother (4) Sister

78. Choose the correct Mirror Image of the given figure (X) from amongst the four alternatives :



(X)



79. Find the missing term in the following series.

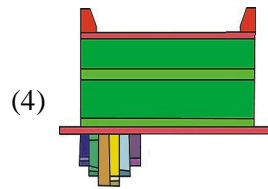
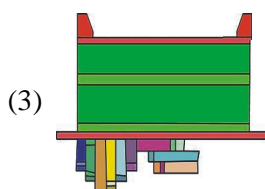
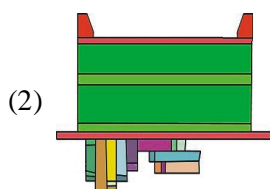
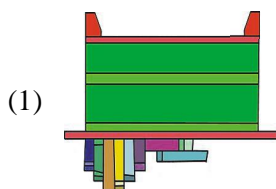
1 , 18 , 75 , ? , 405.

- (1) 186 (2) 196 (3) 216 (4) 204

80. Choose the correct Water Image of the figure (X) from amongst the four alternatives.



(X)



SPACE FOR ROUGH WORK

SECTION - A : PHYSICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. Match the following columns :

Column A

(A) Asteroid

(B) Comet

(C) Meteorites

(D) Meteors

(1) (A)-(i), (B) - (ii), (C)-(iii), (D)-(iv)

(3) (A)-(iii), (B) - (ii), (C)-(i), (D)-(iv)

Column B

(i) Reach the earth without burning completely

(ii) Ceres

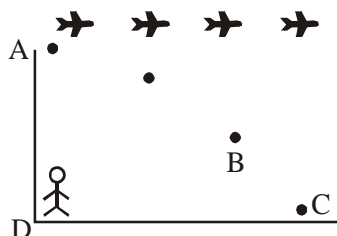
(iii) Halley

(iv) Small pieces of stones

(2) (A)-(ii), (B) - (iii), (C)-(iv), (D)-(i)

(4) (A)-(ii), (B) - (iii), (C)-(i), (D)-(iv)

2. An object is dropped from an aeroplane which is moving horizontally when it is at point A, then among the following, the correct statements are



A. The path of the object as seen by the pilot is vertically downwards.

B. The path of the object as seen by the observer on the ground is the curve ABC

C. The path of the object as seen by the observer on the ground is AD

D. The path of the object as seen by the pilot is ABD

(1) A, B and C are correct

(2) A, B and D are correct

(3) A and B are correct

(4) B and C are correct

3. Which of the following words do not suffer lateral inversion ?

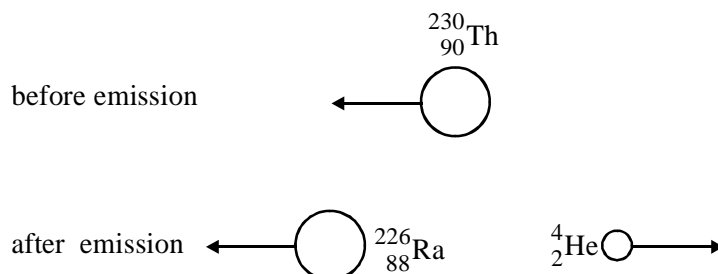
(1) HGA

(2) HOX

(3) VET

(4) YUL

4. A moving thorium nucleus ${}^{230}_{90}\text{Th}$ spontaneously emits an α -particle. The nucleus formed is radium nucleus ${}^{226}_{88}\text{Ra}$, as shown



Which statement(s) is/are correct?

(i) The velocity of the α -particle equals the velocity of the radium nucleus.

(ii) The momentum of the α -particle equals the momentum of the radium nucleus.

(iii) The total momentum before the emission equals the total momentum after the emission.

(1) (i) only

(2) (ii) only

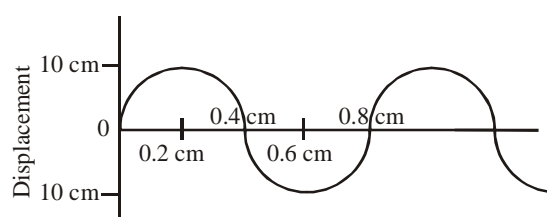
(3) (iii) only

(4) (i), (ii) and (iii)

5. A bus starts from rest, moves with a uniform acceleration 'a'. Simultaneously a passenger at a distance X from the bus starts running to catch the bus. The minimum velocity of the passenger to catch the bus is

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

6. Figure shows the shape of part of a long string in which transverse waves are produced by attaching one end of the string to tuning fork of frequency 500 Hz. What is the velocity of the waves ?



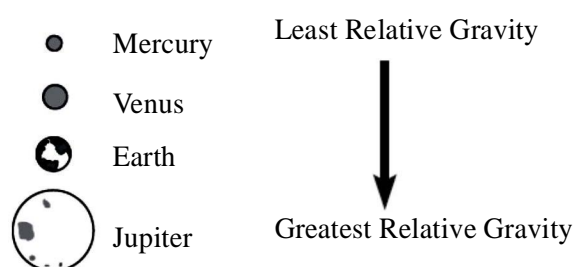
(1) 1.0 ms^{-1} (2) 1.5 ms^{-1} (3) 4.0 ms^{-1} (4) 2.0 ms^{-1}

7. Two objects X and Y are identical in size and shape but X has 3 times the mass of Y. When they are both released at the same time from the same height in an evacuated container, they reach the floor of the container at the same time. Which of the following statement(s) is/are true?

(i) The rate of change of velocity is the same for X and Y.
(ii) On reaching the floor, the speed of X is the same as the speed of Y.

(1) (i) only (2) (ii) only
(3) both (i) and (ii) (4) neither (i) nor (ii)

8. The gravitational force of each planet in our solar system is different. The diagram below shows four planets listed in order from least amount of relative gravity to greatest amount of relative gravity. A person would weigh the most standing on which planet?



(1) Mercury (2) Venus (3) Earth (4) Jupiter

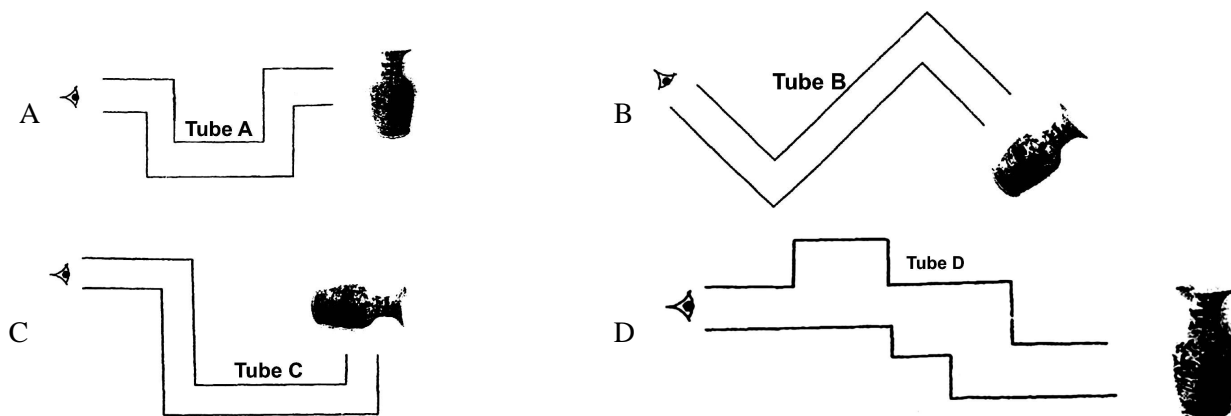
9. One way in which light waves are different from sound waves is that light waves

(1) can move through vacuum (2) cannot travel through liquid
(3) travel more slowly (4) can be reflected

10. A body falls from rest through a distance h in certain time on the earth. If the same body is released on another planet having mass and radius twice as that of the earth, the distance through which it falls in the same time is

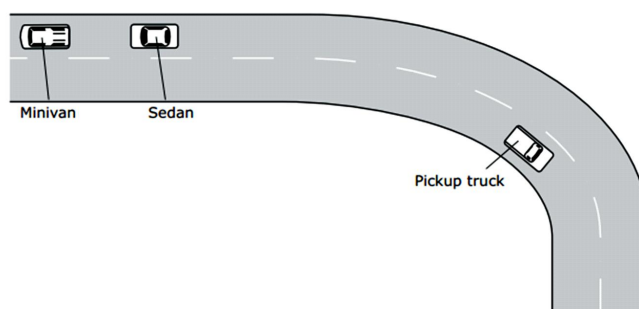
(1) $h/2$ (2) $2h$ (3) h (4) $4h$

11. Shawn was given 4 tubes as shown made of the same type of opaque plastic.



If Shawn was given only three mirrors to work with each tube, which tube(s) do you think Shawn will look through and be able to see the vase? (Not all three mirrors need to be used)

- (1) A only (2) A and B only (3) C and D only (4) B, C and D only
12. The three vehicles shown below are all traveling at a speed of 15 m/s but only the pickup truck has a changing velocity.



The pickup truck has a changing velocity because the pickup truck

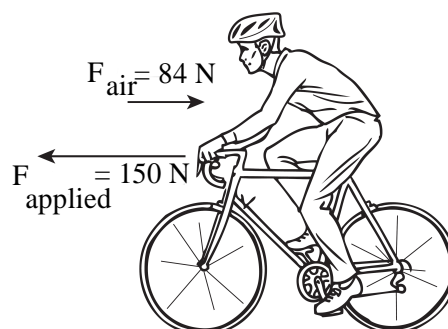
- (1) can accelerate faster than the other two vehicles
(2) is traveling in the opposite direction from the other two vehicles
(3) is traveling on a curve in the road
(4) needs a large amount of force to move
13. A ball of mass m strikes a wall with a speed x and retraces its path with the speed y . If the ball is in contact with the wall for time t , then the magnitude of average force exerted by the wall on the ball is

- (1) $\frac{m(x-y)}{t}$ (2) $\frac{mt}{(x+y)}$ (3) $\left(\frac{x+y}{m}\right)$ (4) $\frac{m(x+y)}{t}$

14. The diagram below shows two different forces acting on a cyclist riding a bicycle.

The total mass of the cyclist and the bicycle is 100.0 kg. Based on this information, what is the acceleration of the cyclist?

- (1) 0.66 m/s^2 backward, because the force of the air slows the cyclist down.
(2) 0.66 m/s^2 forward, because the applied force is greater than the force of the air.
(3) 2.3 m/s^2 backward, because the forces are opposite and not equal.
(4) 2.3 m/s^2 forward, because the cyclist's inertia is greater than the force of the air.



15. A carrom board ($40\text{ cm} \times 40\text{ cm}$) has the queen at the centre. When the queen is hit by the striker, it moves to the front edge, rebounds and goes into the hole behind the striking line. The displacement of the queen is

(1) 40 cm (2) $20\sqrt{2}\text{ cm}$ (3) 20 cm (4) $40\sqrt{2}\text{ cm}$

SECTION-B : CHEMISTRY

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

16. Select the one that is not derived from fossil fuel.
(1) LPG (2) Kerosene
(3) Diesel (4) Biogas
17. When Mg is burnt in the atmosphere of an element X white powder is obtained. When this is dissolved in water it gives a gas Y with pungent smell. What are X and Y ?
(1) C, CH_4 (2) N_2 , NH_3 (3) P, H_3PO_4 (4) S, H_2S
18. Metals generally have _____ number of electrons in their valence shell.
(1) 1, 2 or 3 (2) 7, 8, or 9 (3) 10, 11, or 12 (4) 20, 30 or 40
19. Which of the following statements is not true ?
(1) Flame can be seen over burning solids and liquids.
(2) Type of flame depends upon the amount of oxygen available.
(3) Outermost zone of a flame is the least hot zone.
(4) Blue zone indicates combustion of fuel.
20. Nature of products obtained on complete combustion of methane are
(1) acidic, basic (2) acidic, neutral
(3) basic, neutral (4) neutral, neutral
21. In which of the following conditions, the distance between the molecules of hydrogen gas in a container would increase?
(i) Increasing pressure on hydrogen contained in a closed container.
(ii) Some hydrogen gas leaking out of the container.
(iii) Increasing the volume of the container of hydrogen gas.
(iv) Adding more hydrogen gas to the container without increasing the volume of the container.
(1) (i) and (iii) (2) (i) and (iv)
(3) (ii) and (iii) (4) (ii) and (iv)
22. During summer, water kept in an earthen pot becomes cool because of the phenomenon of
(1) diffusion (2) transpiration
(3) osmosis (4) evaporation
23. A student adds 6.00 g of a solid to 30.0 mL of water. What is the concentration of this solution expressed as mass/mass percent? (Assume the density of water is 1 g/mL)
(1) 0.167% (2) 0.200%
(3) 16.7% (4) 20.0%
24. Which of the following will show Tyndall effect?
(1) Starch in water (2) Sodium chloride in water
(3) Copper sulphate in water (4) Sugar in water

25. Ram was cooking potato curry on a chulha. He was surprised to observe that the copper vessel was getting blackened from outside. It may be due to
 (1) proper combustion of the fuel (2) improper cooking of potato curry
 (3) improper combustion of the fuel (4) burning of copper vessel
26. **Assertion (A) :** A gas can be easily liquefied at any temperature below its critical temperature.
Reason (R) : Liquefaction of a gas takes place when the average kinetic energy of the molecules is low.
 (1) Both (A) and (R) are correct and (R) is the correct explanation of (A).
 (2) Both (A) and (R) are correct, but (R) is not the correct explanation of (A).
 (3) (A) is correct, but (R) is incorrect.
 (4) (A) is incorrect, but (R) is correct.
27. Which of the following is/are carbon fuel ?
 (1) Wood (2) Coal
 (3) Petroleum (4) All of these
28. Read the following statements carefully and identify X, Y and Z.
 X: Hard as stones, used to cook food and to produce electricity in thermal power plants.
 Y: A petroleum product, used in the place of coal tar for metalling the roads.
 Z: A pure form of carbon, used in the manufacture of steel and in the extraction of many metals.
- | X | Y | Z |
|--------------|---------|--------------|
| (1) Coal | Bitumen | Coke |
| (2) Coal tar | Coal | Paraffin wax |
| (3) Coal tar | Diesel | Coke |
| (4) Coke | Bitumen | Coal |
29. Shami weighed some naphthalene balls and then placed them in his cupboard, on the top of his clothes. After a month, he finds that the clothes in the cupboard are smelling of naphthalene. He weighs the balls again. What is he likely to find?
 (1) All the balls have increased in weight.
 (2) All the balls have decreased in weight.
 (3) There is no change in the weight of any ball.
 (4) Some balls have increased and some decreased in weight.
30. Arrange the solutes a, b, c and d in decreasing order of amount of solute precipitated when their respective hot saturated solutions are cooled from 100°C to 30°C. Below given table shows the amount of solute in grams dissolved in same amount of water at different temperatures.

	30°C	60°C	100°C
(a)	120	140	160
(b)	130	120	150
(c)	125	130	140
(d)	130	135	140

(1) c b d a

(2) a c b d

(3) b d c a

(4) a b c d

SECTION-C : BIOLOGY

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

31. Which of the following process is shown in the below diagram?



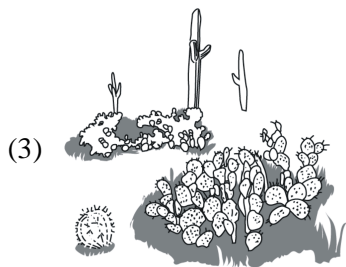
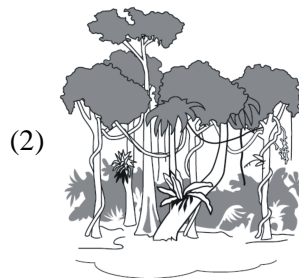
(1) Harvesting

(2) Irrigation

(3) Transplantation

(4) Transpiration

32. Which one of the following types of plants is usually found in coniferous forest ?



33. Which tissue is found in blubber of whale?



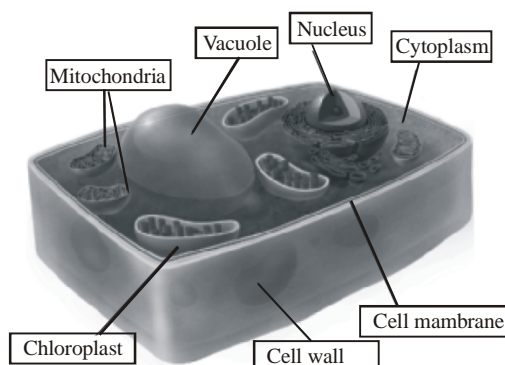
(1) Squamous epithelial tissue

(2) Nervous tissue

(3) Skeletal tissue

(4) Adipose tissue

34. Look at the diagram of a plant cell.



Which structures are also found in animal cells?

- (1) Nucleus, Mitochondria, Cell membrane (2) Nucleus, Chloroplasts, Vacuoles
(3) Mitochondria, Cell wall, Cell membrane (4) Vacuoles, Mitochondria, Chloroplasts

35. Match the column I with column II and choose the correct option.

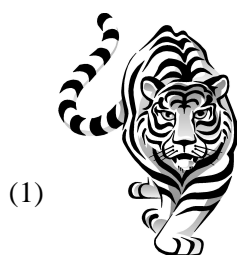
Column I		Column II	
P	Fungicide	W	ZnSO ₄
Q	Rodenticide	X	DDT
R	Nematocide	Y	Bordeaux
S	Insecticide	Z	Methyl bromide

- (1) P-Y, Q-Z, R-X, S-W (2) P-Y, Q-W, R-Z, S-X
(3) P-Z, Q-W, R-X, S-Y (4) P-X, Q-Y, R-W, S-Z

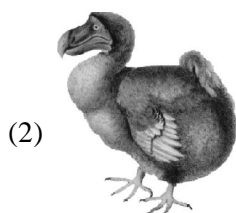
36. Which of the following group of minerals is macro nutrients of soil?

- (1) Iron and Nickel (2) Boron and Zinc
(3) Chlorine and Copper (4) Calcium and Nitrogen

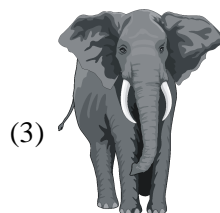
37. "Species which cannot be found in the area where they once lived or any other habitat are called extinct species." Many species die or disappear from the earth if they are not able to reproduce and adapt to climate as are able to compete with other organisms. There are some species given below. Which one is the extinct species ?



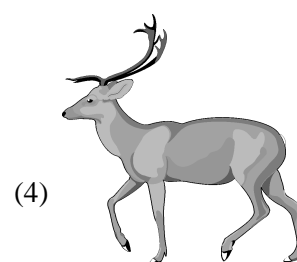
Tiger



Dodo

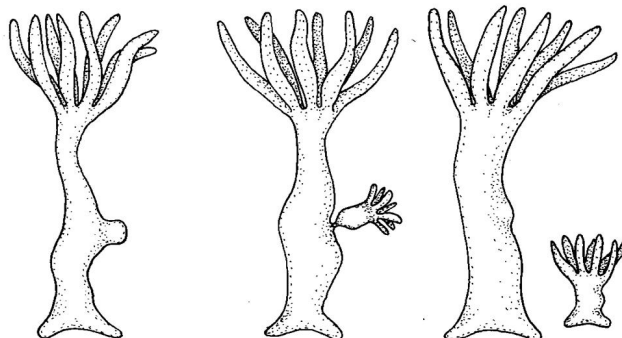


Elephant



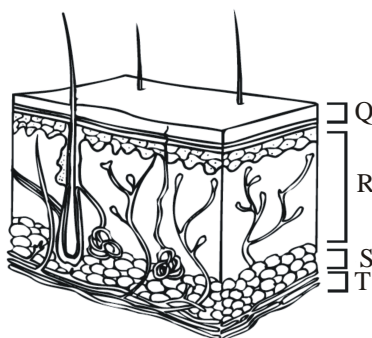
Deer

38. Identify the type of asexual reproduction in hydra from the given image.



- (1) Budding (2) Fission (3) Fragmentation (4) Spore formation

39. Look at the picture given below. It shows a cross section of human skin. Which section is the dermis?



- (1) Q (2) R (3) S (4) T

40. Arrange the following in correct order.

- a. Manuring b. Sowing c. Irrigation d. Harvesting
(1) $b \rightarrow a \rightarrow c \rightarrow d$ (2) $a \rightarrow b \rightarrow c \rightarrow d$ (3) $b \rightarrow c \rightarrow d \rightarrow a$ (4) $c \rightarrow a \rightarrow b \rightarrow d$

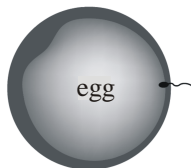
41. The diagrams given below show the developmental stages of a human.



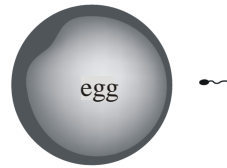
Q



S



R



T

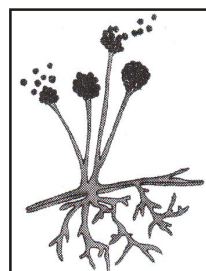
What is the correct order of development?

- (1) Q, R, T, S (2) T, R, Q, S (3) R, Q, T, S (4) R, T, Q, S

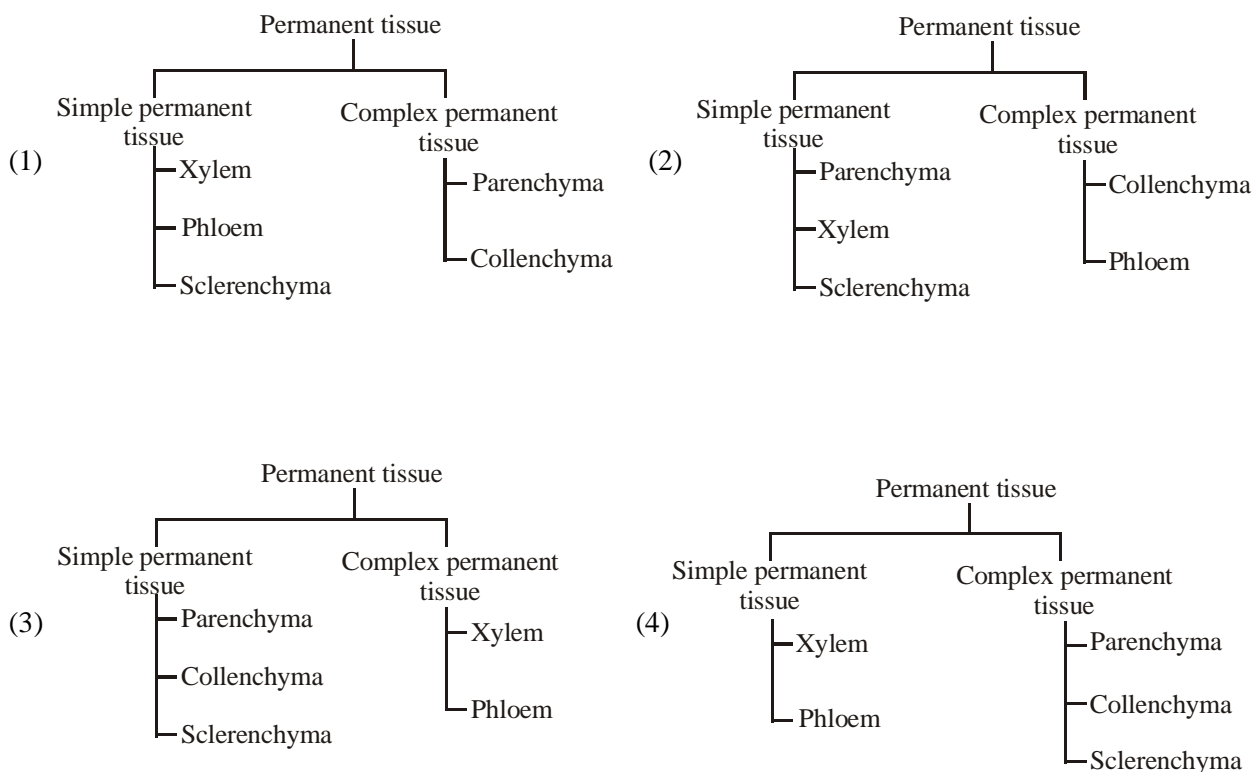
42. The figure given below shows the method of reproduction of a microorganism.

Which of the following combination is correct regarding below figure ?

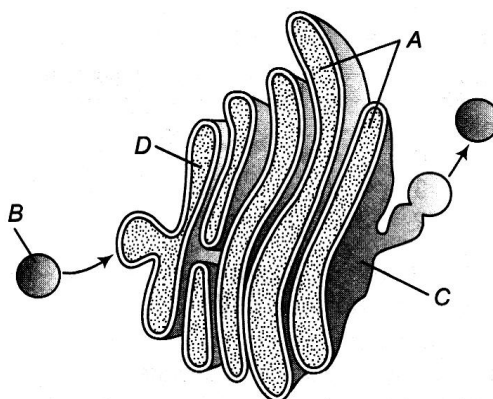
- | Microorganisms | Method of reproduction |
|----------------|------------------------|
| (1) Viruses | Binary fission |
| (2) Fungi | Budding |
| (3) Algae | Conjugation |
| (4) Fungi | Spore formation |



43. Which of the following flow chart is correct ?

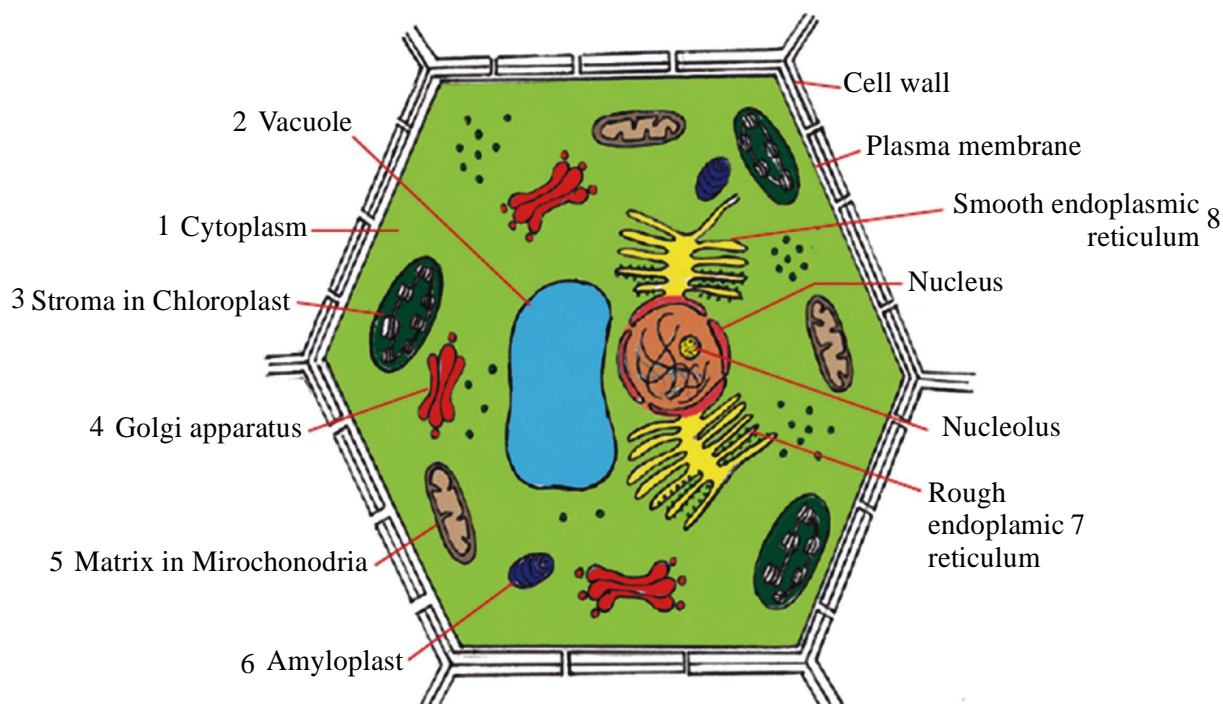


44. Look at the diagram given below and choose the option which correctly represents A, B, C & D.



- (1) A-Cisternae, B-Vesicle, C-Cis face, D-Trans face
- (2) A-Cisternae, B-Vesicle, C-Trans face, D-Cis face
- (3) A-Tubules, B-Vesicle, C-Trans face, D-Cis face
- (4) A-Vesicle, B-Cisternae, C-Cis face, D-Trans face

45. Which of the following option represents the correct locations of ribosomes from the diagram of plant cell given below?



- (1) 1, 3, 6 and 8
 (2) 1, 2, 4 and 7
 (3) 1, 4, 6 and 8
 (4) 1, 3, 5 and 7

SECTION-D : MATHEMATICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

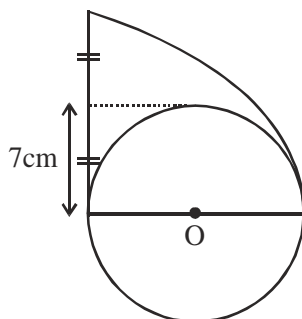
46. If $A = (x-a)(x-b)(x-c) \dots (x-z)$. Then number of terms in the expansion of $(a+A)(b+A)(c+A) \dots (z+A)$ is
 (1) 1 (2) 27 (3) 56 (4) 43
47. If $x = 2^{1/3} - 2^{-1/3}$, find the value of $2x^3 + 6x$.
 (1) 2 (2) 3 (3) 10 (4) 8.

48. Find the value of $\left(\frac{64}{125}\right)^{-\frac{2}{3}} + \frac{1}{\left(\frac{256}{625}\right)^{\frac{1}{4}}} + \left(\frac{\sqrt{2.5}}{3\sqrt{64}}\right)^0$.

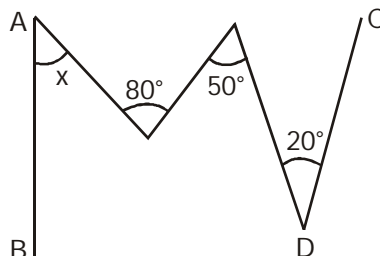
- (1) $\frac{9}{2}$ (2) $\frac{61}{16}$ (3) 4 (4) 2

49. Factorize $a^2 + 2ab - ac - 3b^2 + 5bc - 2c^2$
 (1) $(a - b + c)(a + 3b - 2c)$ (2) $(a - b + c)(a - 3b - 2c)$
 (3) $(a + b + c)(a + 3b - 2c)$ (4) $(a + b + c)(a - 3b + 2c)$

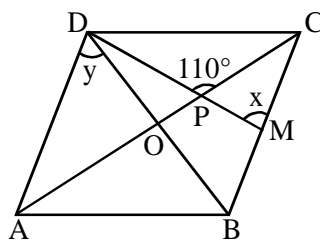
50. Solve for x : $\sqrt[3]{68921} + \sqrt[3]{3375} - \sqrt[3]{6859}$
 (1) 27 (2) 47 (3) 37 (4) 57
51. Find the fourth root of $89 - 28\sqrt{10}$.
 (1) $\pm(\sqrt{5} - \sqrt{2})$ (2) $(\sqrt{5} - \sqrt{2})$ (3) $(-\sqrt{5} + \sqrt{2})$ (4) none of these
52. If $x = (\sqrt{15} + 4)^{\frac{1}{3}} + (-\sqrt{15} + 4)^{\frac{1}{3}}$, then find the value of $x^3 - 3x$.
 (1) 2 (2) 4 (3) 6 (4) 8
53. If $x * y = \sqrt{x^2 + xy + y^2}$, then find the value of $7 * 9$.
 (1) $\sqrt{193}$ (2) $\sqrt{123}$ (3) $\sqrt{180}$ (4) can't be determined
54. The figure below is made up of a circle and a quadrant. O is the center of the circle. Then the perimeter of the figure is ($\pi = 22/7$)



- (1) 47 cm (2) 58 cm (3) 80 cm (4) 94 cm
55. In the given figure $AB \parallel CD$, then find x .

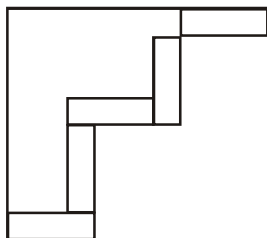


- (1) 40° (2) 60° (3) 50° (4) 80°
56. In the adjoining figure, ABCD is a rhombus and $\angle BCD = 80^\circ$, then the value of x and y respectively are



- (1) $70^\circ, 50^\circ$ (2) $80^\circ, 50^\circ$
 (3) $70^\circ, 60^\circ$ (4) $60^\circ, 50^\circ$

57. In a family which consists of husband, wife and a daughter, the sum of the husband's age, twice the wife's age and thrice the daughter's age is 85; while the sum of twice the husband's age, 4 times the wife's age and 6 times the daughter's age is 170. It is also given that the sum of 5 times the husband's age, ten times the wife's age and 15 times the daughter's age equals 450. The number of possible solutions, in terms of the ages of the husband, wife and the daughter, to this problem is
 (1) 0 (2) 1 (3) 2 (4) infinitely many
58. If after successive discounts of 10% and 20% have been allowed on the list price, the profit earned was 26%. Then by what percentage was the price marked up over the cost price.
 (1) 40% (2) 60% (3) 72% (4) 75%
59. Five identical rectangles are placed inside a square with side 24 cm, as shown in the diagram. What is the area of one rectangle ?



- (1) 12 cm^2 (2) 16 cm^2 (3) 24 cm^2 (4) 32 cm^2
60. Factorize : $abx^4 - x^2(ac + b^2 + b) + c(b + 1)$
 (1) $(ax^2 + b - 1)(bx^2 - c)$ (2) $(ax^2 + b + 1)(bx^2 - c)$
 (3) $(ax^2 + b - 1)(bx^2 + c)$ (4) $(ax^2 - b - 1)(bx^2 - c)$

SECTION-E : 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.

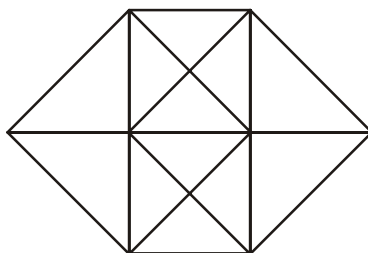
61. Naresh is facing West, he first turns 180° and then 45° in clockwise direction and then 270° in anti-clockwise direction. Finally he turns 180° in clockwise direction. In which direction he is facing now ?
 (1) North-East (2) South-East
 (3) South- West (4) Data Inadequate
62. Aman starts from his home for market. Straight from his house he walked 5 km and then took a right turn, walk another 4 km and turn left to walk 2 km, and finally he took another left to reach the market. If he now faces towards North, then in which direction he started initially ?
 (1) East (2) West (3) North (4) South
63. In a certain code BAG is coded as A2A1A7, then how is POCKET coded ?
 (1) B 8 C 5 A 3 C 2 A 5 E 4 (2) B 8 C 5 A 3 A 1 1 A 5 E 4
 (3) B 8 C 5 A 3 A 1 1 A 6 E 4 (4) A 8 B 5 A 3 A 1 1 B 5 E 4
64. In a row of persons, position of A from left side of the row is 9^{th} & position of B from right side of the row is 8^{th} . If C is sitting just in middle of A & B and position of C from left side of the row is 15^{th} . Find the total number of persons in the row ?
 (1) 20 (2) 28 (3) 27 (4) 26

65. Two equi-dimensional cubes are joined face-to-face, and are coloured red on all of their available, open faces. One cube is then cut into eight equal smaller cubes and the other cube is cut into 27 equal smaller cubes.

How many smaller cubes have none of their faces coloured ?

- (1) 0 (2) 1 (3) 2 (4) 4

66. Find the number of triangles in the given figure.

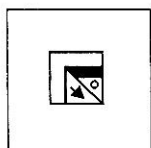


- (1) 24 (2) 28 (3) 26 (4) 30

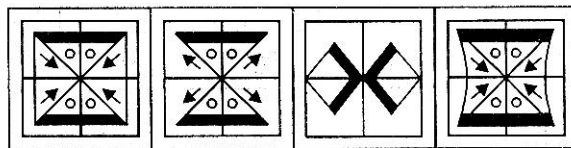
67. In a certain code language, JUNE is coded as 58 then how is MARCH coded in that language ?

- (1) 62 (2) 72 (3) 82 (4) 92

68. A figure (X) followed by four figures (1), (2), (3) and (4) such that (X) is embedded in one of them. Trace out the correct alternative.



(X)



(1)

(2)

(3)

(4)

69. Some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

aba — baca — ba — bacaabac — aca :

- (1) cacb (2) ccab (3) cabc (4) abcc

70. A dice has been shown in three different faces on which letters have been written randomly. Carefully study the faces of the dice and answer the questions based on it.

Which letter come in place of '?'.



- (1) H

- (2) I

- (3) J

- (4) L

71. Find the value of $\frac{(6+6+6+6) \div 6}{4+4+4+4 \div 4}$

- (1) 1

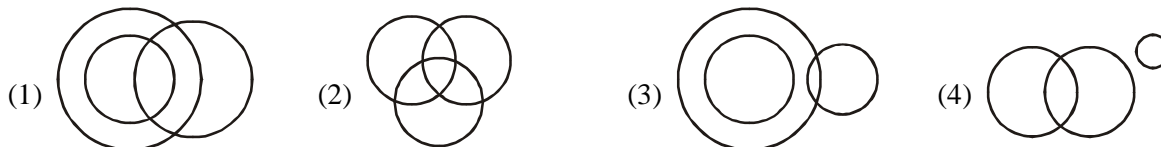
- (2) $\frac{4}{5}$

- (3) $\frac{4}{11}$

- (4) $\frac{4}{13}$

72. Which of the following is the best relationship among these three objects which can be represented by one of the Venn diagrams given below.

Doctors, Poets, Triangle

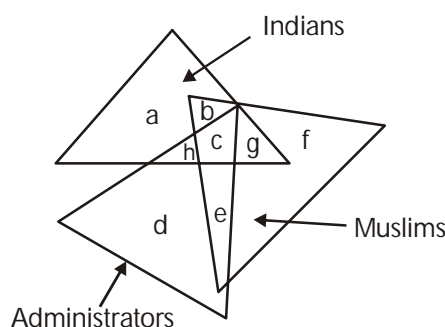


73. Which number replaces the question mark ?

3	1	5	8	5
4	2	5	11	8
8	3	10	7	2
9	5	13	13	4
6	1	?	9	5

- (1) 6 (2) 7 (3) 8 (4) 9

74. Diagram is given in which the figures are interlocking each other. Each figure represents a certain section of people which is indicated there on. Different regions of the diagram are lettered. Write down the letter of the region which represents the : Indians who are neither Muslims nor administrators.



- (1) b (2) c (3) a (4) h

75. Pointing to a man in a photograph, a women said ' His brother's father is the only son of my grandfather'. How is the woman related to the man in the photograph ?

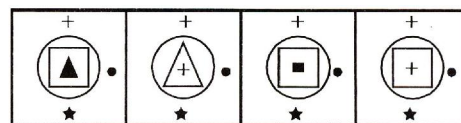
- (1) Aunt (2) Grandmother
(3) Mother (4) Sister

76. Pick up from the answer figures, one which will continue the series of the problem figures.

Problem figures



Answer figures



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

77. $A + B$ means 'A is the mother of B'.

$A \div B$ means 'A is the father of B'.

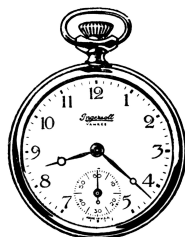
$A - B$ means 'A is the brother of B'.

$A \times B$ means 'A is the sister of B'.

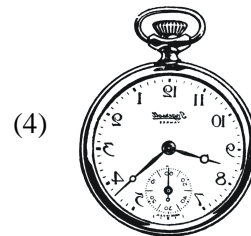
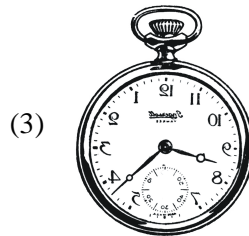
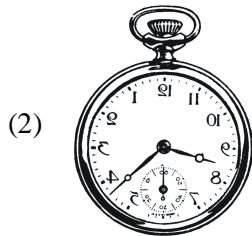
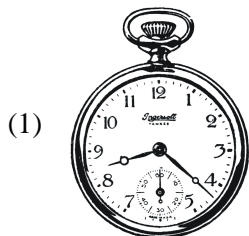
If $P + Q \div R - S$, then how is P related to S ?

- (1) Grandfather (2) Father (3) Grandmother (4) Sister

78. Choose the correct Mirror Image of the given figure (X) from amongst the four alternatives :



(X)



79. Find the missing term in the following series.

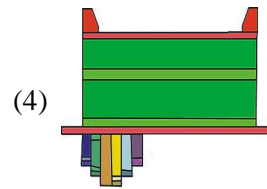
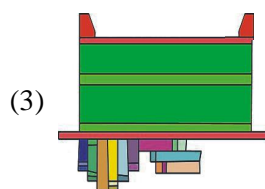
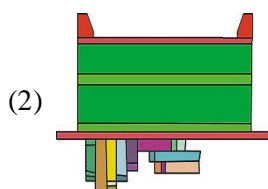
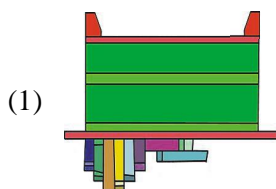
1 , 18 , 75 , ? , 405.

- (1) 186 (2) 196 (3) 216 (4) 204

80. Choose the correct Water Image of the figure (X) from amongst the four alternatives.



(X)



SPACE FOR ROUGH WORK

ALLEN System



Orientation Session



Classroom Session



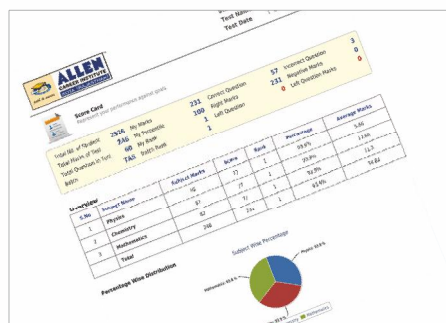
Prarthana



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Test Result - (CSAT)



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कल्याणोत्सव, कोटा**

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48th International
Chemistry Olympiad
IChO-2016
TBILISI, GEORGIA



Silver Medal
SHARVIK MITTAL

International Physics Olympiad



47th International
Physics Olympiad
IPhO-2016
SWITZERLAND



Silver Medal
DIVYANSH GARG
(Classroom)

International Biology Olympiad



27th International
Biology Olympiad
IBO-2016
HANOI, VIETNAM



Gold Medal
LAJJA BEN PATEL
(Classroom)



Silver Medal
VIDUSHI VARSHNEY
(Classroom)

International Earth Science Olympiad



10th International
Earth Science Olympiad
(IESO) 2016
JAPAN



Silver Medal
AMARJIIT VIKAS PANDE
(Classroom)

ALLEN Results : Pre-Nurture & Career Foundation (2015-16)

STAGES OF OFFICIAL OLYMPIADS MENTORED BY HBCSE

IJSO

STAGE 1

35 Selections in NSEJS
STAGE 2
16 Selections in INJSO
STAGE 3
3 Selections in OCSC
NISHANT ABHANGI
AYUSHMAN TRIPATHY
GAURANG
selected for IJSO 2016

International
Junior Science
Olympiad



IBO

STAGE 1

3 Selections in NSEB
STAGE 2
3 Selections in INBO
STAGE 3
3 Selections in OCSC
VIDUSHI VARSHNEY
Got Silver Medal In
IBO 2016

International
Biology
Olympiad
JEEVESH is the
youngest in the
country so far to
qualify stage-1 of
IBO

ICHO

STAGE 1

1 Selection in NSEC
DHYEY SANKALP GANDHI
is the youngest in the
country so far to
qualify stage-1 of
IChO

International
Chemistry
Olympiad



IOAA

STAGE 2

RAYYAN SHAHID
selected in
INJAO 2016

International
Astronomy
Olympiad
Junior



IMO

STAGE 1

190 Selections
from Gujarat & 11 from
Maharashtra for RMO
through PRE RMO.
3 STUDENTS SECURED
100% MARKS
STAGE 2
14 Selections in RMO
for INMO

International
Maths
Olympiad



IESO

STAGE 1

NET – 6 Selections
Conducted by
Geological
Society of India

International
Earth Science
Olympiad



IJSO

IJSO-2015



12th International
Junior Science Olympiad
(IJSO) 2015
KOREA



Gold Medal
BHASKAR GUPTA
(Classroom)



Gold Medal
LAKSHYA SHARMA
(Classroom)



Silver Medal
VIDUSHI VARSHNEY
(Classroom)

International
Junior
Science
Olympiad

APTITUDE IN SCIENCE / MATHEMATICS

NSO

571 Selections in
NSO (Level-1)

NISHANT ABHANGI:
AIR-1 (Level-2)

NSO
National
Science
Olympiad

Conducted by
Science Olympiad
Foundation, New Delhi



STSE 2015

36 Selections for
Scholar Certificate

155 Selections for
Distinction Certificate

STSE
State Talent
Search
Examination

Conducted by
Rajasthan Board
of Secondary Education



NSTSE

232 Selections in
NSTSE (Level-1)

63 Selections in
NSTSE (Level-2)

NISHANT ABHANGI:
AIR-1 (Level-2)

NSTSE
National
Science Talent
Search
Examination

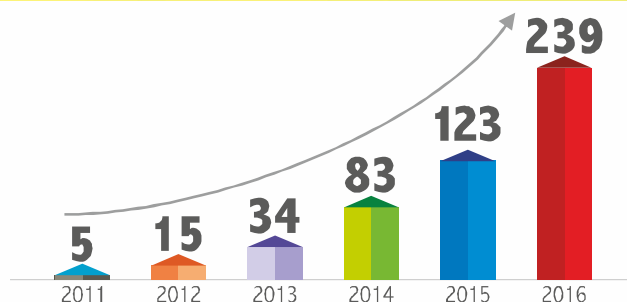
Conducted by
Unified Council, Hyderabad



NTSE

239 Students
Selected
From **ALLEN**

NTSE 2016 (STAGE-2)



APTITUDE IN MATHEMATICS

NMTC

274 Selections in
NMTC (Prelim)

17 Selections in
NMTC (Final)

NMTC
National
Mathematics
Talent
Contest

Conducted by
Association of Mathematics
Teachers of India, Chennai



IMO (SOF)

370 Selections in
IMO (Level-1)

IMO
International
Mathematics
Olympiad

Conducted by
Science Olympiad
Foundation, New Delhi



UCO

140 Selections in
UCO (Level - 1)

59 Selections in
UCO (Level - 2)

UCO
Unified
Cyber
Olympiad

Conducted by
Unified Council, Hyderabad



SCIENTIFIC APTITUDE

BALSHREE HONOUR

14 Selections in
Balshree in Local Round
Rajasthan-7 | Gujarat-5
Madhya Pradesh-2)

Consist of
Plaque,
Citation,
₹15000 &
Literature set

Conducted by **National Bal Bhavan**

LANGUAGE PROFICIENCY

TRINITY GESE

38 Selections in
TRINITY GESE
Distinction : 21
Merit : 17

GESE
Grade
Examination
for
Spoken
English

Conducted by
Trinity College, London



WORKSHOP/CONFERENCES

NMC

9 Selections in NMC
Including Ranks
1,2,3 & 4

NMC
National
Maths
Conference

Conducted by
Association of Mathematics
Teachers of India, Chennai



APTITUDE IN INTELLIGENCE QUATIENT (IQ)

TECHNOTHLON PRELIMS 2015

20 Students (10 Teams)
Selected for Techniche

29 Selections for Silver Certificate
in Technothlon Prelims

Conducted by IIT Guwahati
Technothlon
the international school championship
...Inspiring Young minds!

TECHNICHE 2015

2 Students (1 Team)
KHUSHI TIBAREWAL
STUTI SHAH
won Junior Squad in Techniche

Conducted by IIT Guwahati
Techniche
Indian Institute of Technology Guwahati

TECHKRITI

7 Students (Including AIR-1 & AIR-3)
Selected in Techkriti

Conducted by IIT Kanpur
TOS

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Answer Key



Class- 9th (IX)

Held on : 23 October 2016

Q. No.	Ans.
1	4
2	3
3	2
4	3
5	1
6	3
7	3
8	4
9	1
10	1
11	4
12	3
13	4
14	2
15	2
16	4
17	2
18	1
19	3
20	2

Q. No.	Ans.
21	3
22	4
23	3
24	1
25	3
26	1
27	4
28	1
29	2
30	4
31	3
32	1
33	4
34	1
35	2
36	4
37	2
38	1
39	2
40	1

Q. No.	Ans.
41	2
42	4
43	3
44	2
45	4
46	1
47	2
48	2
49	1
50	3
51	2
52	4
53	1
54	2
55	3
56	1
57	1
58	4
59	4
60	4

Q. No.	Ans.
61	1
62	1
63	2
64	2
65	3
66	2
67	4
68	1
69	1
70	3
71	4
72	4
73	4
74	3
75	4
76	3
77	3
78	4
79	2
80	3