

PHYSICS

- An athlete complete one round of a circular track of diameter 200 m in 40 s. What will be the displacement at the end of 2 minutes 40 s. ?
(A) 2200 m (B) 220 m (C) 22 m (D) Zero
- A body of mass M strikes against wall with a velocity v and rebounds with the same velocity. Its change in momentum is -
(A) zero (B) Mv (C) -Mv (D) -2 Mv
- A device which converts mechanical energy into electrical energy is known as-
(A) electric motor (B) lever (C) generator (D) microphone
- A ball is thrown up and attains a maximum height of 19.6 m. Its initial speed was:
(A) 9.8 ms^{-1} (B) 44.3 ms^{-1} (C) 19.6 ms^{-1} (D) 98 ms^{-1}
- For the echo of the last syllable of the speech to be heard the least distance of the reflector must be (approximately)-
(A) 22 metre (B) 32 metre (C) 110 metre (D) 340 metre

CHEMISTRY

- If 8.42g of sucrose is dissolved in 18g of water in a beaker. The number of oxygen atoms in the solution are:
(A) 6.68×10^{23} (B) 6.09×10^{22} (C) 6.022×10^{23} (D) 6.022×10^{22}
- Calculate the number of aluminium ions present in 0.051 g of aluminium oxide:
(A) 17.044×10^{23} (B) 6.022×10^{23} (C) 17.044×10^{20} (D) 6.022×10^{20}
- The tendency of non-reacting gases to mix with each other is called as
(A) Chemical reaction (B) Diffusion (C) Effusion (D) Explosion
- The cause of Brownian movement is
(A) heat changes in liquid state
(B) convection currents
(C) impact of molecules of dispersion medium on colloidal particles
(D) attractive forces between the particles of dispersed phase and dispersion medium
- Which of the following triads represents isotones ?
(A) ${}_6\text{C}^{12}$, ${}_6\text{C}^{13}$, ${}_6\text{C}^{14}$ (B) ${}_{18}\text{Ar}^{40}$, ${}_{20}\text{Ca}^{42}$, ${}_{21}\text{Sc}^{43}$
(C) ${}_{18}\text{Ar}^{40}$, ${}_{20}\text{Ca}^{40}$, ${}_{21}\text{Sc}^{41}$ (D) ${}_7\text{N}^{14}$, ${}_8\text{O}^{16}$, ${}_9\text{F}^{19}$

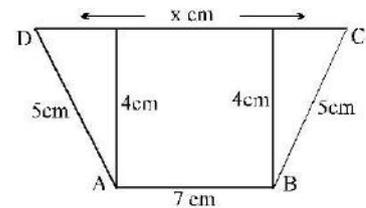
BIOLOGY

11. In plants which part has the ability of cell division
(A) parenchyma (B) sclerenchyma (C) collenchyma (D) apical meristen
12. Which of the following is the infectious disease
(A) diptheria (B) diabetes (C) hypertension (D) cancer
13. Crocodiles have ___ chamber of hearts
(A) 1 (B) 2 (C) 3 (D) 4
14. Corbett national park is famous for
(A) neel gai (B) snakes (C) rhinoceres (D) tiger
15. Cereals largely fulfil which requirement
(A)protein (B)carbohydrate (C)fats (D) minerals

MATHEMATICS

16. $4^{35}:2^5$ is the same as
(A) 4:1 (B) 2:1 (C)7:5 (D)7:10
17. The value of $(x-(A))^3 + (x-(B))^3 + (x-(C))^3 - 3(x-(A))(x-(B))(x-(C))$ when $a + b + c = 3x$
(A) 3 (B) 2 (C) 1 (D) 0
18. 3 identical dice are rolled. The probability that the same number will appear on each of them is :
1 6 1 3
(A) $\overline{6}$ (B) $\overline{216}$ (C) $\overline{216}$ (D) $\overline{28}$
19. The least number of non-collinear points required to draw a unique circle passing through them is
(A) two (B) three (C) four (D) nine
20. To find the ordinate of a point in the first quadrant.
(A) Find the perpendicular distance of the point from the x-axis.
(B) Find the distance of the point from the y-axis.
(C) Find the distance of the point from the origin.

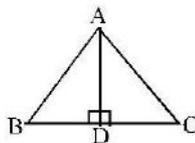
- (D) None of these.
21. In triangle ABC, $\angle A + \angle B = 144^\circ$ and $\angle A + \angle C = 124^\circ$, $\angle B = ?$
 (A) 56° (B) 60° (C) 65° (D) 45°
22. The mean of 7 numbers is 13 and the mean of 13 other numbers is 7. What is the mean of all 20 numbers:
 (A) 9.1 (B) 18.2 (C) 9.37 (D) 9.8
23. A conical vessel has a capacity of 3.3 litres of milk. If the height of the vessel is 3.5 cm, then the diameter of the base is
 (A) 15 cm (B) 30 cm (C) 35 cm (D) 60 cm
24. In figure, ABCD is a trapezium in which $AB = 7$ cm, $AD = BC = 5$ cm, $DC = x$ cm and the distance between AB and DC is 4 cm. Then the value of x is.



- (A) 13 cm
 (B) 16 cm
 (C) 19 cm
 (D) cannot be determined

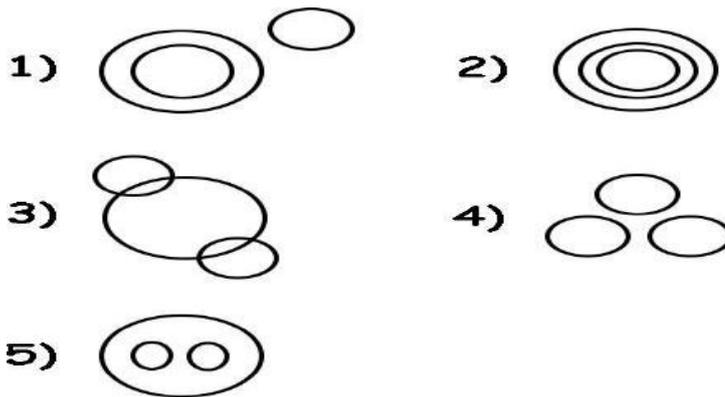
MAT

25. In $\triangle ABC$, AD is perpendicular bisector of BC and also $\angle BAD < \angle CAD$ which of the following is true?



- (A) $AC > AB$ (B) $AB = AC$ (C) $AB > AC$ (D) $AB \square AC$
26. Given interchanges : Signs + and x and numbers 4 and 5.
 (A) $5 \times 4 + 20 = 40$ (B) $5 \times 4 + 20 = 85$ (C) $5 \times 4 + 20 = 104$ (D) $5 \times 4 + 20 = 95$
27. Nitin ranks 18th in a class of 49 students. What is rank from the last
 (A) 31 (B) 18 (C) 32 (D) 19
28. In which of the following pairs, second person is to the immediate right of the first person
 (A) H,E (B) B,D (C) B,C (D) D,A

29. Find out the wrong term in the series 2, 3, 4, 4, 6, 8, 9, 12, 1
(A) 9 (B) 12 (C) 16 (D) 8
30. You are in a bus. The bus reaches your stop but still you have not purchased the ticket because of heavy rush. What will you do ?
(A) Jump out quickly to avoid embarrassment.
(B) call the conductor, give him the money and get the ticket.
(C) Hand the money to someone sitting nearby to give it to the conductor
(D) Give the money to the driver.
31. The presence of calcium in milk makes it white. Rice ,too, is white. Therefore rice also contains calcium
(A) False (B) Probably true (C) True (D) Can't say
32. Select from the five alternative diagrams, the one that best illustrates the relationship among the three classes : Truck, Ship, Goods



33. K is 40 m South-West of L. If M is 40 m South-East of L, then M is in which direction of K?
(A) East (B) West (C) North-East (D) South
34. In a certain code language,
'134' means 'good and tasty';
'478' means 'see good pictures' and
'729' means 'pictures are faint'.
Which of the following digits stands for 'see'?
(A) 9 (B) 2 (C) 1 (D) 8
35. In three coloured boxes - Red, Green and Blue, 108 balls are placed. There are twice as many balls in the green and red boxes combined as there are in the blue box and twice as many in the blue box as there are in the red box. How many balls are there in the green box?
(A) 18 (B) 36 (C) 45 (D) None of these

36. Directions : For the Assertion (A) and Reason (R) below, choose the correct alternative
Assertion (A) : Eskimos reside in igloos.
Reason (R) : No other material except snow is available.
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is NOT the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.
37. From the word 'ASTOUNDER', how many independent words can be made with-out changing the order of the letters and using each letter only once ?
(A) 1 (B) 3 (C) 4 (D) 2
38. In a class of 60 students, the number of boys and girls participating in the annual sports is in the ratio 3 : 2 respectively. The number of girls not participating in the sports is 5 more than the number of boys not participating in the sports. If the number of boys participating in the sports is 15, then how many girls are there in the class ?
(A) 20 (B) 25 (C) 30 (D) Data inadequate
39. If FRIEND is coded as HUMJTK, how is CANDLE written in that code ?
(A) EDRIRL (B) DCQHQB
(C) ESJFME (D) DEQJQM
40. If A x B means A is to the south of B; A + B means A is to the north of B; A % B means A is to the east of B; A - B means A is to the west of B; then in P % Q + R - S, S is in which direction with respect to Q?
(A) South-West (B) South-East
(C) North-East (D) North-West