

MATHEMATICS

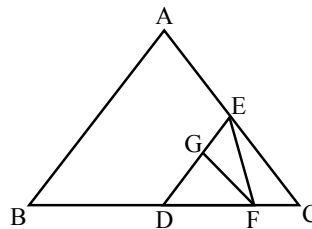
1. A shopkeeper gives 12% additional discount on the discounted price, after giving an initial discount of 20% on the labelled price of a radio. If the final sale price of the radio is ₹ 704, then what is its labeled price?

(A) ₹ 844.80 (B) ₹ 929.28 (C) ₹ 1000 (D) ₹ 1044.80

2. Simplified form of $\frac{\left(p + \frac{1}{q}\right)^{(p-q)} \left(p - \frac{1}{q}\right)^{(p+q)}}{\left(q + \frac{1}{p}\right)^{(p-q)} \left(q - \frac{1}{p}\right)^{(p+q)}} = ?$

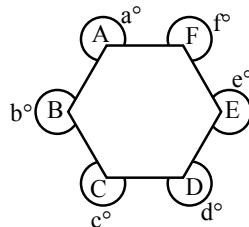
(A) $\left(\frac{p}{q}\right)^{2p}$ (B) $\left(\frac{q}{p}\right)^{2q}$ (C) $\left(\frac{p}{q}\right)^p$ (D) $\left(\frac{q}{p}\right)^q$

3. In the figure (not to scale), $AB \parallel ED$ and $EC \parallel GF$. If $\angle EGF = 101^\circ$ and $\angle ECF = 42^\circ$ then the value of $\angle ABC$ is



(A) 58° (B) 59° (C) 60° (D) 61°

4. For the following polygon



the value of $a^\circ + b^\circ + c^\circ + d^\circ + e^\circ + f^\circ$ is

(A) 360° (B) 720° (C) 2160° (D) 1440°

5. If $x^4 + \frac{1}{x^4} = 322$ then the value of $\left(x - \frac{1}{x}\right)$ is

(A) 4 (B) 6 (C) 2 (D) 8

6. a, b and c are three consecutive positive integer. If $c^2 - a^2 = 176$. Then the value of b is

(A) 41 (B) 43 (C) 42 (D) 44

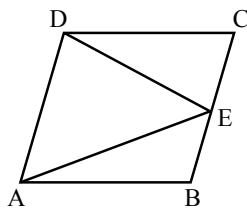
7. $\frac{a^2 + b^2 + 2(ab + bc + ca)}{a + b + 2c} = ?$

(A) $a + b + 2c$ (B) $a + b + c$ (C) $a + b$ (D) $c(a + b)$

8. The value of

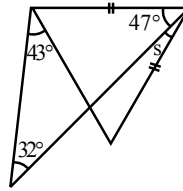
$$\frac{\left(\frac{4}{3} \times \left(-\frac{25}{2}\right)\right) + \left(\left(-\frac{10}{3}\right) \times \frac{5}{2}\right) - \left(\left(-\frac{16}{3}\right) \times \left(-\frac{45}{32}\right)\right)}{\frac{3}{4} \times \left(\frac{9}{14} \times \left(-\frac{2}{18}\right)\right)}$$
 is

- (A) $13\frac{11}{27}$ (B) $606\frac{2}{3}$ (C) $-133\frac{7}{4}$ (D) $606\frac{7}{3}$
9. If the product of any four consecutive natural numbers, increased by a natural number p, is a perfect square then the value of p is
 (A) 1 (B) 2 (C) 4 (D) 8
10. What is the probability of getting at least one head when a coin is tossed twice?
 (A) $\frac{1}{4}$ (B) $\frac{3}{4}$ (C) $\frac{1}{2}$ (D) $\frac{4}{3}$
11. A company packages its milk powder in cylindrical containers whose base has a diameter of 16.8 cm and height 20.5 cm. Company places a label around the curved surface of the container. If the label is placed 1.5 cm from the top and the bottom, what is the surface area of the label?
 (A) 923 (B) 924 (C) 920 (D) 921
12. A well of diameter 7 m is dug 22.5 m deep. Then cost of plastering the inner curved surface at ₹ 3 per square metre.
 (A) ₹ 1481 (B) ₹ 1483 (C) ₹ 1485 (D) ₹ 1400
13. $\frac{2}{5}$ of total number of students of a school come by car while $\frac{1}{4}$ of students come by bus to school. All the other students walk to school of which $\frac{1}{3}$ walk on their own and the rest are escorted by their parents. If 224 students come to school walking on their own, how many students study in that school?
 (A) 1920 (B) 1919 (C) 1921 (D) 1922
14. In the given figure (not to scale), $AB \parallel CD$, $\angle EAB = 20^\circ$ and $\angle EDC = 35^\circ$. Find the measure of $\angle DEA$.



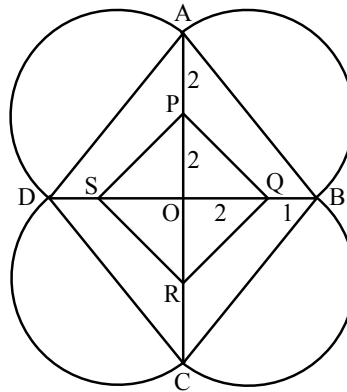
- (A) 35° (B) 45° (C) 55° (D) 105°
15. Radha takes some flowers in a basket and visits three temples one by one. At each temple, she offers one half of the flowers from the basket. If she is left with 3 flowers at the end, find the number of flowers she had in the beginning.
 (A) 21 (B) 22 (C) 24 (D) 23
16. A man was engaged as typist for the month of February in 2008. He was paid ₹ 500 per day but ₹ 100 per day were deducted for the days he remained absent. He received ₹ 9,100 as salary for the month. For how many days did he work?
 (A) 20 (B) 21 (C) 22 (D) 19

17. In the figure below, the value of $\angle s$ is



- (A) 27° (B) 17° (C) 37° (D) 47°

18. A Rangoli has been drawn on a floor of a house. ABCD and PQRS both are in the shape of a rhombus. If $AP = PO = OQ = 2$ and $QB = 1$, then the radius of semicircle drawn on each side of rhombus ABCD is



- (A) $\frac{3}{2}$ (B) $\frac{5}{2}$ (C) $\frac{7}{2}$ (D) $\frac{1}{2}$

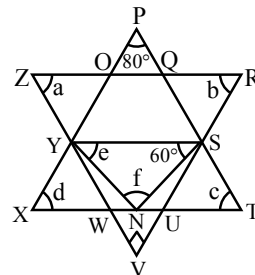
19. Find the value of $\left(\sqrt{\frac{625}{4356}} + \sqrt{\frac{576}{1089}}\right) \times \left(\frac{66}{\sqrt{19600} + \sqrt{36}}\right)$.

- (A) $\frac{7}{15}$ (B) $\frac{9}{53}$ (C) $\frac{1}{2}$ (D) $\frac{79}{33}$

20. A group of students decided to collect as many paise from each member of the group as is the number of members in the group. If the total collection amounts to ₹ 59.29, the number of members in the group is

- (A) 57 (B) 67 (C) 77 (D) 87

21. Find the value of $(a + b) - (e + f) + (c + d)$, if $\angle WVU = 90^\circ$.

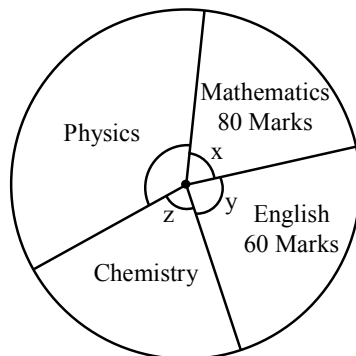


- (A) 90° (B) 70° (C) 200° (D) 210°

22. The length of a diagonal of a square is $\frac{(33333)^2}{123454321}$ cm then the area of square is

- (A) 27.5 cm^2 (B) 39.5 cm^2 (C) 41.5 cm^2 (D) 40.5 cm^2

23. A certain sum triples in 2 years under compound interest, compounded annually at a certain rate of interest. In how many years would the sum become 9 times itself at the same rate
 (A) 6 years (B) 9 years (C) 4 years (D) 8 years
24. A pie diagram of the marks scored by a student in Mathematic, English, Physics and Chemistry is shown here. In which x , y , z are central angles of sectors corresponding to Mathematics, English and Chemistry respectively.



If $x + y = 175^\circ$
 $x = z + 15^\circ$

Read the graph and find the marks in Physics secured by the student.

- (A) 60 (B) 80 (C) 70 (D) 100
25. If $\frac{154}{69}$ is expressed as $a + \frac{1}{b + \frac{1}{c + \frac{1}{d}}}$ then the value of $(c + d) - (a + b) = ?$, where a, b, c, d are integers.
 (A) 4 (B) 5 (C) 6 (D) 2

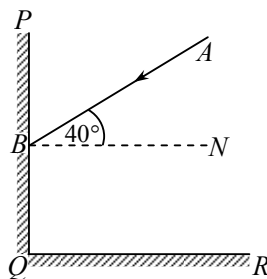
CHEMISTRY

26. Mg is present in
 (A) chlorophyll (B) haemoglobin (C) vitamin-D (D) ascorbic acid
27. Which of the following **metals** and **nonmetals** are found in the liquid state at room temperature?
 (A) Gallium and Iodine respectively (B) Gallium and Bromine respectively
 (C) Mercury and Bromine respectively (D) Mercury and Sulphur respectively
28. A piece of charcoal was heated over the flame of the burner. When it starts burning it is immediately dipped into a boiling tube containing water. Now this solution is transferred to another tube and a piece of litmus paper is dipped into it. What will be the observation?
 (A) blue litmus turns to red (B) Red litmus turns to blue
 (C) no change in the colour of litmus (D) none of the above
29. Which of these is not a fossil fuel?
 (A) Coal (B) LPG (C) Bio gas (D) Natural gas
30. Melamine is
 (A) thermoplastic polymer (B) thermosetting polymer
 (C) fibre (D) elastomer
31. Magnesium ribbon on burning in air produces:
 (A) magnesium oxide, water and light only (B) magnesium oxide and heat only
 (C) magnesium oxide, heat and light only (D) magnesium oxide, water and heat only

32. Which of the following groups contains all synthetic substances?
 (A) Nylon, terylene, wool (B) Cotton, polycot, rayon
 (C) PVC, polythene, bakelite (D) Acrylic, silk, wool
33. Coal is processed in industries to get some useful products. Which of the following is not obtained from coal?
 (A) Coke (B) Coal tar (C) Coal gas (D) CNG

PHYSICS

34. Which of the following represent correct values for the normal atmospheric pressure?
 A. 101.3 kilopascals
 B. 76 mm of mercury
 C. 101.3 pascals
 D. 76 cm of mercury
 (A) A and B (B) B and C (C) A and D (D) B and D
35. Some mustard oil is kept in a beaker. It will exert pressure :
 (A) downwards only (B) sideways only (C) upwards only (D) in all directions
36. What force acting on an area of 0.5 m^2 will produce a pressure of 500 Pa?
 (A) 200 N (B) 250 N (C) 300 N (D) 350 N
37. If the sliding friction between two surface is found to be 7N, then the static friction between these two surfaces is most likely to be:
 (A) 5 N (B) 10 N (C) 4 N (D) 2 N
38. A person has applied some mustard oil on his hands. Which of the following objects will become most difficult for him to hold in his hand?
 (A) Earthen cup (*kulhar*) (B) thermocol tumbler
 (C) glass tumbler (D) wooden cup
39. Sound can travel through :
 (A) gases only (B) solids only (C) liquids only (D) solids, liquids and gases
40. Which of the following effects is not produced by the chemical reactions brought about by an electric current?
 (A) bubbles of gases on electrodes (B) deposits of metals on electrodes
 (C) change in colour of solution (D) formation of a precipitate
41. The image formed by a plane mirror is:
 (A) virtual, behind the mirror and enlarged
 (B) virtual, behind the mirror and of the same size as the object
 (C) real, at the surface of the mirror and enlarged
 (D) real, behind the mirror and of the same size as the object
42. Find angle of reflection for the mirror QR.



- (A) 30° (B) 40° (C) 45° (D) 50°

BIOLOGY

43. This question contains four statements.

Statement (P) → Yellow vein mosaic of *bhindi* is a viral disease and is transmitted through air.

Statement (Q) → Rust of wheat is a bacterial disease and is transmitted through insects.

Statement (R) → Citrus canker is a viral disease and is transmitted through seeds.

Statement (S) → Rust of wheat is a viral disease and is transmitted through air.

Choose the correct option.

(A) P, Q, R is correct statement and S is incorrect statement.

(B) P, Q, S is correct statement and R is incorrect statement.

(C) P, S, R is correct statement and Q is incorrect statement.

(D) P, Q, R and S all statements are incorrect.

44. Sexually reproducing individual begins their life from–

(A) a single celled and single nuclei structure.

(B) structure formed by repeated division of single celled and single nuclei structure.

(C) the stage of embryo in which all the body parts can be identified.

(D) the reproductive organs.

45. Read the statement P, Q, R, S and choose the correct option.

(P) → Internal fertilization takes place in cows, humans, dogs, hens etc.

(Q) → Internal fertilization takes place in cows, humans, frogs etc.

(R) → External fertilization takes place in fish, starfish, dogs, hens etc.

(S) → External fertilization takes place in fish, starfish, frogs etc.

(A) P and Q are correct.

(B) R and S are correct.

(C) P and S are correct.

(D) Q and S are correct.

46. Identify a prokaryote–

(A) muscle cell

(B) rhizobium

(C) penicillium

(D) paramecium

47. Read the statement P, Q, R, S and choose the correct option.

(P) → Zygote is a single celled and single nuclei structure and is formed by the repeated division of embryo.

(Q) → Zygote is a single celled and two nuclei structure and is formed by the fusion of sperm and ova.

(R) → Zygote is a single celled and single nuclei structure and is formed by the fusion of sperm and ova.

(S) → Embryo is a single celled structure formed the repeated division of the foetus.

(A) R is correct and P, Q, S are incorrect.

(B) P is correct and R, Q, S are incorrect.

(C) Q is correct and P, R, S are incorrect.

(D) S is correct and P, Q, R are incorrect.

48. Choose the correct one.
- (A) WBC is multi celled and can change its shape.
 - (B) WBC is a branched cell which can change its shape.
 - (C) RBC is spherical in shape and transfers messages.
 - (D) WBC is single celled and can change its shape.
49. In given statements which one is incorrect?
- (A) Endangered species are those which are facing the danger of extinction.
 - (B) Endemic species are found only in a particular area.
 - (C) Red Data Book contains a record of endemic species.
 - (D) Red Data Book contains a record of endangered species.
50. This question contains four statements:
- (P) → Sprinkler system is more useful on the uneven land where sufficient water is available.
 - (Q) → Sprinkler system is more useful on the uneven land where sufficient water is not available and is best technique for watering fruit plants, gardens and trees.
 - (R) → Sprinkler system is more useful on the uneven land where sufficient water is not available and is very useful for sandy soil.
 - (S) → Sprinkler system is a boon in regions where huge amount of water is available.
- Identify the correct option:
- (A) Statement P is correct while Q, R and S are incorrect.
 - (B) Statement Q is correct while P, R and S are incorrect.
 - (C) Statement R is correct while P, Q and S are incorrect.
 - (D) Statement S is correct while Q, R and P are incorrect.

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