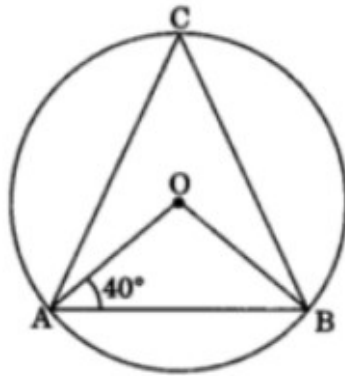


MATHEMATICS

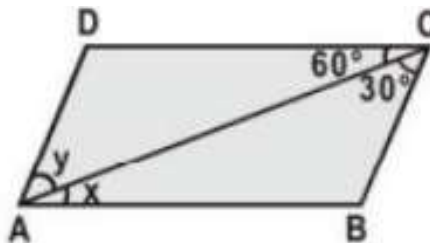
1. Simplify: $\frac{a^{\frac{1}{2}} + a^{-\frac{1}{2}}}{1-a} + \frac{1-a^{-\frac{1}{2}}}{1+\sqrt{a}}$
 - (a) 1
 - (b) 0
 - (c) $\frac{2}{1-a}$
 - (d) $1+a$
2. The sum of the polynomials $4x^4 + 6x^2 - 12x + 14$ and $ax^4 + bx^3 + cx^2 + dx + e$ is the polynomial $7x^4 + 9x^3 - 2x^2 + 6x - 9$. Then $(a + b + c + d + e)$ is:
 - (a) 1
 - (b) 0
 - (c) 30
 - (d) -1
3. In simultaneous throw of 2 dice the probability of getting Total (Sum) more than 7 is?
 - (a) $7/12$
 - (b) $5/12$
 - (c) $7/36$
 - (d) $5/36$
4. If $(2x + 17)^\circ, (x + 4)^\circ$ are complementary, find x:
 - (a) 63°
 - (b) 53°
 - (c) 35°
 - (d) 23°
5. If the sum of two numbers is 9 and the sum of their squares is 41. Then, their difference is
 - (a) 1
 - (b) 7
 - (c) 3
 - (d) 5
6. Points $(1, 2), (-2, -3), (2, -3)$ lie in the
 - (a) First quadrant
 - (b) Do not lie in the same quadrant
 - (c) Third quadrant
 - (d) Fourth quadrant
7. The area of a rhombus is 20 cm^2 . If one of its diagonals is 5 cm, the other diagonal is
 - (a) 5 cm
 - (b) 6 cm
 - (c) 8 cm
 - (d) 10 cm

SPACE FOR ROUGH WORK

8. In the given figure, O is the centre of a circle. If $\angle OAB = 40^\circ$ and C is a point on the circle, then $\angle ACB =$



- (a) 40° (b) 50°
(c) 80° (d) 100°
9. In triangles ABC and PQR, $AB = AC$, $\angle C = \angle P$ and $\angle B = \angle Q$. The two triangles are
(a) Isosceles but not congruent
(b) Isosceles and congruent
(c) Congruent but not isosceles
(d) Neither congruent nor isosceles
10. In the parallelogram ABCD, what are the measures of the angles x and y?



- (a) $60^\circ, 30^\circ$ (b) $30^\circ, 60^\circ$
(c) $45^\circ, 45^\circ$ (d) $90^\circ, 90^\circ$

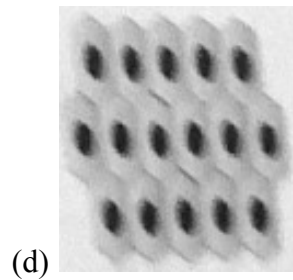
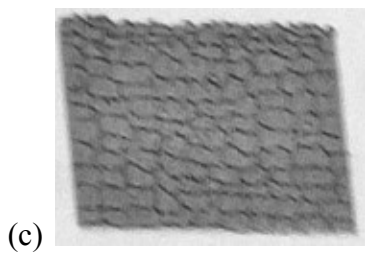
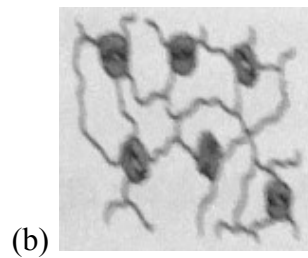
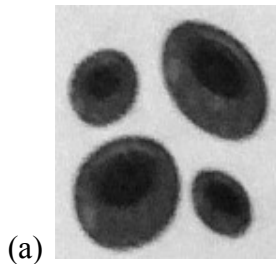
SPACE FOR ROUGH WORK

SCIENCE

11. If m_e is the mass of a body on the surface of the earth and m_m is the mass of the same body on the moon, then
(a) $m_e = 6 m_m$ (b) $m_e < m_m$ (c) $m_e > m_m$ (d) $m_e = m_m$
12. The value of G depends on
(a) Masses of bodies (b) Distance between bodies
(c) Some other mass kept nearby (d) None of these
13. A car is moving along a straight road at a steady speed. It travels 150 m in 5 seconds, how long does it take to travel 240 m ?
(a) 2 s (b) 8 s (c) 3 s (d) 9 s
14. Which of the following has minimum kinetic energy?
(a) Particles of ice below 0°C (b) Particles of water at 0°C
(c) Particles of water at 100°C (d) Particles of steam at 100°C
15. Which of the following conditions is most favourable for converting gas into liquid?
(a) High pressure, low temperature (b) Low pressure, low temperature
(c) Low pressure, high temperature (d) High pressure, high temperature
16. The formula of Ammonium Sulphate is
(a) NH_4SO_4 (b) NH_4SO_2
(c) $(\text{NH}_4)_2\text{SO}_4$ (d) $(\text{NH}_4)_2\text{SO}_3$
17. This cell organelle plays a crucial role in detoxifying many poisons and drugs in a cell:
(a) Plastids (b) Golgi apparatus
(c) SER (d) Lysosomes
18. The cardiac muscles show:
(a) The characteristics of striated muscles
(b) The characteristics of smooth muscles
(c) The characteristics of both striated and unstriated muscles
(d) None of these

SPACE FOR ROUGH WORK

19. Which of the following shows meristems?



20. Blue green algae and mycorrhizae are used as:

- | | |
|--------------------------|--------------------|
| (a) Organic manure | (b) Biofertilisers |
| (c) Natural insecticides | (d) Pesticides |

MENATL ABILITY – (MAT)

21. If in a certain code, 'FASHION' is written as 'FOIHSAN', how will 'PROBLEM' be written in that code?

- | | |
|-------------|-------------|
| (a) PELBORM | (b) PRBOELM |
| (c) PELBROM | (d) ROBLEMP |

22. Which number should come next in the series: 2, 6, 12, 20, 30, ?

- | | |
|--------|--------|
| (a) 42 | (b) 36 |
| (c) 50 | (d) 40 |

SPACE FOR ROUGH WORK

23. If 'MANGO' is coded as 'NBOHP', how is 'APPLE' coded?
(a) BQQMF (b) BQQLF
(c) BQPLF (d) BPPME
24. Find the odd one out: 3, 5, 11, 14, 17, 21
(a) 14 (b) 11
(c) 17 (d) 21
25. What will be the next term in the series: A, D, I, P, ?
(a) T (b) U
(c) Y (d) Z
26. How many 4s are there in the following number series which are preceded by 3 but not followed by 5 ? 3 4 5 3 4 4 3 4 6 7 3 4 5
(a) 1 (b) 2
(c) 3 (d) 4
27. Ramesh is older than Suresh. Mahesh is younger than Ramesh. Suresh is older than Mahesh. Who is the oldest?
(a) Ramesh (b) Mahesh
(c) Suresh (d) Cannot be determined
28. If in a mirror, an object appears at 5 cm behind the mirror, how far is the object from the mirror?
(a) 5 cm (b) 10 cm
(c) 2.5 cm (d) 15 cm
29. Which of the following is not a prime number?
(a) 2 (b) 3
(c) 9 (d) 7
30. Choose the word which is different from the rest.
(a) Inch (b) Kilogram
(c) Yard (d) Foot

SPACE FOR ROUGH WORK