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1. The enzymes commonly called 'Genetic Scissors' are
(1) Ligases
(2) Lipases
(3) Restriction endonucleases
(4) Proteases

Answer (3)

## Solution

The enzymes commonly called genetic scissor's are
2. Chooses the group that contains fungi only
(1) Euglena, lichen
(2) Yeast, mushroom
(3) Anabaena, Amoeba
(4) Paramecium, mycoplasma

Answer (2)
Solution
Choose the group that contains fungi only
3. Climbers grow towards and around a support is an example of
(1) Hydrotropism
(2) Haptotropism
(3) Geotropism
(4) Phototropism

Answer (2)

## Solution

Climbers grow to wards and around a support is an example of
4. Select the correct statement regarding the arrangement of aminoacidds in beta $(\beta)$ chain of haemoglobin
(1) Same in man and rat
(2) Same in man and chimpanzee
(3) Different in man and chimpanzee
(4) same in man and gorilla

Answer (3)

## Solution

Select the correct statement regarding the arrangement of amino ad in beta chain of hemoglobin
5. The gas responsible for ozone depletion is
(1) Nitrogen and argon
(2) Carbon dioxide
(3) Carbon monoxide
(4) Chlorofluorocarbons

Answer (4)
Solution
The gas responsible for $O_{3}$ depletion
6. Chromosomes are composed of
(1) DNA and protein
(2) RNA and lipids
(3) Ribosomes and lipids
(4) DNA and lipids

Answer (1)
Solution
Chromosomes are composed of
7. Choose the immune response of basophil
(1) Engulfs and destroys the bacteria
(2) Produces chemical substances that destroy foreign bodies
(3) Dilates the blood vessels
(4) Produces chemical substances needed for inflammatory response

Answer (1)
Solution
Choose the immure response of basophil
8. Decreases in the production of dopamine causes
(1) Parkinson's
(2) Meningitis
(3) Alzheimer's
(4) Epilepsy

Answer (1)
Solution
Decrease in the production of dopamine causes
9. The excretory organ in cockroach is
(1) Kidney
(2) Malpighian tubules
(3) Contractile vacuoles
(4) Nephridia

Answer (2)

## Solution

Excretory organ in cockroach is

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10. The three R's to save the environment represent
(1) Repeat, Reduce, Resale
(2) Reuse, Reduce, Resale
(3) Recycle, Reuse, Repeat
(4) Reduce, Recycle, Reuse

Answer (4)
Solution
The three R's to save environment represent
11. Gland are modified from of
(1) Epithelial tissue
(2) Cardiac tissue
(3) Muscular tissue
(4) Connective tissue

Answer (1)
Solution
Glands are modified from of
12. Movement of water molecules from a region of its higher concentration to a region of its lower concentration through a semi permeable membrane is called
(1) Plasmolysis
(2) Endocytosis
(3) Osmosis
(4) Diffusion

Answer (3)
Solution
Movement of water molecules from a region of its higher none to a region of its lower conc. through a semi permeable membrard is called
13. Which of the following statement is correct about tendons?
(1) Connect bones to bones
(2) Connect bones to muscles
(3) Smoothen bound surfaces
(4) Fibrous tissue with high flexibility

## Answer (2)

## Solution

Which of the following statement is correct about tendons?
14. Select the process that occurs in dark reaction
(1) Light energy is converted into chemical energy
(2) Water splits into hydrogen and oxygen
(3) Hydrogen is added to carbon dioxide
(4) Oxygen is evolved

Answer (3)

## Solution

Select the process that occurs in dark reaction
15. Which of the following statements DO NOT match which the postulates of Bohr's mode of atom?
(a) Electrons are revolving around the nucleus in specified paths called orbits/shells
(b) Each shell is associated with definite amount of energy
(c)Electron, while revolving through a particular shell can increases or decreases its energy
(d) Energy of the shells decreases as their distance form nucleus increases

Select the correct alternative
(1) $C$ and (d)
(2) (b) and (c)
(3) (a) and (c)
(4) (b) and (d)

Answer (1)

## Solution

The energy of electron in a particular cell is quantized
Energy of shells $1 /$ Distance b/w nucleus \& shell
16. Which of the following statements are NOT CORRECT?
(1) Isobars are atoms of same elements
(2) Isotopes are atoms of different elements
(3) Isotones are atoms of same elements
(4) Isotones are atoms of different elements

Answer (3)
Solution

| Eg: Isobars - | ${ }_{18}^{40} \mathrm{Ar}$ | ${ }_{20}^{40} \mathrm{Ca}$ |
| :--- | :--- | :--- |
| Isotopes - | ${ }_{1}^{1} \mathrm{H}$ | ${ }_{1}^{2} \mathrm{H}$ |
| Isotones - | ${ }_{6}^{13} \mathrm{C}$ | ${ }_{7}^{14} \mathrm{~N}$ |

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17. Which of the following represents the sequence in which the given compounds are arranged in the increasing order of the electronegative difference of their component elements? $\mathrm{CH}_{4}, \mathrm{NaCl}, \mathrm{CO}, \mathrm{Na} 2 \mathrm{O}, \mathrm{MgCl}_{2}$
(1) $\mathrm{CH}_{4}<\mathrm{MgCl}_{2}<\mathrm{CO}<\mathrm{NaCl}<\mathrm{Na}_{2} \mathrm{O}$
(2) $\mathrm{Na}_{2} \mathrm{O}<\mathrm{CO}<\mathrm{MgCl}_{2}<\mathrm{NaCl}<\mathrm{CH}_{4}$
(3) $\mathrm{MgCl}_{2}<\mathrm{Na}_{2} \mathrm{O}<\mathrm{CO}<\mathrm{CH}_{4}<\mathrm{NaCl}$
(4) $\mathrm{CH}_{4}<\mathrm{CO}<\mathrm{MgCl}_{2}<\mathrm{NaCl}<\mathrm{Na}_{2} \mathrm{O}$

Answer (4)

## Solution

e.n: $\mathrm{O}>\mathrm{Cl}>\mathrm{C}>\mathrm{H}>\mathrm{Mg}>\mathrm{Na}$
$\begin{array}{llll}3.5 & 3 & 2.5 & 2.1\end{array}$
18. Water is a compound with relatively low molecular mass $\left(18 \mathrm{~g} \mathrm{~mol}^{-1}\right)$. But it exists as a liquid at room temperature.

This is because
(1) Water molecules have angular geometry
(2) Elect negatively difference between hydrogen and oxygen is less
(3) Water hydrogen and oxygen is less
(4) Water is a universal solvent

Answer (3)
Conceptual
19. Which of the following represents pairs of metalloids?
(a) $\mathrm{Si} \& \mathrm{Sb}$
(b) $\mathrm{Pb} \& \mathrm{Sb}$
(c) $\mathrm{Ru} \& \mathrm{Rh}$
(d) Ge \& As
(1) (b) and (d)
(b) (a) and (c)
(c) (b) and (c)
(d) (a) and (d)

Answer (4)
Solution
Metalloids: Si
Ge As

$$
\begin{array}{ll}
\mathrm{Sb} & \mathrm{Tc} \\
& \mathrm{Po}
\end{array}
$$

20. Which of the following reactions requires the highest temperature to occur?
(1) $\mathrm{N}_{2}+\mathrm{O}_{2} \rightarrow 2 \mathrm{NO}$
(2) $2 \mathrm{NO}+\mathrm{O}_{2} \rightarrow 2 \mathrm{NO}_{2}$
(3) $\mathrm{NH}_{4} \mathrm{NO}_{2} \rightarrow \mathrm{~N}_{2}+2 \mathrm{H}_{2} \mathrm{O}$
(4) $4 \mathrm{NO}_{2}+2 \mathrm{H}_{2} \mathrm{O}+\mathrm{O}_{2} \rightarrow 4 \mathrm{HNO}_{3}$

Answer (1)
Solution
Conceptual
21. The total number of elections in 1 kg glucose $\left(\mathrm{C}_{6} \mathrm{H}_{12} \mathrm{O}_{6}\right)$ is [Molecular mass of glucose is 18 u ]
(1) $6.022 \times 10^{23}$
(2) $1.8 \times 10^{5}$
(3) $3.346 \times 10^{21}$
(4) $3.2 \times 10^{26}$

Answer (4)
Solution
Glucose $=\frac{1000}{180}$
Molecules $=\frac{1000}{180} \times n a$
No of electrons $=\frac{1000}{180} \times n a \times 96=3.2 \times 10^{26}$
22. Which of the following are NOT CORECT for a gaseous reversible reaction when pressure is increased?
(a) Distance between gaseous molecules decreases
(b) Number of molecules per unit volume decreases
(c) Reaction proceeds in the direction in which there is increases in number of moles
(d) Reaction proceeds in the direction in which there is decrease in number of moles Selection the correct alternative
(1) (a) and (d)
(2) (b) and (d)
(3) (a) and (c)
(4) (b) and (c)

## Answer (4)

## Solution

It is explained bases on lee chatelier principle conceptual

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23. In which of the following solutions irons gets oxidized?
(a) Sliver nitrate
(b) Zinc sulphate
(c) Magnesium sulphate
(d) Copper sulphate
(1) (b) and (d)
(2) (a) and (c)
(3) (b) and (c)
(4) (a) and (d)

Answer (4)

## Solution

Electron chemical series: $\mathrm{Li}>\mathrm{Na}>a>\mathrm{Mg}>\mathrm{Al}>\mathrm{Zm}>\mathrm{Fe}>\mathrm{Sn}>\mathrm{Pb}>\mathrm{M}>\mathrm{Cu}>\mathrm{Hg}>\mathrm{Ag}>\mathrm{Au}$
24. When the reaction $\mathrm{Pb}\left(\mathrm{NO}_{3}\right)_{2} \rightarrow 2 \mathrm{PbO}+\mathrm{NO}_{2}+\mathrm{O}_{2}$ is balanced the coefficients of the reactants and products in the balanced reaction will be
(2) $4,2,1,2$
(2) $2,2,4,1$
(3) 2, 4, 1, 2
(4) 4, 2, 2, 2, 1

Answer (2)
Solution
$2 \mathrm{~Pb}\left(\mathrm{No}_{3}\right)_{2} \rightarrow 2 \mathrm{PbO}+4 \mathrm{NO}_{2}+\mathrm{O}_{2}$
25. What is the volume of $\mathrm{N}_{2}$ gas formed at STP when 63 g of $\left(\mathrm{NH}_{4}\right)_{2} \mathrm{Cr}_{2} \mathrm{O}_{7}$ is thermally decomposed according to the equation given below? (Atomic mass of $\mathrm{Cr}=52, \mathrm{H}=1, \mathrm{~N}=14, \mathrm{O}=16)\left(\mathrm{NH}_{4}\right)_{2} \mathrm{Cr}_{2} \mathrm{O}_{7} \rightarrow \mathrm{~N}_{2}+4 \mathrm{H}_{2} \mathrm{O}+\mathrm{Cr}_{2} \mathrm{O}_{3}$
(1) 5.6 L
(2) 11.2 L
(3) 22.4 L
(4) 44.8 L

## Answer (1)

Solution
$\left(\mathrm{NH}_{4}\right)_{2} \mathrm{Cr}_{2} \mathrm{O}_{7} \rightarrow \mathrm{~N}_{2}+4 \mathrm{H}_{2} \mathrm{O}+\mathrm{Cr}_{2} \mathrm{O}_{3}$
$m=\frac{63}{252}=0.25$
1 mole of $N_{2}$ at STP $=22.4 \ell$
0.25 mole of $N_{2}$ at STP $=5.6 \ell$
26. What is the number of $s$ - electrons present in a chromium atom? (Atomic number of $\mathrm{Cr}-24$ )
(1) 7
(2) 1
(3) 8
(4) 5

Answer (1)
Solution
$\left(r=1 s^{2}, 2 s^{2}, 2 p^{6}, 3 s^{2}, 3 p^{6}, 4 s^{1}, 3 d^{5}\right)$
27. The two elements X and Y have 5 and 7 valance electrons respectively. What will be the most probable formula of the compound formed between them?
(1) $X_{7} Y_{5}$
(2) $X_{5} Y_{7}$
(3) $X_{3} Y$
(4) XY

Answer (4)
Solution

|  | No of valence electrons | Valency |
| :--- | :---: | :--- |
| X | 5 | +3 |
| Y | 7 | -1 |
| $x^{+3}, y^{-1}$ |  |  |
| $x y_{3}$ |  |  |

28. The average acceleration of a body during a time interval ' t ' is given by the slope of its
(1) Velocity - speed graph
(2) Velocity - time graph
(3) Speed - time graph
(4) Velocity - displacement graph

## Answer (2)

Conceptual
29. An object moving at a constant speed in a circular path experiences a force which is
(1) In the direction of motion
(2) Outwards and at $45^{\circ}$ to the direction of motion
(3) Inwards and at right angles to the direction of motion
(4) Opposite to the direction of motion

## Answer (3)

## Solution

Inwards and at right angles to the direction of motion

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30. A vehicle will acceleration as long as
(1) Air resistance is greater than the thrust
(2) Air resistance is greater then the inertia
(3) Thrust is greater than the sum of air resistance and friction
(4) Friction is greater then the thrust

## Answer (3)

Conceptual
Thrust is greater than sum of air resistance and friction
31. Which of the following statement is correct? The force acting on an object is equivalent to
(1) Its change in momentum
(2) The impulse it receives per second
(3) The energy it gains per second
(4) Its acceleration per meter

## Answer (2)

Conceptual
The impulse it receives per second
32. Work done by the force of gravity on a satellite of 500 kg at a height of 36000 km is
(1) 0 J
(2) $10^{31} \mathrm{~J}$
(3) $10^{21} \mathrm{~J}$
(4) $10^{9.8} \mathrm{~J}$

Answer (1)
Conceptual
Satellite is in circular orbit. So displacement is perpendicular to force
33. Up thrust of water acting on a wooden cube of side 10 cm immersed completely in water is (density of water $=1000$ $\mathrm{kgm}^{-3}$ and $\mathrm{g}=10 \mathrm{~ms}^{-2}$ )
(1) 5 N
(2) 10 N
(3) 3 N
(4) 2 N

## Answer (2)

Conceptual

$$
V_{i n} \rho_{f} g
$$

Up thrust (or) Buoyant force $==(10 \mathrm{~cm})^{3}\left(1000 \mathrm{~kg} / \mathrm{m}^{3}\right)(10 \mathrm{~m} / \mathrm{s})$

$$
=10 \mathrm{~N}
$$

34. Energy transferred to a stone of weight 10 N , falling freely form the top of a tower of 250 m height is about
(1) 25000 J
(2) 250000 J
(3) 2500 J
(4) 250 J

Answer (3)
Conceptual
Weight $=\mathrm{mg}=10 \mathrm{~N}$
Height $(H)=250 \mathrm{~m}$
Potential energy $\mathrm{U}=\mathrm{mgH}=(10)(250)$
$=2500 \mathrm{~J}$
35. The factor on which the speed of sound through air doesn't depend is
(1) Humidity
(2) Density
(3) Temperature
(4) Frequency of sound

Answer (4)
Conceptual
Frequency of sound
36. The waves that required a material medium for their propagation are called
(1) Matter waves
(2) Electromagnetic waves
(3) Carrier waves
(4) Mechanical waves

Answer (4)
Conceptual
Mechanical waves
37. How much heat does a 40W bulb generate in 1 hour?
(1) 144000 J
(2) 144 J
(3) 1.44 J
(4) 14 J

Answer (1)
Conceptual
Power $=40 \mathrm{~W}$
Time $=1$ hour $=3600 \mathrm{sec}$
Energy $=40$ (3600)
$=144000 \mathrm{~J}$

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38. Three bulbs are rated 40W, 60W and 100W. Which bulb will glow brightly if they are connected in series across a 220 V source?
(1) 40W
(2) 60 W
(3) 100 W
(4) All will glow equally bright

Answer (1)
Conceptual


Rater power
$P_{1}=40 W, R_{1}=\frac{V^{2}}{40}$
$P_{2}=60 W, R_{2}=\frac{V^{2}}{60}$
$P_{3}=100 \mathrm{~W}, R_{3}=\frac{V^{2}}{100}$
Voltage is divided in the ratio of resistance

$$
P_{1}^{\prime}: P_{2}^{\prime}: P_{3}^{\prime}=i^{2} R_{1}: i^{2} R_{2}: i^{2} R_{3}
$$

Power generated $=R_{1}: R_{2}: R_{3}$

$$
=\frac{1}{40}: \frac{1}{60}: \frac{1}{100}=15: 10: 6
$$

$\therefore$ Bulb of 40 w glows brighter
39. A device which uses the phenomenon of mutual induction is
(1) AC generator
(2) DC generator
(3) Induction coil
(4) Transformer

Answer (4)
Conceptual
Transformer
40. Indian Regional Navigation Satellite System (IRNSS) has a group of $\qquad$ satellites
(1) 3
(2) 5
(3) 7
(4) 9

Answer (3)
41. Using the digits $1,2,3,4,5$ without repetition, 120 five - digit numbers can be made. How many five - digit numbers can be made using the digits $0,1,2,3,4$ without repletion?
(1) 120
(2) 100
(3) 96
(4) 24

## Answer (3)

Solution


$$
4 \times 4 \times 3 \times 2 \times 1=96
$$

Zero can't come at $1^{\text {st }}$ place, so 4 choices
42. In the arithmetic sequence $\frac{3}{4}, 1 \frac{1}{2}, 2 \frac{1}{4}, \ldots$ at which position does a perfect square appear first?
(1) 192
(2) 108
(3) 48
(4) 12

## Answer (2)

## Solution

$\frac{3}{4}, \frac{6}{4}, \frac{9}{4}, \frac{12}{4} \ldots \frac{36}{4} 12^{\text {th }}$ term

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43. How much more is the sum of the first 40 terms of the arithmetic sequence $11,21,31 \ldots$ then the sum of the first 40 terms of the arithmetic sequence $12,23,34 \ldots$ ?
(1) 1600
(2) 820
(3) 780
(4) 40

Answer (2)
Solution
$S_{40}=\frac{40}{2}(2 \times 11+39 \times 10)$
$S_{40}=\frac{40}{2}(2 \times 12+39 \times 11)$
$S_{40}-S_{40}=\frac{40}{2}(2 \times 1+39 \times 1)=820$
44. The difference of the squares of two natural numbers is 101 . What is the sum of their squares?
(1) 5000
(2) 5100
(3) 5101
(4) 5102

Answer (3)
Solution
$a^{2}-b^{2}=(a-b)(a+b)=101 \times 1$
$a+b=101$
$a-b=1$
$\Rightarrow a=51, b=50$
45. Each three - digit numbers is written in a paper slip and put in a box. If one slip is drawn form it, what is the probability of its being a multiple of 9 which ends in 5 ?
(1) $\frac{1}{9}$
(2) $\frac{1}{18}$
(3) $\frac{1}{90}$
(4) $\frac{1}{100}$

Answer (3)
Solution
Multiple of ends in s mean add multiple of 45
$a=135, d=90 ;$ an = 945
$945=135+(n-1) d ; d=90$
$\Rightarrow n=10$
$\therefore$ Probability $=\frac{10}{900}=\frac{1}{90}$
46. What number added to the polynomial $3 x^{2}+5 x$ gives the square of a first degree polynomial?
(1) $\frac{25}{12}$
(2) $\frac{25}{24}$
(3) $\frac{25}{36}$
(4) $\frac{25}{48}$

Answer (1)
Solution
$3\left(x^{2}+\frac{5 x}{3}\right)=3\left(x^{2}+\frac{5 x}{36}+\frac{25}{2}\right)-3 x \frac{25}{36}$
$\therefore A n s=\frac{25}{12}$
47. In the polynomial $p(x)=x^{2}-10 x+2$ what number should be taken as x to get the least possible number at $\mathrm{p}(\mathrm{x})$ ?
(1) 10
(2) 5
(3) 0
(4) -5

## Answer (2)

Solution
$x^{2}-10 x+2=x^{2}-10 x+25-23=(x-5)^{2}-23$ Minimum at $\mathrm{x}=5$

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48. If all real numbers are taken as x , what is the smallest number got as $|x-1|+|x-2|+|x-4|$ ?
(1) 1
(2) 2
(3) 3
(4) 4

## Answer (2)

Solution
$|x-1|+|x-2|+|x-4|$ is minimum at $\mathrm{x}=\mathrm{s}$
$\therefore$ Smallest value $=3$
49. The areas of two squares are in the ratio $a$ : $b$ and their perimeters are in the ration $b: 8 a$. What is the ratio of their sides?
(1) $1: 8$
(2) $1: 4$
(3) $1: 2$
(4) $1: \sqrt{2}$

Answer (3)
Solution
$\frac{A_{1}}{A_{2}}=\frac{a}{b} \& \frac{P_{1}}{P_{2}}=\frac{b}{8 a}$
$\Rightarrow \frac{a^{2}}{a^{2}}=\frac{a}{b}$
$\Rightarrow \frac{a}{b}=\left(\frac{b}{8 a}\right)^{2}$
$\Rightarrow \frac{a}{b}=\frac{1}{4}$
50. The sum of a number and its reciprocal is 4 . What is their difference?
(1) $\sqrt{2}$
(2) $\sqrt{3}$
(3) $2 \sqrt{2}$
(4) $2 \sqrt{3}$

Answer (4)
Solution
$x+\frac{1}{x}=4$
$x-\frac{1}{x}=\sqrt{\left(x+\frac{1}{x}\right)^{2}-4}$
51. Which of the polygons given below cannot be drown by joining the numbers on a clock?
(1) Equilateral triangle
(2) Square
(3) Regular pentagon
(4) Regular hexagon

Answer (2)
Solution
12 is divisible by $2,3, \& 6$ but net by 5 regular pentagon
52. The angles of a cyclic quadrilateral are in one of the ratios given below. Which is it?
(1) 1:2:3:4
(2) $2: 1: 3: 4$
(3) 1:3:2:4
(4) $1: 4: 3: 2$

Answer (2)
Solution
If ratio of angle are $\mathrm{a}: \mathrm{b}$ : C : d then $\mathrm{a}+\mathrm{c}$ must equal to $\mathrm{b}+\mathrm{d}$ so 2: 1:3:4
53. The angles of a 15 -sided polygon are in arithmetic sequence. Which of those given below is an angle of this polygon?
(1) $128^{\circ}$
(2) $130^{\circ}$
(3) $132^{\circ}$
(4) $156^{\circ}$

## Answer (4)

## Solution

$\frac{15}{2}(2 a+14 d)=180 \times 13$
$=>a+7 d=156$

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54. The bisectors of $\angle A$ and $\angle B$ of the triangle $A B C$ meet at P and $\mathrm{PQ}, \mathrm{PR}$ are parallel to AC and BC


The perimeter of triangle PQR is 30 centimeters. What is the length of $A B$ ?
(1) 20
(2) 25
(3) 30
(4) 45

## Answer (3)

## Solution

$P Q \| A C$
$=>\angle 1=\angle 2$
$=P Q=A Q$
Similarly, $\mathrm{PR}=\mathrm{BR}$
$\therefore \mathrm{AB}=30$

55. $A B C$ is an equilateral triangle and the points $P, Q, R$ divided to sides $A B, B C, C A$ in the ratio $1: 2$


If the area of triangle PQR is 60 square centimeters, what is the area of triangle ABC ?
(1) 180
(2) 150
(3) 120
(4) 90

Answer (1)
Solution

$$
\begin{aligned}
& \frac{\operatorname{ar} \triangle A B C}{\operatorname{ar} \triangle P Q R}=\left(\frac{A C}{P R}\right)^{2} \\
& =\left(\frac{3 K}{\sqrt{3} K}\right)^{2}=3 \\
& \therefore \operatorname{ar} \triangle A B C=180
\end{aligned}
$$


56. In the picture, a diameter of the circle and a chord perpendicular to it are drawn


The length of the chord is 24 centimeters and it cuts the diameter in the ratio $9: 1$. What is the diameter in counters?
(1) 20
(2) 30
(3) 40
(4) 60

## Answer (3)

Solution
$3 \mathrm{k}=12$
$\Rightarrow \mathrm{k}=4$
$\Rightarrow \quad \therefore \mathrm{d}=10 \mathrm{k}=40$


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57. In the picture, chords $A B$ and $C D$ of the circle are extended to meet at $P$ and the chords $A D$ and $B C$ intersect at $Q$


The central angle of the smaller arc AC is $120^{\circ}$ and the central angle of the smaller arc BC is $30^{\circ}$ what are $\angle A P C$ and $\angle A Q C$ ?
(1) $15^{\circ}, 60^{\circ}$
(2) $45^{\circ}, 75^{\circ}$
(3) $40^{\circ}, 80^{\circ}$
(4) $50^{\circ}, 80^{\circ}$

Answer (2)
Solution
Angle made by AC at circumference
$\frac{120^{\circ}}{2}=60^{\circ}$
$\therefore 45^{\circ}$ and $75^{\circ}$

58. In the picture, $A B$ and $C D$ are diameters of the circle and $E$ is a point on the circle


The diameter of the circle is 6 centimeters. What is the length of $D E$ ?
(1) $2 \sqrt{3}$
(2) $3 \sqrt{3}$
(3) $4 \sqrt{3}$
(4) $6 \sqrt{3}$

Answer (2)
Solution
$\mathrm{DE}=$ distance between $(0,-3)$ and $\left(\frac{-3 \sqrt{3}}{2}, \frac{3}{2}\right)$

59. An exterior angle of a regular polygon is $36^{\circ}$ and one of its longest diagonals is 10 centimeters what is its perimeter?
(1) $100 \sin 18^{\circ}$
(2) $100 \sin 36^{\circ}$
(3) $100 \sin 54^{\circ}$
(4) $100 \sin 72^{\circ}$

## Answer (2)

Solution

$$
\begin{aligned}
& \frac{360^{\circ}}{n}=36^{\circ} \\
& =>n=10 \\
& \frac{x}{\sin 36^{\circ}}=\frac{x}{\sin 72^{\circ}} \\
& \Rightarrow x=\frac{5}{2 \cos 36^{\circ}}=\frac{5}{2} \sin 54^{\circ}
\end{aligned}
$$



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60. In the trapezium shown below, the longer of the parallel sides is three times the shorter


If a point is marked within the trapezium, what is the probability that it would be within the shaded triangle?
(1) $\frac{1}{2}$
(2) $\frac{2}{3}$
(3) $\frac{3}{4}$
(4) $\frac{4}{5}$

Answer (3)
Solution

$$
\frac{\frac{1}{2} \times h \times 3 a}{\frac{1}{2} \times h \times(3 a+a)}=\frac{3}{4}
$$


61. The practice of land grants in India was started by
(1) Cholas
(2) Pandyas
(3) Satavahanas
(4) Gupatas

Answer (4)
62. Rearrange chronologically
(a) Fall of Bastille
(2) Oath of Tennis court
(3) National Assembly
(d) Execution of Louis X VI
(1) $a b c d$
(2) cabd
(3) b c a d
(4) dabc

Answer (3)
63. Which among the following is the holy book of Buddhism?
(1) Purvas
(2) Angas
(3) Tripitakas
(4) Zend Avesta

Answer (3)
64. Which among the following is not correctly matched
(1) Mrichckatikam - Sudraka
(2) Svapnavasavadatta - Bhasa
(3) Devichandraguptam - Bharavi
(4) Dasakumaracharita - Dandi

Answer (3)
65. Who among the following was the God of 'Marutam' as recorded in old Tamil literature?
(1) Cheyon
(2) Mayon
(3) Kottavai
(4) Ventan

Answer (4)
66. Which is the correct chronological order of the following events?
(a) Quit India Movement
(b) Salt Satyagraha
(c) Jallianwala Bagh Tragedy
(d) Naval Mutiny
(1) abdc
(2) b c a d
(3) c b a d
(4) d c b a

Answer (3)
67. The term 'tithe' stands for
(1) Tax levied by the Church
(2) Tax levied by the state
(3) Tax levied by the feudal lord (4) Tax on animal Answer (1)

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68. Mahadandanayaka under the Gupat rule was taking car of
(1) Revenue
(2) Police
(3) Judiciary
(4) Army

Answer (3)
69. Terms 'Zat' and 'Sawar' are related to
(1) Iqta system
(2) Jagirdari system
(3) Ryotwari system
(4) Mansabdari system
Answer (4)
70. 'The Fat Map' was
(1) An atom bomb
(2) A ship
(3) A code name of the Gestapo
(4) Name of an autobiography

Answer (1)
71. Which among the following is connected with the idea of 'Village Automy'?
(1) Sivaji
(2) Krishna Deva Raya
(3) Chola administration
(4) Sultanate of Delhi

Answer (3)
72. The film 'Grand Illusion' tells the story of
(1) The French Revolution
(2) The Russian Revolution
(3) The First World War
(4) the Second World War

Answer (3)
73. Which among the flowing water ways is considered as National water Way 1?
(1) The Brahmaputra river between Sadiya and Dhubri
(2) The West coast canal in Kerala
(3) The Ganga river between Allahabad and Haldia
(4) Buckingham canal of Andhra Pradesh

## Answer (3)

74. The industries which supply their products as raw materials for other industries are called as
(1) Consumer good industries
(2) Basic industries
(3) Footloose industries
(4) Agro - bases industries

Answer (2)
75. The finest iron ore with more the $70 \%$ iron content is
(1) Hematite
(2) Magnetite
(3) Limonite
(4) Siderite

Answer (2)
76. Manikaran in Himachal Pradesh is know for
(1) Geo - thermal energy project
(2) Thermal power project
(3) Nuclear energy project
(4) Hydel power project

Answer (1)
77. Jhumming refers to
(1) Primitive subsistence framing
(2) Commercial framing
(3) Intensive subsistence farming
(4) Dairy farming

Answer (1)
78. Identify the terms used to denote the following and choose the correct order from those given
(i) Species which are in the danger of extinction
(ii) Species with a small population
(iii) Species with are found only in some particular areas usually isolated by Geographical barriers
(iv) Species which are not found after searches in known or likely areas where they may occur
(1) (i) Rare species
(ii) Endangered species
(iii) Extinct species
(iv) Endemic species
(2) (i) Endangered species
(ii) Rare species
(iii) Endemic species
(iv) Extinct species
(3) (i) Endemic species
(ii) Extinct species
(iii) Endangered species
(iv) Rare species
(4) (i) Extinct species
(ii) Endangered species
(iii) Endemic species
(iv) Rare species

Answer (2)

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79. Which among the following are considered as international resource?
(1) Forests
(2) Wildlife
(3) Oceanic resources beyond 200km form the coast of each country
(4) All oceanic resources

Answer (3)
80. Identify the country which is large then India, in land area, but smaller then Brazil
(1) Canada
(2) USA
(3) Australia
(4) China

Answer (3)
81. In the Northern Plains 'Kankar' formations are common among
(1) Khadar
(2) Bhangar
(3) Bhabhar
(4) Tarai

Answer (2)
82. Match the following and choose the correct combination
(a) Malabar Coast
(i) Paradip
(b) North Circar
(ii) Chennai
(c) Coromandal Coast
(iii) Kochi
(d) Konkan Coast
(iv) Mumbai
(1) $A$ - i B - ii C - iv D - iii
(2) $A-i B-i i C-i i i D-i v$
(3) $A-$ iv $B-$ iii $C-$ ii $D-I$
(4) $A-$ iii $B-i C-i i D-$ iv

Answer (4)
83. One among the following features is not related to river Godavari. Dignify it
(1) 1500 km in length
(2) Originates from mahabaleswar
(3) Know as Dakshin Ganga
(4) the largest peninsular river

Answer (1)
84. 'Loo' is a phenomenon in India during
(1) Hot weather season
(2) Cold weather season
(3) South west monsoon season
(4) North east monsoon season

Answer (1)
85. Fiscal deficit may leas to
(a) Increased debt
(b) Interest payments obligation
(c) Current account deficit
(d) Capital formation alone
(1) a, b and c are correct
(2) c and d are correct
(3) b and c are correct
(4) only d is correct

Answer (2)
86. Mudra Yojana provides financial assistance to
(1) Exports only
(2) Big industrialists only
(3) Micro and small entrepreneurs
(4) Scientific experiment

Answer (3)
87. Stand - up India scheme is promoted by
(1) SIDBI
(2) NABARD
(3) SBI
(4) RBI

Answer (1)
88. Second generation economic reforms means
(1) Commodity market reforms
(2) Reforms introduced in 1991
(3) Financial sector reforms
(4) Reforms in factor and input markets

## Answer (2)

89. Goods and Service Tax (GST) consists of
(a) Central GST
(b) State GST
(c) Interstate GST
(1) a only
(2) b only
(3) c only
(4) both a and b

Answer (4)

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90. W.T.O is a
(1) Multilateral trade negotiation system
(2) (2) Bilateral trade negotiation system
(3) Forum for trade agreements between LDCs
(4) Forum for trade agreements between developed countries

## Answer (1)

91. Reverse Repo rate is
(1) Rate at which commercial banks lend to Central Bank
(2) Rate at which central banks lend to commercial banks
(3) Rate at which governments lands to NBFI is
(4) Rate at which governments land to farmers

## Answer (1)

92. Personal income is estimated by
(1) Dividing national income by population
(2) Adding all factor incomes
(3) Adding all factor incomes and transfer payments
(4) Adding all factor incomes minus transfer payments

## Answer (3)

93. The system of power sharing by different groups is known as
(1) Social Government
(2) Community government
(3) Local Self Government
(4) Coalition Government

Answer (2)
94. The Article to the Indian Constitution which deals with the Panchayats
(1) 246
(2) 245
(3) 244
(4) 243

Answer (4)
95. The state in which 'Kittiko - Hachchiko' Movement was started?
(1) Andhra Pradesh
(2) Karnataka
(3) Telengana
(4) Maharashtra

## Answer (2)

96. Identify the secular states
(1) Sri Lanka and India
(2) Pakistan and Ireland
(3) India and Nepal
(4) Britan and Afghanistan

Answer (3)
97. Which of following is not a feature of Bureaucracy?
(1) Permanently appointed
(2) Appointed on the basis of qualification
(3) Politically not neutral
(4) Skilled in their work

Answer (3)
98. Few subjects in the Union List, State List and Concurrent List are given below. Identify the concurrent subjects
(a) Currency
(b) Education
(c) Foreign Affairs
(d) Forest
(1) b and d
(2) a and d
(3) a and c
(4) b and

Answer (1)
99. Apartheid means
(1) Religious discrimination
(2) Communal discrimination
(3) Caste discrimination
(4) Racial discrimination

Answer (4)
100. Which part of the Constitution of India contains Fundamental Duties?
(1) Part - II
(2) Part - III
(3) Part - IV
(4) Part - IV A

Answer (2)

