

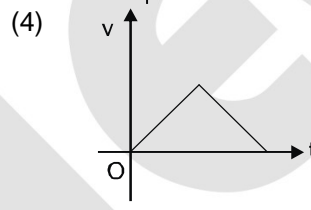
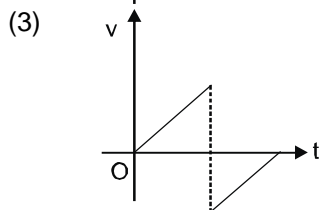
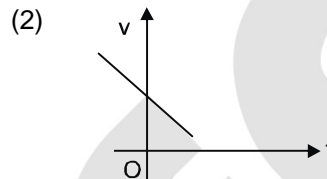
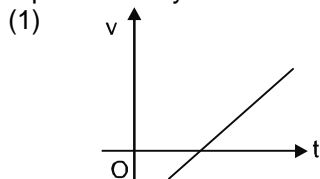
NTSE-2014 (Stage-I) SOLUTIONS

SAT

Time allowed : One & half hours (90 Minutes)

Maximum Marks : 90

1. The velocity-time graph of a body falling from rest under gravity and rebounding from a solid surface is represented by :



Ans. (3)

Sol. Slope of velocity-time graph gives acceleration which is constant and equal to 'g' in the situation given so graph should be a straight line.

2. The gravitational force between two objects of mass 1 kg each, separated by a distance of 1m in vacuum will be :

(1) zero (2) 6.675×10^{-11} N (3) 13.350×10^{-11} N (4) 3.337×10^{-11} N

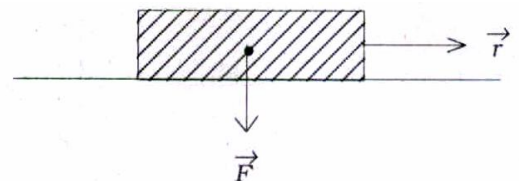
Ans. (2)

Sol. As we know,

$$\begin{aligned}
 F &= \frac{GM_1M_2}{r^2} \\
 &= \frac{6.67 \times 10^{-11} \times 1 \times 1}{(1)^2} \\
 &= 6.67 \times 10^{-11} \text{ N}
 \end{aligned}$$

3. The force F is acting on an object of mass m . The direction of displacement (\vec{r}) and force (\vec{F}) of the object is shown by an arrow to the right side. Work done by the force will be :

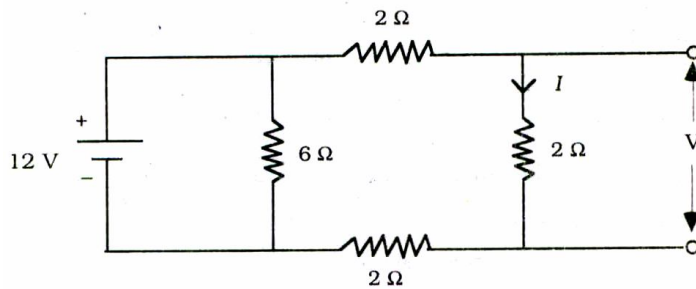
(1) positive (2) negative
(3) zero (4) either positive or negative



Ans. (3)

Sol. As \vec{F} is perpendicular to \vec{r} so work done is zero.

4. The value of current I and voltage V in the given circuit will be :



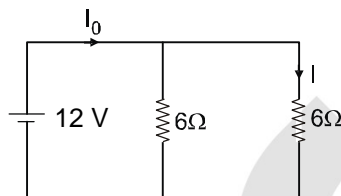
- Ans. (1) 2A, 4V (2) 4A, 2V (3) 1A, 2V (4) 2A, 1V

Sol. as per question $R_{eq} = 3\Omega$

$$I_0 = \frac{12}{3} = 4A$$

$$\Rightarrow I = \frac{4}{2} = 2A$$

So, $V_{2\Omega} = I \times (2)$
 $= 2 \times 2 = 4 \text{ volt}$



5. Lenz's law is a consequence of the law of conservation of
 (1) momentum (2) charge
 (3) angular momentum (4) energy

Ans. (4)

Sol. Lenz's law is based on law of conservation of energy

6. For hearing distinct echoes, the minimum distance of the obstacle from the source of sound must be
 (Given velocity of sound = 344 m/s)

- (1) 17.2 m (2) 34.4 m (3) 172 m (4) 344 m

Ans. (1)

Sol. To hear an echo, we have

$$\frac{2d_{min}}{V} = \frac{1}{10} \text{ (persistence of human ear)}$$

$$\Rightarrow d_{min} = 17.2 \text{ m}$$

7. Three equal resistors connected in series across a source of V voltage together dissipates 5W power. If the same resistors are connected in parallel across the same source of voltage V , the power dissipated will be :

- (1) 20 W (2) 25 W
 (3) 40 W (4) 45 W

Ans. (4)

Sol. As per question $P = 5W = \frac{V^2}{3R}$ (i)

$$P' = \frac{V^2}{R/3} = \frac{3V^2}{R}$$

.....(ii)

From (i) and (ii)

$$P' = 45 \text{ W}$$

8. Every hot object emits
 (1) infrared rays (2) visible rays
 (3) X-rays (4) ultraviolet rays

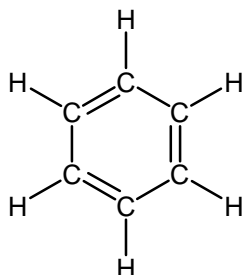
Ans. (1)

Sol. Every hot object emits infrared rays

9. A bullet of mass 10 g travelling horizontally with a velocity of 160 ms^{-1} strikes a stationary wooden block and comes to rest in 0.02 s. The distance of penetration of the bullet into the block will be :
 (1) 1.20 m (2) 1.60 m (3) 2.00 m (4) 2.40 m
- Ans. (2)**
Sol. As per question $v = u + at$
 $\Rightarrow 0 = 160 + a(0.02)$
 $\Rightarrow a = -\frac{160}{0.02} = -8000 \text{ m/s}^2$
 So, now $S = U + \frac{1}{2}at^2$
 $= 160 \times 0.02 - \frac{1}{2}(8000)(0.02)^2$
 $= 3.2 - 1.6 = 1.6 \text{ m}$
10. The correct relation between u, v and r for a lens will be (symbols represent traditional meaning)
 (1) $r = \frac{2uv}{u-v}$ (2) $r = \frac{uv}{2(u-v)}$ (3) $r = \frac{1}{u+v}$ (4) $\frac{1}{r} = \frac{1}{u} + \frac{1}{v}$
- Ans. (1)**
Sol. As we know Len's formula is
 $\frac{1}{v} - \frac{1}{u} = \frac{1}{f} = \frac{2}{R}$
 $\Rightarrow r = \frac{2uv}{u-v}$
11. When a body is immersed in a liquid, the buoyant force that acts on the body will be :
 (1) vertically downwards (2) vertically upwards (3) horizontally right side (4) horizontally left side
- Ans. (2)**
Sol. Buoyant force acts vertically upwards
12. The distance between the objective lens and the eye-piece of an astronomical telescope will be :
 (1) $\frac{f_o}{f_e}$ (2) $\frac{f_e}{f_o}$ (3) $f_o + f_e$ (4) $f_o - f_e$
- Ans. (3)**
Sol. The distance between the objective lens and the eye-piece of an astronomical telescope is $f_o + f_e$
13. Salt made of non-metallic elements only is :
 (1) NaCl (2) NH_4Cl (3) AlN (4) MgCl_2
- Ans. (2)**
Sol. N, H & Cl are non-metals.
14. By which property are gases and liquids different from solids ?
 (1) Volume (2) Mass (3) Conductivity (4) Fluidity
- Ans. (4)**
Sol. Fluidity is the property of liquid and gas not solid.
15. The action of cleaning of oily dirt by soap is based on :
 (1) solubility in water
 (2) hydrophilic property
 (3) hydrophobic property
 (4) presence of both hydrophilic and hydrophobic groups
- Ans. (4)**
Sol. In soap, both hydrophilic and hydrophobic groups are present. Hydrophilic part attached with water & hydrophobic attached with dirt.
16. Adding an alpha particle to nucleus of sodium atom, product will be :
 (1) Na^+ (2) Mg^{2+} (3) Al^{2+} (4) Al
- Ans. (4)**
Sol. ${}_{11}\text{Na}^{23} + {}_2\text{He}^4 \longrightarrow {}_{13}\text{Al}^{27}$

17. Benzene has number of covalent bonds.
 (1) 6 (2) 9 (3) 12 (4) 15

Ans. (4)
 Sol.



Total number of covalent bonds = 15

18. False statement for second period elements is :
 (1) change in number of electrons produces ions
 (2) numbers of protons and electrons are equal in neutral atom
 (3) number of neutrons is less than the number of protons in atoms
 (4) change in the number of neutrons in atom produces isotopes

Ans. (3)

Sol. Number of neutron may be greater than or equal to number of proton in 2nd period elements.

19. Which metal cannot displace hydrogen from dilute acids ?
 (1) Cu (2) Mg (3) Zn (4) Na

Ans. (1)

Sol. In reactivity series, Cu is present below the H atom so it can not displace H₂ from acid.

20. At room temperature liquid non-metal is :
 (1) carbon (2) bromine (3) mercury (4) iodine

Ans. (2)

Sol. Bromine is liquid at room temperature.

21. Neutronless neutral atom is :
 (A) H (2) He (3) Na (4) K

Ans. (1)

Sol. Number of neutron in hydrogen is zero.

22. Displacement reaction is :
 (A) $\text{CaO (s)} + \text{H}_2\text{O (l)} \rightarrow \text{Ca (OH)}_2 \text{ (aq)}$
 (2) $\text{Pb (s)} + \text{CuCl}_2 \text{ (aq)} \rightarrow \text{PbCl}_2 \text{ (aq)} + \text{Cu (s)}$
 (3) $\text{MnO}_2 \text{ (s)} + 4\text{HCl (l)} \rightarrow \text{MnCl}_2 \text{ (s)} + 2\text{H}_2\text{O (l)} + \text{Cl}_2 \text{ (g)}$
 (4) $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + \text{H}_2\text{O}$

Ans. (2)

Sol. $\text{Pb(s)} + \text{CuCl}_2\text{(aq)} \longrightarrow \text{PbCl}_2\text{(aq)} + \text{Cu(s)}$

It is the example of single displacement reaction.

23. pH of soda-water is :
 (A) 7 (2) < 7 (3) > 7 (4) 0

Ans. (2)

Sol. Soda water \Rightarrow CO₂ present in H₂O (pH < 7 for H₂CO₃)

24. Three crops that contribute maximum to global food grain production are :
 (1) Wheat, Rice and Maize (2) Wheat, Rice and Barley
 (3) Wheat, Maize and Sorghum (4) Rice, Maize and Sorghum

Ans. (1)

Sol. Wheat, Rice and Maize are the three crops that contribute maximum to global food grain production.

25. Cell organelle 'Bioplast' was given another name by Benda, which is :
 (1) Chloroplast (2) Mitochondria (3) Ribosome (4) Lysosome

Ans. (2)

Sol. Term mitochondria was coined by Benda.

26. In plants abscisic acid controls :
 (1) growth in shoot (2) flower formation (3) cell division (4) fall of leaf
Ans. (4)
Sol. Leaf fall is controlled by abscisic acid by formation of Abscission layer.
27. The source of energy in any star is :
 (1) Nuclear fission reaction (2) Nuclear fusion reaction
 (3) Solar energy (4) Fossil fuel
Ans. (2)
Sol. Nuclear fusion is source of energy in any star.
28. The use of disposable paper-cups is more beneficial over disposable plastic-cups, because :
 (1) It is cheaper
 (2) It is easily available
 (3) It can be reused
 (4) Its recycling process has no harmful impact on environment
Ans. (4)
Sol. Disposable paper cups are biodegradable so their recycling process has no harmful impact on environment.
29. The endosperm of angiosperms is :
 (1) haploid (2) diploid (3) triploid (4) polyploidy
Ans. (3)
Sol. In Angiosperm male gamete (n) fuse with central cell (n + n) to form triploid endosperm (3n).
30. The author of the book 'Systema Naturae' is :
 (1) Lamarck (2) Darwin (3) Theophrastus (4) Carolus Linnaeus
Ans. (4)
Sol. Systema Naturae was written by Carolus Linnaeus.
31. In which of the following animals jointed legs are not found ?
 (1) Palaemon (2) Scorpion (3) Housefly (4) Leech
Ans. (4)
Sol. Leech, being an Annelid, does not have jointed appendage.
32. Which of the following diseases is not related with sexual transmission ?
 (1) syphilis (2) Gonorrhoea
 (3) Allergy (4) AIDS
Ans. (3)
Sol. Syphilis, gonorrhoea and AIDS are sexually transmitted diseases where as Allergy is not a sexually transmitted disease.
33. Which of the following enzymes is related with digestion of protein ?
 (1) Lipase (2) Pepsin (3) Sucrase (4) Amylase
Ans. (2)
Sol. Pepsin helps in protein digestion in stomach.
34. The structure that connects a bone with muscles is known as :
 (1) Tendon (2) Cartilage
 (3) Ligament (4) Areolar tissue
Ans. (1)
Sol. Tendon, connect Bone to Muscle.
35. Cell organelle that allows certain substances to enter or come out from the cell is :
 (1) Ribosome (2) Plasma membrane
 (3) Centrosome (4) Golgi body
Ans. (2)
Sol. Plasma membrane being selectively permeable helps in movement of certain substance in and out of the cell.

36. If x, y, z are positive real numbers and a, b, c are rational numbers, then the value of $\frac{1}{1+x^{b-a}+x^{c-a}} + \frac{1}{1+x^{a-b}+x^{c-b}} + \frac{1}{1+x^{b-c}+x^{a-c}}$ is :
- (1) -1 (2) 0 (3) 1 (4) none of these

Ans. (3)

Sol.
$$\frac{1}{1+x^{b-a}+x^{c-a}} + \frac{1}{1+x^{a-b}+x^{c-b}} + \frac{1}{1+x^{b-c}+x^{a-c}}$$

$$= \frac{x^a}{x^a+x^b+x^c} + \frac{c^b}{x^a+x^b+x^c} + \frac{c^x}{x^a+x^b+x^c}$$

$$= 1$$

37. If 3 is the least prime factor of number a and 7 is the least prime factor of number b , then the least prime factor of $a + b$ is :

- (1) 2 (2) 3 (3) 5 (4) 10

Ans. (1)

Sol. a & b are odd numbers so $a + b$ is even, so least prime factor of $a + b$ is 2

38. If 9, $a, b, -6$ are in Arithmetic progression, then $a + b =$

- (1) 1 (2) 5 (3) 15 (4) 3

Ans. (4)

Sol. $a + b = 9 - 6$
 $= 3$

39. If 2 is a root of the equation $x^2 + bx + 12 = 0$ and the equation $x^2 + bx + q = 0$ has equal roots, then $q =$

- (1) 8 (2) -8 (3) 16 (4) -16

Ans. (3)

Sol. $4 + 2b + 12$
 $b = -8$
then $x^2 - 8x + q = 0$
 $64 - 4q = 0$
 $64 = 4q$
 $q = 16$

40. If $\sin \theta - \cos \theta = \sqrt{2} \sin(90^\circ - \theta)$, then $\tan \theta =$

- (1) $\sqrt{2} - 1$ (2) $\sqrt{2}$ (3) $1 - \sqrt{2}$ (4) $\sqrt{2} + 1$

Ans. (4)

Sol. $\sin \theta - \cos \theta = \sqrt{2} \sin(90 - \theta)$
 $\sin \theta - \cos \theta = \sqrt{2} \cos \theta$
 $\sin \theta = (\sqrt{2} + 1) \cos \theta$
 $\tan \theta = \sqrt{2} + 1$

41. If $a \cos \theta - b \sin \theta = c$, then $a \sin \theta + b \cos \theta =$

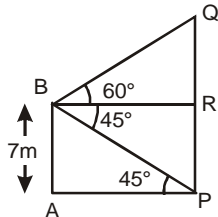
- (1) $\pm\sqrt{a^2 + b^2 + c^2}$ (2) $\pm\sqrt{a^2 + b^2 - c^2}$
(3) $\pm\sqrt{c^2 - a^2 - b^2}$ (4) None of these

Ans. (2)

Sol. $a \cos \theta - b \sin \theta = c$
Let $a \sin \theta + b \cos \theta = x$
squaring and adding
 $a^2 + b^2 = c^2 + x^2$
 $x = \pm\sqrt{a^2 + b^2 - c^2}$

42. From the top of a 7 m high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45° . The height of the tower in metre is :
 (1) $7(\sqrt{3}-1)$ (2) $7\sqrt{3}$ (3) $7+\sqrt{3}$ (4) $7(\sqrt{3}+1)$

Ans. (4)
 Sol.



$BR = AP = 7$

$\tan 60^\circ = \frac{x}{7}$

$\sqrt{3} = \frac{x}{7} \Rightarrow 7\sqrt{3} = x$

$PQ = 7\sqrt{3} + 7 = 7(\sqrt{3} + 1)$

43. If the system of equations $kx + 3y - (k - 3) = 0$, $12x + ky - k = 0$ has infinitely many solutions, then $k =$
 (1) 6 (2) -6 (3) 0 (4) None of these

Ans. (1)
 Sol.

$kx + 3y - (k - 3) = 0$

$12x + ky - k = 0$

$\frac{k}{12} = \frac{3}{k} = \frac{-(k-3)}{-k} = \frac{k-3}{k}$

$k^2 = 36$

$k = \pm 6$

$k = -6$ is not possible so $k = 6$

44. The median of first 12 prime numbers is :
 (1) 13 (2) 14 (3) 15 (4) 17

Ans. (3)
 Sol.

First 12 prime numbers = 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37

median = $\frac{13+17}{2} = 15$

45. A die is thrown twice. The probability that 5 will not come up either of the time is :

- (1) $\frac{35}{36}$ (2) $\frac{25}{36}$ (3) $\frac{1}{36}$ (4) $\frac{11}{36}$

Ans. (2)

Sol. Required probability = $\frac{5}{6} \times \frac{5}{6} = \frac{25}{36}$

46. If the diameter of a sphere is decreased by 25%, by what per cent does its curved surface area decrease ?
 (1) 43.75% (2) 21.88% (3) 50% (4) 25%

Ans. (1)
 Sol.

CSA of sphere = $4\pi r^2$

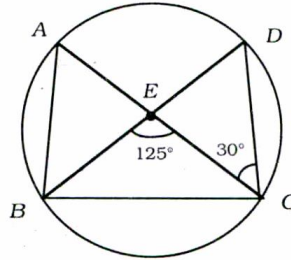
new C.S.A = $4\pi \left(\frac{3r}{4}\right)^2$

= $4\pi r^2 \times \frac{9}{16}$

% decrease = $\frac{4\pi r^2 \left(1 - \frac{9}{16}\right)}{4\pi r^2} \times 100$

= $\frac{700}{16} = 43.75\%$

47. In figure, A, B, C and D are four points on a circle. AC and BD intersect at a point E such that $\angle BEC = 125^\circ$ and $\angle ECD = 30^\circ$. Then $\angle BAC =$



- Ans. (1) 95° (2) 110° (3) 85° (4) 105°
(1)
 Sol. $\angle BAC = 180^\circ - (30^\circ + 180^\circ - 125^\circ)$
 $\angle BAC = 95^\circ$

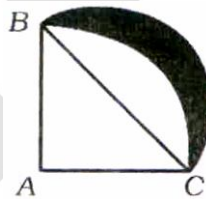
48. ABC and BDE are two equilateral triangles such that D is the mid-point of BC. Ratio of the areas of triangles ABC and BDE is :

- Ans. (1) 2 : 1 (2) 1 : 2 (3) 4 : 1 (4) 1 : 4
(3)
 Sol. $\frac{\text{Ar}(\triangle ABC)}{\text{Ar}(\triangle BDE)}$
 $= \left(\frac{2}{1}\right)^2 = \frac{4}{1}$

49. In $\triangle ABC$, $AB = 6\sqrt{3}$ cm, $AC = 12$ cm and $BC = 6$ cm. The angle B is :

- Ans. (1) 120° (2) 60° (3) 90° (4) 45°
(3)
 Sol. $AC^2 = AB^2 + BC^2$
 $= (6\sqrt{3})^2 + (6)^2$
 $= AC^2 = 144$
 $\therefore \angle B = 90^\circ$

50. In figure, ABC is a quadrant of a circle of radius 14 cm and a semicircle is drawn with BC as diameter. The area of the shaded region is :



- Ans. (1) 98 cm^2 (2) 154 cm^2 (3) 56 cm^2 (4) None of these
(1)

- Sol. Area of shaded region = $\frac{1}{2} \times (7\sqrt{2})^2 \times \frac{22}{7} - \left[\frac{1}{4} \times (14)^2 \times \frac{22}{7} - \frac{1}{2} \times 14 \times 14 \right]$
 $= 98 \text{ m}^2$

51. The ratio of the volume of a cube to that of a sphere which exactly fits inside the cube is :

- Ans. (1) $6 : \pi$ (2) $\pi : 6$ (3) $\pi : 12$ (4) $12 : \pi$
(1)
 Sol. $\frac{\text{Volume of cube}}{\text{Volume of sphere}} = \frac{a^3}{\frac{4}{3}\pi\left(\frac{a}{2}\right)^3} = \frac{6}{\pi}$

52. If α, β are the zeros of polynomial $f(x) = x^2 - p(x + 1) - c$, then $(\alpha + 1)(\beta + 1) =$
 (1) $c - 1$ (2) $1 - c$ (3) c (4) $1 + c$

Ans. (2)

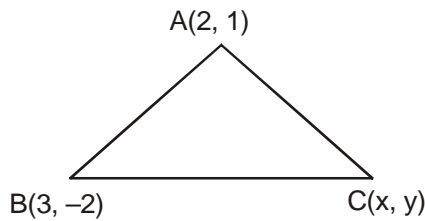
Sol. $\alpha + \beta = p$
 $\alpha \cdot \beta = -p - c$
 $(\alpha + 1)(\beta + 1) = \alpha\beta + (\alpha + \beta) + 1$
 $= p + (-p - c) + 1$
 $= 1 - c$

53. The area of a triangle is 5 square units. Two of its vertices are $(2, 1)$ and $(3, -2)$. The third vertex lies on $y = x + 3$. The third vertex is :

- (1) $\left(\frac{7}{2}, \frac{3}{2}\right)$ (2) $\left(-\frac{3}{2}, \frac{3}{2}\right)$ (3) $\left(-\frac{3}{2}, \frac{13}{2}\right)$ (4) $\left(\frac{7}{2}, \frac{5}{2}\right)$

Ans. (2)

Sol.



$$\text{Area of triangle} = \frac{1}{2} |x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)|$$

$$5 = \frac{1}{2} |2(-2 - y) + 3(y - 1) + x(1 + 2)|$$

$$10 = |-7 + y + 3x|$$

$$\therefore +10 = -7 + y + 3x \quad \dots(1)$$

$$-10 = -7 + y + 3x \quad \dots(2)$$

$$y = x + 3 \quad \dots(3)$$

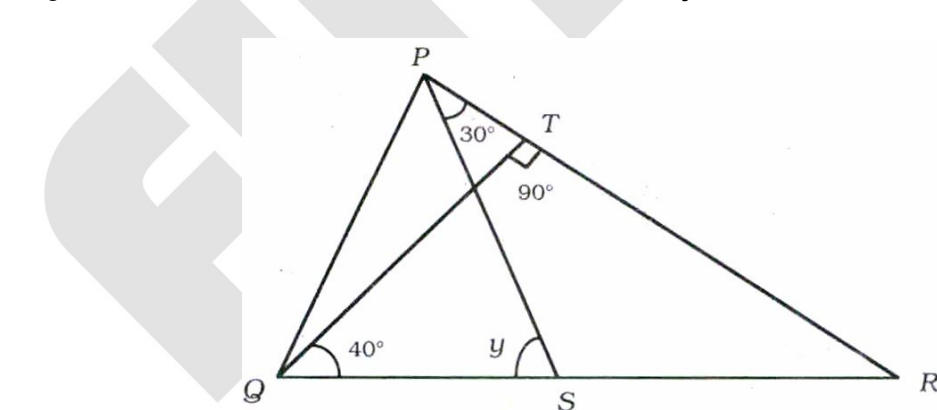
on solving (2) and (3)

$$x = -\frac{3}{2}, y = \frac{3}{2}$$

on solving (1) and (3)

$$x = \frac{7}{2}, y = \frac{13}{2}$$

54. If figure, if $QT \perp PR$, $\angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$, then y is :



- (1) 70° (2) 110° (3) 90° (4) 80°

Ans. (4)

Sol. In triangle TQR, $\angle TRQ = 50^\circ$
 \therefore In $\triangle PSR$,
 $\angle PSQ = \angle y = \angle SPR + \angle PRS$
 $= 30^\circ + 50^\circ = 80^\circ$

55. $(1 + \tan \theta + \sec \theta)(1 + \cot \theta - \operatorname{cosec} \theta)$ is equal to :

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

Ans. (2)

Sol.
$$\left(1 + \frac{\sin \theta}{\cos \theta} + \frac{1}{\cos \theta}\right) \left(1 + \frac{\cos \theta}{\sin \theta} - \frac{1}{\sin \theta}\right)$$
$$= \left(\frac{\cos \theta + \sin \theta + 1}{\cos \theta}\right) \left(\frac{\sin \theta + \cos \theta - 1}{\sin \theta}\right)$$
$$= \frac{\cos^2 \theta + \sin^2 \theta + 2 \sin \theta \cdot \cos \theta - 1}{\cos \theta \cdot \sin \theta} = 2$$

56. The club which was most successful, constituted by the men and women of France, after the Constitution of 1791 was:

- (1) Liberty club (2) Zollverein
(3) Jacobin club (4) Equality club

Ans. (3)

Sol. After the Constitution of 1791; the most successful club was Jacobin, which got its name from the former convent of St. Jacob in Paris.

57. The great Indians who were influenced by the thoughts of French Revolution were:

- (1) Haider Ali & Tipu Sultan (2) Tipu Sultan and Raja Rammohan Roy
(3) Lala Laspata Rai & Tilak (4) Bahadur Shah Jafar & Laxmibai

Ans. (2)

Sol. In India, Raja Rammohan Roy and Derozio talked of the significance of the French Revolution.

58. The use of wood was much needed in 1850s to spread the Indian Railway tracks. It was used:

- (1) In Buildings (2) In Railway wagons
(3) In Furniture (4) In Sleepers

Ans. (4)

Sol. The spread of railways from the 1850s created a new demand. Railways were essential from colonial trade and for the movement of imperial troops.

59. The shepherds of Himachal Pradesh are called:

- (1) Gujjar (2) Gaddi (3) Bakarwal (4) Bhotia

Ans. (2)

Sol. The shepherds of Himachal Pradesh are called Gaddi.

60. The first Indian community to start playing the game of Cricket was:

- (1) Parsee (2) Christian (3) Marathi (4) Bengalee

Ans. (1)

Sol. The first Indian community to start playing the game was the small community of Zoroastrians, the Parsis.

61. The institution like Indian Parliament that was established after the French Revolution in France was:

- (1) Duma (2) Zollverein
(3) House of Lords (4) National Assembly

Ans. (4)

Sol. The institution like Indian Parliament that was established after the French Revolution in France was National Assembly.

62. The founder of 'Hoa-Hao' Movement in Vietnam was:

- (1) Confucius (2) Laotse (3) Huynh Pho So (4) Liang Qichao

Ans. (3)

Sol. The founder of Hoa Hao movement in Vietnam was Huynh Phu so.

63. In which conference were International Monetary Fund and World Bank established?

- (1) Brussels (2) Bretton Woods (3) Vienna (4) Washington

Ans. (2)

Sol. The Bretton woods conference established the International Monetary Fund and World Bank.

64. Bombay was a group of how many islands in 17th Century?

- (1) Seven (2) Nine (3) Eleven (4) Five

Ans. (1)

Sol. In the seventeenth century, Bombay was a group of seven islands under Portuguese control.

65. In which text did Jyotiba Phule write about the injustices of Caste system?
 (1) Amar Jivan (2) Gulamgiri (3) Indirabai (4) Indralkha
Ans. (2)
Sol. Jyotiba Phule, the Maratha Pioneer of low caste protest movements, wrote about the injustices of the caste system in his 'Gulamgiri' (1871).
66. Hill station located in Palani Hills is:
 (1) Panchmarhi (2) Kodaikanal
 (3) Udagamandalam (4) Panchgani
Ans. (2)
Sol. Kodaikanal hill station is located in Palani Hills.
67. The correct pair amongst the following is:
 (1) Chamba-River Chenab (2) Kanchipuram-River Parvati
 (3) Nanded – River Godavari (4) Ujjain – River Son
Ans. (3)
Sol. Chamba is in Himachal Pradesh and located on bank of river Ravi. Ujjain is at the bank of Shipra river. Nanded is at the bank of river Godavari.
68. Match the following columns
Column-I **Column-II**
 (A) Uttarakhand (i) Sariska Wildlife Sanctuary
 (B) Assam (ii) Periyar Tiger Reserve
 (C) Rajasthan (iii) Manas Tiger Reserve
 (D) Kerala (iv) Corbett National Park
- | | A | B | C | D |
|-----|-------|-------|------|-------|
| (1) | (i) | (iii) | (ii) | (i) |
| (2) | (iv) | (ii) | (i) | (iii) |
| (3) | (iii) | (i) | (iv) | (ii) |
| (4) | (iv) | (iii) | (i) | (ii) |
- Ans.** (4)
Sol. Sariska wildlife sanctuary is in Rajasthan, Periyar Tiger Reserve is in Kerala, Manas is in Assam and Corbett National Park is in Uttarakhand.
69. By using code, arrange the following cities of India from south to north:
 (A) Amritsar (B) Anantapur
 (C) Alwar (D) Amaravati
 (1) B, C, D, A (2) B, D, C, A
 (3) D, C, B, A (4) D, B, A, C
Ans. (2)
Sol. Amritsar is in Punjab, Anantapur is in Andhra Pradesh, Alwar is in Rajasthan and Amaravati is in Maharashtra.
70. Mango showers are :
 (1) Western disturbances in Punjab and Himanchal Pradesh
 (2) Rainfall by north-east trade winds in coastal Tamil Nadu
 (3) Pre-monsoon rains in Kerala and Karnataka
 (4) Cloud burst in Khasi hills
Ans. (3)
Sol. Towards the close of the Summer Season, Pre Monsoon showers are common especially in Kerala and Karnataka. They help in the early ripening of mangoes, called mango showers.
71. Consider the following statements:
Assertion (A) : Manganese is used in the manufacturing of steel
Reason (R) : Nearly 10 kilogram of manganese is needed to make one tonne of steel
 Select the correct option from the given alternatives:
 (1) (A) is true, but (R) is false
 (2) Both (A) and (R) are true, but (R) is not the is true, but (R) is false
 (3) Both (A) and (R) are true, but (R) is not the is true, but (R) is false
 (4) Both (A) and (R) are false
Ans. (2)
Sol. Manganese is mainly used in the manufacturing of steel and ferro-manganese alloy. Nearly 10 kg of manganese is required to manufacture one tonne of steel.

72. Where is the national headquarters of Software Technology Park of India?
 (1) Bengaluru (2) Chennai (3) New Delhi (4) Pune

Ans. (1)

Sol. Bangalore has emerged as the electronic capital of India.

73. National Highway-7 passes through how many states of India?
 (1) 6 (2) 5 (3) 8 (4) 7

Ans. (1)

Sol. National Highway 7 passes through 6 states of India. These are : - U.P., M.P., Maharashtra, Andhra Pradesh, Karnataka & Tamil Nadu.

74. Consider the following statements and choose the correct option :
 Statement I : Humus content is less in Laterite soils.
 Statement II : Red laterite soils are suitable for crops of cashewnut.
 Statement III : Laterite soils are found in Kerala and Tamil Nadu
 (1) Statement I and Statement II are true, but Statement III is false
 (2) Statement II and Statement III are true, but Statement I is false
 (3) Statement I and Statement III are true, but Statement II is false
 (4) All the three Statements are true.

Ans. (4)

Sol. Humus content of the laterite soil is low because most of the micro organisms, particularly the decomposers, like bacteria, get destroyed due to high temperature. Found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh, Odisha and Assam. Red laterite soils are suitable for crops of cashewnut .

75. According to Census 2011, the state having highest density of population is
 (1) Kerala (2) West Bengal (3) Uttar Pradesh (4) Bihar

Ans. (4)

Sol. The population density of Indian in the year 2011 was 382 persons per square km. Densities vary from 1, 102 person per sq./km in Bihar to only 17 person per sq./km in Arunachal Pradesh.

76. Match List I with List II and select the correct answer :

| List- I | | List- II | |
|---------|--|----------|----------------------|
| (A) | Division of powers among organs of government | I | Community government |
| (B) | Division of powers between Centre and States | II | Coalition government |
| (C) | Sharing of powers among different social groups | III | Separation of powers |
| (D) | Sharing of powers between two or more than two parties | IV | Federal government |

A B C D
 (1) I II III IV
 (2) III IV I II
 (3) II III IV I
 (4) IV III II I

Ans. (2)

Sol. Divisions of powers among organs called separation of powers, divisions of powers among government called federalism.

77. The organ of government which makes laws is
 (1) Legislature (2) Executive (3) Judiciary (4) Press.

Ans. (1)

Sol. The organ of government which makes law is called legislature.

78. The institution in which $\frac{1}{3}$ rd reservation for woman has been constitutionally given, is

(1) Lok Sabha (2) State Legislature
 (3) Panchayati Raj institution (4) Judiciary

Ans. (3)

Sol. Panchayati Raj or Local self government gives $\frac{1}{3}$ rd reservation to women.

79. Which right of the Constitution of India negates the bonded labour and child labour?
 (1) Right to equality (2) Right to liberty
 (3) Right to religious freedom (4) Right against exploitation.
Ans. (4)
Sol. Right against exploitation of the Constitution of India negates the bonded labour and child labour.
80. How many seats are reserved for Scheduled castes in the Lok Sabha?
 (1) 84 (2) 47 (3) 32 (4) 22
Ans. (1)
Sol. 84 seats are reserved for Scheduled Castes in Lok Sabha.
81. 'Maharashtrawadi Gomantak party' is related to which state?
 (1) Maharashtra (2) Goa (3) Kerala (4) Andhra Pradesh.
Ans. (2)
Sol. Maharashtrawadi Gomantak Party is related to Goa.
82. Who was the editor of 'Young India' magazine?
 (1) Jawaharlal Nehru (2) Gopal Krishna Gokhale
 (3) Mahatma Gandhi (4) Bal Gangadhar Tilak.
Ans. (3)
Sol. Mahatma Gandhi was the editor of 'Young India' magazine.
83. Which country holds 'Veto Power' in United Nations?
 (1) Germany (2) Japan (3) Italy (4) France.
Ans. (4)
Sol. There are 5 countries which holds 'Veto Power' in United Nations. These are U.S. Russia, U.K., France and China.
84. Which state was created on the basis of culture, geography and ethnicity?
 (1) Uttarakhand (2) Punjab (3) Gujarat (4) Maharashtra
Ans. (1)
Sol. Nagaland, Uttarakhand and Jharkhand was created on the basis of culture, geography and ethnicity.
85. Match List-I with List-II and select the correct answer :

| | |
|---|----------------------------|
| List – I | List – II |
| (1) Organisation of employees | (I) Narmada Bachao Andolan |
| (2) Long term movement | (II) Asom Gana Parishad |
| (3) Support to common or general interest | (III) FEDECOR |
| (4) Political party | (IV) BAMCEF |

| | | | | |
|-----|-----|-----|-----|-----|
| | A | B | C | D |
| (1) | III | IV | II | I |
| (2) | I | II | IV | III |
| (3) | IV | I | III | II |
| (4) | II | III | I | IV. |

Ans. (3)
Sol. Organisation of employees was FEDECOR. Long term movement was Narmada Bachao Andolan & Political party is Asom Gana Parishad.
86. Which work of the following is an economic activity?
 (1) Teacher teaches his son
 (2) Service rendered by a wife to her sick husband.
 (C) Service to a patient rendered by a nurse
 (4) Growing vegetables in kitchen garden.
Ans. (3)
Sol. The activities which add value to the national income is called economic activities.
87. People deposit money in the bank because
 (A) Get interest (B) Money remains secured
 (C) Money is used in country's development (D) Value of money increases.
 (1) A and B (2) B and C
 (3) A, B and C (D) A, B, C and D.
Ans. (4)
Sol. People deposit money in the bank because money remains secured and get interest.

88. Which of the following statements are true for National Rural Employment Guarantee Act?

- (A) Right to work with guarantee of job
- (B) 100 days employment in a year
- (C) Implemented in all the regions of the country
- (D) Provision of unemployment allowances.

(1) A, B and C (2) B, C and D (3) A, B and D (D) A, B, C and D.

Ans. (3)

Sol. National Rural Employment Guarantee Act 2005 was passed in September 2005. This Act provides 100 days employment.

89. Since five years Lalita's father is working in Government school as teacher. To purchase goods from a government ration shop which of the following cards should he possess?

- (A) BPL card (B) APL card (C) Andhar card (D) Antyodaya card

Ans. (2)

Sol. There are three kinds of ration cards : - Antyodaya cards, BPL cards and APL cards.

90. Which of the following statement are true for mid-day meal scheme?

- (A) Increase in attendance of children in school
- (B) Improvement in nutrition status of the children
- (C) Improvement in examination results of the children
- (D) Increase the interest towards games in the children.

(1) A and B (B) B and C (C) A and D (D) C and D

Ans. (1)

Sol. Mid day meal scheme has been implemented to encourage attendance and retention of children and improve their nutritional status.

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