

NTSE SAT ANSWER 2015

1.	2	16.	2	31.	3	86.	3
2.	1	17.	4	32.	2	87.	4
3.	4	18.	1	33.	1	88.	2
4.	3	19.	1	34.	4	89.	4
5.	2	20.	3	35.	3	90.	1
6.	1	21.	2	36.	3	91.	1
7.	3	22.	3	37.	1	92.	wrong que.
8.	4	23.	1	38.	2	93.	2
9.	No Solution	24.	2	39.	1	94.	3
10.	1	25.	2	40.	2	95.	2
11.	3	26.	2	81.	1	96.	3
12.	2	27.	1	82.	2	97.	1
13.	2	28.	2	83.	2	98.	2
14.	2	29.	1	84.	4	99.	1
15.	2	30.	2	85.	2	100.	3

PHYSICS SOLUTIONS

1. (2)

Solution:

Phase

2. (1)

Solution.

Zero, avg of random velocity (motion) is zero here

3. 4

Solution.

Alternating current.

4. 3

Solution.

Rayleigh scattering has dependence on size of particle as well as wavelength of light.

5. 2

Solution.

Let speed in air = V

In the medium = $0.6 V$

$$\therefore \text{refractive index of medium w.r.t. air} = \frac{1}{0.6} = \frac{5}{3} = 1.67$$

6. 1

Solution.

Thickening of eye lens \Rightarrow move stressed eye

Focal length decreases \Rightarrow ciliary muscle contract

I – B – i

7. 3

Solution.

Hydrogen ion \Rightarrow proton

net flow is $3 \times 1 \times 10^{18}$ electrons travelling left

$$\therefore \text{current} = \frac{ne}{t} = \frac{3 \times 1 \times 10^{18} \times 1.6 \times 10^{-19}}{1} = 4.8 \times 10^{-1} \text{ A} = 0.48$$

8. 4

Solution.

Tangent of field line gives local direction.

9. No Solution

Solution.

Tap key to keep circuit open

Ammeter to be connected in series

Voltmeter to be connected in parallel.

Galvenometer detects presence of current

I – C – iv

II – A – i

III – d – ii

IV – b – iii

No choice is correct
In option 4 ⇒ ii & i is replaced, to be it correct.

10. 1
Solution.

Virtual image can be produced by other optical insinemt.

11. 3.

12. 2.

Chemistry Solution

14. NO of elements is
1st period -2 H-He (1-2)
2nd period -8 Li-Ne (3-10)
3rd period -8 Na-Ar (11-18)
4th period -18 K-Kr (19-36)

Answer – 2

15. Antacids are used for indigestion
Ex - Mg (OH)₂

Answer – 2

16. Mercury ore is cinnabar
(Hg5) Bauxite - Al₂ O₃ .2H₂O
Haematite - Fe₂ O₃ Cinnabar
– Hg5
Dolomite - MgCO₃ .CaCO₃

Answer – 2

17. KNO₃ + H₂O → K⁺ + NO₃⁻ + H₂O
Temperature of solution falls endothermic reaction

Answer - 2

18. Ammonium chloride is salt of weak base and strong
acid NH₄ OH + HCl → NH₄ Cl + H₂ O

Answer – 4

19. CH₃-CH=CH-CH₂-CH₃
12345

2-pentene or pent – 2-ene

Answer – 1

20. Oxygen electron dot structure



Oxygen – 8 - 1s² 2s² 2p⁴ (6e⁰ s in valence shall)

Answer – 1

21. Eka – Aluminium can form an oxide like
Aluminium i e Ga₂ O₃ (like Al₂ O₃)

Answer - 3

22. Pure copper acts as cathode and impure copper acts as anode

Answer - 2

23. (1) $\text{CuO} + \text{H}_2 \rightarrow \text{H}_2\text{O} + \text{Cu}$ (single displacement)
(2) $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$ (single displacement)
(3) $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$ (Double displacement)
(4) $\text{Zn} + 2\text{HCl} \rightarrow 2\text{H}_2 + \text{ZnCl}_2$ (Single displacement)

Answer - 3

24. H_2O
2: 16 = 1:8

Answer - 1

25. In Black and white photography AgBr is involved.
 $2 \text{AgBr} \xrightarrow{\text{Sunlight}} 2\text{Ag} + \text{Br}_2$

Answer - 2

26. (1) $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2$ (Occurs)
(2) $\text{Cu} + 2\text{HCl} \rightarrow \text{CuCl}_2 + \text{H}_2$ (Do not)
(3) $2\text{Al} + 6\text{HCl} \rightarrow 2\text{AlCl}_3 + 3\text{H}_2$ (Occurs)
(4) $\text{Fe} + 2\text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2$ (Occurs)

This is based on metal activity series

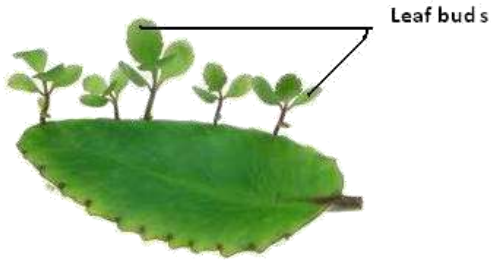
Answer - 2

Biology :

27. (1)
Mushroom
Explanation: Mushroom exhibits saprophytic mode of nutrition while others (ticks, tape worms, Cuscuta exhibit parasitic mode of nutrition.
28. (2)
Right atrium
Explanation: Right atrium receives deoxygenated blood
Left atrium receives oxygenated blood from the lungs
Right ventricle pumps blood to the lungs
Left ventricle pumps blood into aorta which supplies blood to the various regions of the body
29. (1)
Drosera



30. (2)
Hydra
Explanation Nerve net is primitive stage of development of nervous system
31. (3)
Bryophyllum



32. (2)
two male gametes
Explanation : The pollen tube contains 2 male gametes and one tube nucleus which generates the pollen tube
33. (1)
Four
Explanation: Considering a cross $TtYy \times TtYy$, the groups of phenotypic characters are (TY, ty, Ty, tY)
34. (4)
- Fish \rightarrow Amphibians \rightarrow Reptiles \rightarrow Birds \rightarrow Mammals
35. According to origin, identify the air
(3)
Smoke
36. (3) 45
37. (1) cuboidal epithelium
38. (2) species
39. (1) estrogen
40. (2) bile juice (pancreas – pancreatic juice, stomach- gastric juice, bile juice – liver and intestine – various digestive juice)

MATHEMATICS Solution

81. (1)

1 + 3 + 5 +to 365 terms

$$= \frac{365}{2} \{2 + (364 \times 2)\}$$

2

2

Hint.

$$= \frac{365}{2} \times 730$$

2

$$= 365 \times 365$$

82. (2)

Let x = price of one apple

y = price of one guava

ATQ

$$19x + 11y - 482 = 0$$

$$11x + 19y - 418 = 0$$

by cross multiply

$$\frac{x}{-4598 + 9158} = \frac{y}{-5302 + 7942} = \frac{1}{361 - 121}$$

$$\Rightarrow x = \frac{4560}{240} = 19 \text{ \& } y =$$

$$\frac{2640}{270} = 11 \text{ Hence } x - y = 8.$$

83. (2)

Given one root is $2 + \sqrt{5}$

\therefore other root is $2 - \sqrt{5}$

Hence, requires equation

$$x^2 - \{(2 + \sqrt{5}) + (2 - \sqrt{5})\}x + (2 + \sqrt{5})(2 - \sqrt{5}) = 0$$
$$\Rightarrow x^2 - 4x - 1 = 0$$

84. (4)

From formulae,

$$97.5 = 94.5 + h \frac{x + 15 - x}{2(x + 15) - x - (x + 5)}$$
$$\Rightarrow 3 = h \frac{15}{25} = \frac{3h}{5}$$
$$\Rightarrow h = 5$$
$$\therefore \text{upper limit} = 94.5 + 5 = 99.5$$

85. (2)

By expanding the determinants, we get

$$49 - 18 = 30 - 4b$$

$$\Rightarrow 4(a + b) = 48$$

$$\Rightarrow a + b = 12$$

$$12 \text{ ans.2}$$

86. (3)

$$a = \sqrt{6} + \sqrt{5}, b = \sqrt{6} - \sqrt{5}$$

Given $\therefore 2(a^2 + b^2) = 2.2(6 + 5) = 4 \times 11$

$$= 44$$
$$5ab = 5 \cdot (1) = 5$$
$$\therefore 2(a^2 + b^2) - 5ab = 44 - 5 = 39.$$

87. (4)

Let the total no. of swan = x

ATQ.

$$\frac{7}{2}\sqrt{x} + 2 = x$$

$$\Rightarrow x - 2 = \frac{7}{2}\sqrt{x}$$

$$\Rightarrow 2x - 4 = 7\sqrt{x}$$

$$\Rightarrow 4x^2 - 65x + 16 = 0$$

$$\Rightarrow x = 16$$

88. (2)

$$s = \{H, T\} \times \{1, 2, 3, 4, 5, 6\}$$

$$\therefore n(s) = 12$$

$$n = \{(T, 2), (T, 3), (T, 5)\}$$

$$\therefore n(E) = 3$$

$$\Rightarrow P(E) = \frac{3}{12} = \frac{1}{4}$$

89. (4)

$$\text{Mode} = 3\text{Median} - 2\text{Mean}$$

$$\therefore 5.2 = 3 \times 10 \frac{11}{33} \times \text{Mean} - 2\text{Mean}$$

$$= 10 - 2 \times \text{Mean}$$

$$=$$

$$= \frac{13}{10} \times \text{Mean}$$

$$\Rightarrow \text{Mean} = 4$$

90. (1)

$$\text{Hint : Let } \frac{x}{2y+z-x} = \frac{y}{2z+x-y} = \frac{2}{2x+y-2} = K$$

$$\Rightarrow x = K(2y + z - x)$$

$$y = K(2z + x - y)$$

$$z = K(2x + y - z)$$

$$\text{Add. } (x + y + z) = K(2x + 2y + 2z)$$

$$K = \frac{1}{2}$$

91. 1

92. wrong question

93. 2

94. 3

95. 2

96. 3

97. 1

98. 2

99. 1

100. 3

PRASHNOTTAR