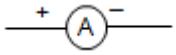
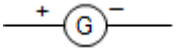
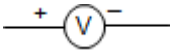
(4) tangent at any point on the magnetic lines of force gives the direction of the magnetic field at that point

9. Choose the correct alternative which matches second and third columns with first column:

Column I	Column II	Column III
(I) Tap key	(a) 	(i) to be connected in series
(II) Ammeter	(b) 	(ii) to be connected in parallel
(III) Volmeter	(c) 	(iii) detects presence of cutrrent
(IV) Galvanometer	(d) 	(iv) to keep circuit open

(1) (I)-(b)-(ii), (II)-(c)(iv), (III)-(a)-(i), (IV)-(d)-(iii)
(2) (I)-(a)-(i), (II)-(b)-(iii), (III)-(c)-(iv), (IV)-(d)-(ii)
(3) (I)-(d)-(iii), (II)-(b)-(iv), (III)-(a)-(i)-, (IV)-(C)-(ii)
(4) (I)-(c)-(iv), (II)-(a)-(ii), (III)-d-(i), (IV)-(b)-(iii)

10. Choose the wrong statement related to virtual image:
(1) images are always produced by plane mirrors only
(2) images are always erect
(3) image cannot be obtained on the screen
(4) imge is formed at l\ point where reneded -and N'fracted rays appear to meet

11. …….. identifies quality of sound in human ear.
(1) Nerve impluse (2) Pinna
(3) Cochlea (4) Ear drum

12. Cleaning of dust from carpet is due to …….
(1) inertia of motion (2) inertill of rest
(3) inertia of direction (4) momentum

13. Arrange the following metals in increasing resistivities
Chromium, Nickel, Manganese, Iron
(1) Nickel-Iron-maganese-Chromium (2) Nickel-Iron-Chromium-Magnese
(3) Manganese-Chromium-Iron-Nickel (4) Chromium-Iron-Manganese-Nickel

14. The total number of elements pre~f.'nt In 4th period of modern periodic table is
(1) 8 (2) 18
(3) 32 (4) 12

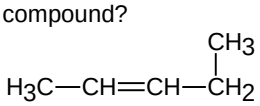
15. Wich of the following medicines is used for Indigestion?
(1) Antibiotic (2) Antacid
(3) Anulgesic (4) Antiseptic

16. Which of the following is an ore of mercury?
(1) Bauxite (2) Haematite
(3) Cinnabar (4) Dolomite

17. $KXO_3(s)$ whell mixed with water. temperature of solution falls. This reaction is:
(1) Endothermic reaction (2) Exothermic reaction
(3) Cooling reaction (4) Heating reaction

18. Ammonium chloride is a salt of:
(1) Weak Acid and Weak Base (2) Weak Acid ami Strong Base
(3) Strong Acid and Strong Base (4) Strong Acid and Weak Base

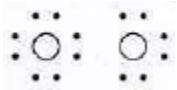
19. What is the lUPAC name of the following compound?



(1) pent-2-ene (2) pent-I-ene
(3) pent-3-ene (4) 1-methyl-but-2-ene

20. Which of the following is corretl electron dot structure of oxygen?

(1) 

(2) 

(3) 

(4) 

21. What type of oxide would Eka-Aluminium (Gallium) form?

(1) GaO_3 (2) Ga_3O_2

(3) Ga_2O_3 (4) GaO

22. During Electrolytic refining of copper:

(a) Pure Copper acts as Anode (b) Pure copper acts as Cathode

(c) Impure Copper acts as Anode (d) Impure Copper acts as Cathode

(1) (a), (b) (2) (b), (c)

(3) (a), (d) (4) (b), (d)

23. Which of the following i8 *not* an example of single di8placement reliction?

(1) $CuO + H_2 \rightarrow H_2O + Cu$ (2) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$

(3) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ (4) $Zn + 2HCl \rightarrow ZnCl_2 + H_2$

24. The ratio of Hydrogen and Oxygen by mass in water is:

(1) 1 : 8 (2) 8 : 1

(3) 2 : 1 (4) 1 : 2

25. Which of the following reactions is involved In Black and White photography?

(1) $2Cu + O_2 \xrightarrow{\Delta} 2CuO$ (2) $2AgBr \xrightarrow{\text{Sunlight}} 2Ag + Br_2$

(3) $ZnO + C \rightarrow Zn + CO$ (4) $CaCO_3 \xrightarrow{\Delta} CaO + CO_2$

26. Which of the following reactions will not occur?

(1) $Mg + \underset{\text{dil}}{H_2SO_4} \rightarrow MgSO_4 + H_2$ (2) $Cu + \underset{\text{dil}}{2HCl} \rightarrow CuCl_2 + H_2$

(3) $2Al + \underset{\text{dil}}{6HCl} \rightarrow 2AlCl_3 + 3H_2$ (4) $Fe + \underset{\text{dil}}{2HCl} \rightarrow FeCl_2 + H_2$

27. Which organism bn'llkdown th" food material into simple substances oOutside the body and then absorb it?

(1) Mushroom (2) Cuseula

(3) Ticks (4) worms Tape

28. The …… receives deoxygenated blond collected, from different organs of the body via large vein called vena cava.

(1) Left atrium (2) Right atrium

(3) Right ventricle (4) Left ventricle

29. Which plants has a trap, which looks and snll'lls like a flower to insects?

(1) Drosera (2) Balsam

(3) Lotus (4) Venus Fly trap

30. Which of the following orglmisms hlwe the nervous system is at a very primitive stage of development?

(1) Amoeha (2) Hydra

(3) Earthworm (4) Paramoecium

31. The vegetative reproduction in Bryophyllum takes place through which organ?

(1) Root (2) Stem

(3) Leaf (4) Seed

32. A pollen tube, produeed from the pollen grain, contains……. male gametes.

(1) one (2) Two

(3) Seven (4) Eight

33. In Menders dihybrid cross how many groups of phenotypic characters are found in F_2 generation (second filial generation):

(1) Four (2) Two

(3) one (4) Sixteen

34. According to palaeontological evidences, identify the correct sequence of arumal development :
(1) Fish → Reptiles → Amphibians→ Birds → Mammals
(2) Fish → Reptiles → Oirds → Amphibians → Mammals
(3) Fish → Amphibians → Birds → IWptiles → Mammals
(4) Fish → Amphibians → Reptiles → Birds → Mammals

35. According to origin, identify the secondary air pollutant:
(1) SO_3 (2) Ash
(3) Smoke (4) Radioactive compound

36. In residential area at night. the standard limit of sound intensity is ……. Decibel.
(1) 55 (2) 70
(3) 45 (4) 40

37. The aboorption of ust'ful malt'rial from urine before it is passed out takes place through ……. epithelium tissue.
(1) Cucoidal (2) Ciliated columnar
(3) columnar (4) Stratified squamous

38. Which is tne smallest unit of classification of organisms?
(1) Genus (2) Species
(3) Family (4) Order

39. In female ovari"s secrete normone .
(1) Estrogen (2) Testosterone
(3) Auxin (4) Gibberellins

40. Liver gland secretes…….
(1) Pancreatic juice (2) Billl juice
(3) Gastric juice (4) Various digestive juice

41. What was the filet that caused the failure of the League of Nations? Choose from the following alternative :
(1) Hitler's attack on Austria
(2) The issue of Sweden-Finland and Holland
(3) To take vote in Saar provonce
(4) Attack of Italy on Kaifu island

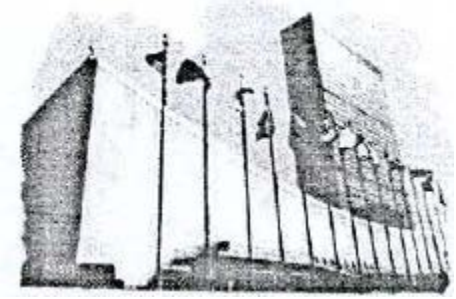
42. Which one of the following nat inns was not member at the time of G-7 organization established?
(1) Holland (2) Japan
(3) Italy (4) Franee

43. Which one of the following was Supreme god of Greeks?
(1) hera (2) Apollo
(3) Zeus (4) Venus

44. The followingpairs are given about discoverer and discovery. Choose incorrect pair from the following
(1) Mungopark - Discovered basins of the Niger river
(2) Livingstone - Disco\'ered basins of the Zambezi river
(3) Christopher Columbus - Discovered American Continent
(4) Bartholomew Dias - Circumnavigation of the earth

45. Which one of the following reasons is inappropriate about cold war?
(1) Supremacy between America and Russia
(2) Non-Alliance Movement
(3) Communism in Soviet Russia
(4) Differences in philosophical thinking

46. The office which shown in the given picture belongs to which International Organization?



(1) United Xations Organization (2) Lellgue of Nations
(3) Intemational Court (4) Internationl Worker's Organization

47. Arrange the following events in chronological order:
(I) Treaty between England-France
(II) A political recolution in Turkey
(III) A friendship treaty between England-Japan
(IV) A frindship traty between England-Russia
(1) (I), (III), (II), (IV) (2) (II), (I), (IV), (III)
(3) (III), (I), (IV), (II) (4) (IV), (III), (II) (I)

48. "The rule of oncolion is pwr better than hundrt'd rats" Who had prodaimpd this statement?
(I) Montesquieu (2) Voltaire
(3) Mirabo (4) Napoleon Bonaparte

49. Which one of the princely state was merged under the pretext of maladministration?
(1) Satara (2) Nagpur
(3) Sambalpur (4) Ayodhya

50. Educational institutions were established in the colonies by each of the colonialistic nation beause:
(1) To get Western education
(2) To eradicate ignorance of the people in the colony
(3) To get secondary grade staff for the administrative convenience
(4) To popularize and spread their culture

51. Which one is the destructive effect of Imperialism?
(1) Spread of Education (2) Intellectual Change
(3) Physical Reformations (4) Trade of Slaves

52. Who took advantage of the dispute between France and Italy about religious and colonial problems?
(1) Kaiser William II (2) Hitler
(3) Bismarck (4) Benito Mussolini

53. During the cold war which country was not a part of the 'SEATO TREATY' established under the leadership of America?
(1) Pakistan (2) Philippines
(3) Indonesia (4) Thailand

54. Which revolution made an attempt to create a social order without religion, class and exploitation?
(1) Industrial Revolution (2) Meiji Revolution
(3) Russian Revolution (4) Formation of United Nations Organization

55. Who is considered as 'The Father of China'?
(1) Dr. Sun-Yat-Sen (2) Yuan-Shih-Kai
(3) Kang-Yu-Wei (4) Mao-Tse-Tung

56. The region situated to the foothills of Jalpaiguri and Darjeeling is known as ____.
(1) Marshy area (2) Flood plain
(3) Duars (4) Doab

57. Which group has correct order of rivers from south to north in the Deccan Plateau region?
(1) Cauvery $\rightarrow$ Godavari $\rightarrow$ Mahanadi $\rightarrow$ Tungabhadra
(2) Cauvery $\rightarrow$ Mahanadi $\rightarrow$ Tungabhadra $\rightarrow$ Godavari
(3) Cauvery $\rightarrow$ Tungabhadra $\rightarrow$ Godavari $\rightarrow$ Mahanadi
(4) Cauvery $\rightarrow$ Godavari $\rightarrow$ Tungabhadra $\rightarrow$ Mahanadi

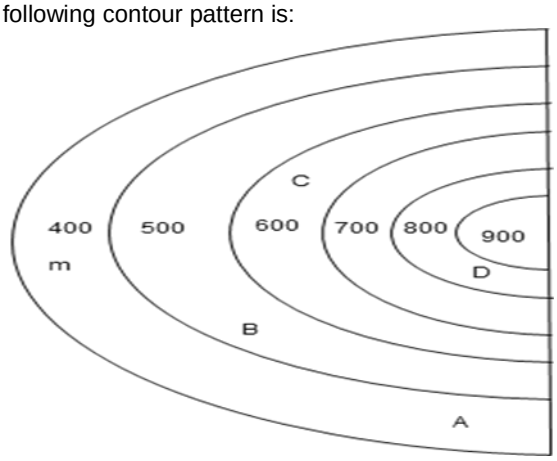
58. Which of the following factors is going to reduce the soil degradation?
(1) Excess use of soil (2) Excess irrigation
(3) Excess use of chemical fertilizers (4) Crop rotation method

59. Which of the following states do not share land border with Myanmer?
(1) Meghalaya (2) Manipur
(3) Mizoram (4) Nagaland

60. Mining occupation is well developed on the Chhota Nagpur plateau because:
(1) Road transport (2) Availability of minerals
(3) Generation of employment (4) Labour supply

61. The largest wool market of Asia is _____.
(1) Barmer (2) Bikaner
(3) Jaisalmer (4) Jodhpur

62. The direction of river in the following contour pattern is:



(1) D to B
(2) B to C
(3) A to C
(4) C to D

63. Find the wrong pair:
(1) Coast of Gujrat – Region of gulf
(2) Konkan Coast – Region of many headlands
(3) Malabar Coast – Region of backwters
(4) Coromandel Coast – Delta region of Narmada

64. The correct order of rivers of Punjab-Haryana plains from North to South is _____.
(1) Beas → Satluj → Ghaggar
(2) Ghaggar → Beas → Satluj
(3) Satluj → Beas → Ghaggar
(4) Satluj → Ghaggar → Beas

65. Out of the total area under cultivation of Himachal Pradesh how much area is under irrigation?
(1) 1/4
(2) 1/5
(3) 1/3
(4) 1/2

66. The largest physical division of India is _____.
(1) The North Indian Plain
(2) The Mountainous region in the North
(3) The Peninsular plateau Region
(4) The Coastal Plains

67. Which of the following is a one-dimensional diagram?
(1) Qudrilateral
(2) Divided Circle
(3) Divided Rectangle
(4) A line graph

68. The famous place of 'Kumbha Mela' from the Central Highlands is:
(1) Ujjain
(2) Nasik
(3) Prayag
(4) haridwar

69. Garhjat Hills occupied the North-Western part of which state?
(1) Tripura
(2) West Bengal
(3) Meghalaya
(4) Odisha

70. What is the cause of not getting High grade coal in Meghalaya?
(1) Less proportion of limestone
(2) Less content of Sulphur
(3) Greater proportion of coke
(4) Greater proportion of Sulphur

71. "In a democracy each adult citizen must have one vote and each vote must have one vaolue. "Which one of the following countries is irreverent for this statement?
(1) Russia
(2) China
(3) Fiji
(4) United Arab Emirates

72. What is recall?
(1) To call the representatives back
(2) Presenting proposal of Law by the people
(3) Taking decisions on important public issues on the basis of public opinion
(4) To change the government

73. The first meeting of the Constituent Assembly was held on _____.
(1) 26^{th} January, 1950
(2) 26^{th} November, 1949
(3) 10^{th} February, 1948
(4) 09^{th} December, 1946

74. _____ seats are reserved for the Scheduled Tribes in Lok Sabha.
(1) 43
(2) 40
(3) 41
(4) 45

75. Which one of the following inequalities is excess then democracy remains only in name?
(1) Economic (2) Social
(3) Cultural (4) Political

76. In Socialism, the decisions about production depend upon the objectives and priorities laid down by _____.
(1) Food Corporation (2) Central Planning Commission
(3) Reserve Bank (4) Central Productive Body

77. How much percentage of share of Tertiary Sector is in the Gross Domestic Product in India 2011?
(1) 18 (2) 26
(3) 45 (4) 56

78. Consumer must be provided with accurate information about quality, purity, price, quantity and the standard of the goods and services. What right of a consumer is this?
(1) Right to choose (2) Right to safety
(3) Right to be informed (4) Right to consumer education

79. Which is incorrect reason out of the following reasons to increase in demand for goods and services?
(1) Lopsided production (2) Increase in export
(3) Reduction in tax (4) Availability of credit

80. What factors are included as 'Arterises' to an economy?
(1) Small scale and Cottage Industries (2) Transportation and Communication
(3) Capital and Labour Supply (4) Government Policy and Credit Supply

81. In the year 2013, Pravin saves Rs. 1 on the first day, Rs. 3 on the second day, Rs. 5 on the third day and so on. Find the total amount of his saving in that year.
(1) Rs. 133225 (2) Rs. 132225
(3) Rs. 123225 (4) Rs. 134225

82. Ganesh has to pay Rs. 482 for 19 apples and 11 guavas. If he would have exchanged the number of apples and guavas purchased, then he would have paid Rs. 64 less. Find how much more amount he has to pay to purchase 1 apple than 1 guava?
(1) Rs. 19 (2) Rs. 8
(3) Rs. 11 (4) Rs. 7

83. Find the quadratic equation whose one root is $2 + \sqrt{5}$.
(1) $x^2 - 4x + 1 = 0$ (2) $x^2 - 4x - 1 = 0$
(3) $x^2 - 4x + 3 = 0$ (4) $x^2 - 4x - 3 = 0$

84. In a frequency distribution table, modal value of the wages of 130 workers is Rs. 97.50. L = 94.5, $f_m = x + 15;\ f_1 = x;\ f_2 = x + 5$. Find the upper limit of the modal class.
(1) 96.5 (2) 97.5
(3) 98.5 (4) 99.5

85. Given the equality of the following determinants. Find the value of (a + b).

$$\begin{vmatrix} 4 & 3 \\ 6 & a \end{vmatrix} = \begin{vmatrix} 6 & b \\ 4 & 5 \end{vmatrix}$$

(1) 8 (2) 12
(3) 14 (4) 16

86. If $a = \sqrt{6} + \sqrt{5};\ b = \sqrt{6} - \sqrt{5}$, then find the value of $2a^2 - 5ab + 2b^2$.
(1) 36 (2) 37
(3) 39 (4) 41

87. Out of group of Swans, $\frac{7}{2}$ times the square root of number of Swans are playing on the shore of the tank. Remaining two are quarreling in the water. Calculate the total number of Swans. Find the number of Swans playing on the shore of the tank.
(1) 14, 16 (2) 16, 12
(3) 14, 12 (4) 16, 14

88. A coin and a die is tossed simultaneously. Find the probability of the event that 'tail' and a prime number turns up?
(1) $\frac{1}{2}$ (2) $\frac{1}{4}$

(3) $\frac{1}{3}$ (4) $\frac{2}{3}$

89. In a frequency distribution median is $\frac{11}{10}$ times the mean, and mode is 5.2. Find the median.

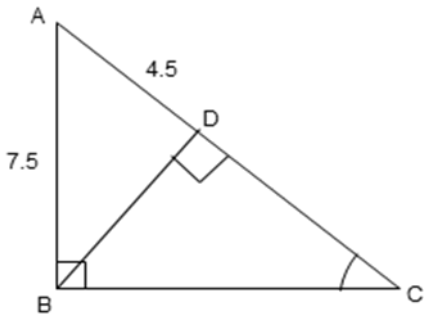
(1) 4.4 (2) 4.3
(3) 4.1 (4) 4.0

90. If $\frac{x}{2y+z-x} = \frac{y}{2z+x-y} = \frac{z}{2x+y-z}$ and $x + y + z \neq 0$, then what is each ratio equal to:

(1) $\frac{1}{2}$ (2) $\frac{1}{3}$
(3) 2 (4) $\frac{2}{3}$

91. In the above figure ΔABC, m $\angle B = 90^o$, $BD \perp AC$, AD = 4.5, AB = 7.5, then find $A(\Delta BDC) : A(\Delta ABC)$

(1) 16 : 25 (2) 4 : 5
(3) 25 : 16 (4) 5 : 4



92. If $\sin\theta = -0.6^o$, then find the quadrant from which the terminal arm making an angle of θ^o passes.

(1) I quadrant (2) II quadrant
(3) III quadrant (4) IV quadrant

93. A roller of diameter 1.4 m and length 1.4 m is used to press the ground having area 3080 sq.m. Find the number of revolutions that the roller will make to press the ground.

(1) 700 (2) 500
(3) 1000 (4) 800

94. If a line passes through the intersection point of the graphs of the lines x + 2y = 7 and x – y = 4 and the origin, then find the equation of the line.

(1) y = 0.5 x (2) y = 5x
(3) y = 0.2x (4) y = -2x

95. In ΔABC, m $\angle BAC = 140^o$, 'P' is the centre of the circumcircle of ΔABC. Find m $\angle PBC$.

(1) 40^o (2) 50^o
(3) 80^o (4) 100^o

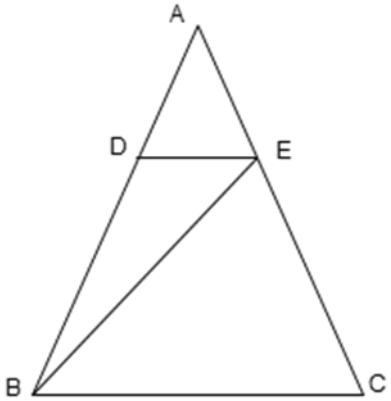
96. If the ratio of the radii of the circular ends of a conical bucket whose height is 60 cm is 2 : 1 and addition of the areas is 770 sq.cm. Find the capacity of the bucket in litres.

(1) 21.56 litres (2) 215.6 litres
(3) 21.560 litres (4) 2156 litres

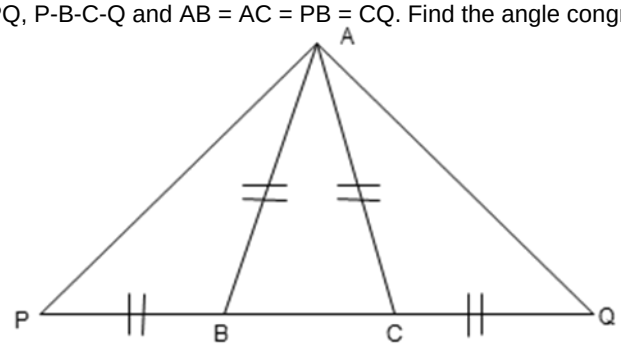
97. In the above figure ΔABC, DE ll BC, $A(\Delta ADE)$ = 48 sq.cm., $\frac{AD}{DB} = \frac{4}{5}$.

Find the area of ΔBEC.

(1) 60 sq. cm (2) 95 sq. cm
(3) 108 sq. cm (4) 135 sq. cm



98. In the above figure ΔAPQ, P-B-C-Q and AB = AC = PB = CQ. Find the angle congruent to $\angle PAQ$.



(1) $\angle ACP$ (2) $\angle ABP$
(3) $\angle APC$ (4) $\angle BAQ$

99. Find the value of $\dfrac{\sin 48^o + \cos 42^o}{\cot 42^o} - \dfrac{1}{\sec 48^o}$

(1) $\cos 48^o$ (2) $\sin 48^o$
(3) $\sec 48^o$ (4) $\cot 42^o$

100. The incircle of ΔABC touches the sides AB, BC and AC in the point P, Q and R respectively. If AP = 7 cm, BC = 13 cm, find the perimeter of ΔABC.

(1) 27 cm (2) 30 cm
(3) 40 cm (4) 41 cm

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.

Thicknening of eye lens $\Rightarrow$ move stressed eye

Focal length decreases $\Rightarrow$ cilliary muscle contract

I – B – i

7. 3

Solution.

Hydrogen ion $\Rightarrow$ proton

net flow is 3 x 1 x 10^{18} electrons travelling left

$$\therefore \text{current} = \frac{ne}{t} = \frac{3\times1\times10^{18}\times1.6\times10^{-19}}{1} = 4.8\times10^{-1}\text{A} = 0.48$$

8. 4

Solution.

Tangent of field line gives local direction.

9. No Solution

Solution.

Tap key to keep circuit open	I – C – iv
Ammeter to be connected in series	II – A – i
Voltmeter to be connected in parallel.	III – d – ii
Galvenometer detects presence of current	IV – b – iii

No choice is correct
In option 4 $\Rightarrow$ 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
1^{st} period -2 H-He (1 – 2)
2^{nd} period -8 Li-Ne (3-10)
3^{rd} period -8 Na-Ar (11-18)
4^{th} 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 - $Al_2O_3.2H_2O$
Haematite - Fe_2O_3
Cinnabar – Hg5
Dolomite - $MgCO_3.CaCO_3$

Answer – 2

17. $KNO_3 + H_2O \longrightarrow K^+ + NO_3^- + H_2O$
Temperature of solution falls endothermic reaction

Answer - 2

18. Ammonium chloride is salt of weak base and strong acid
$NH_4OH + HCl \longrightarrow NH_4Cl + H_2O$

Answer – 4

19. $CH_3 - CH = CH - CH_2 - CH_3$
1 2 3 4 5
2-pentene or pent – 2-ene
Answer – 1

20. Oxygen electron dot structure

$:\ddot{O}: :\ddot{O}:$

Oxygen – 8 - $1s^2\ 2s^2\ 2p^4$ ($6e^0$s in valence shall)

Answer – 1

21. Eka – Aluminium can form an oxide like
Aluminium i e Ga_2O_3 $(\text{like } Al_2O_3)$

Answer - 3

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

Answer - 2

23. (1) $CuO + H_2 \longrightarrow H_2O + Cu$ (single displacement)

(2) $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$ (single displacement)

(3) $AgNO_3 + NaCl \longrightarrow AgCl + NaNO_3$ (Double displacement)

(4) $Zn + 2HCl \longrightarrow 2nCl_2 + H_2$ (Single displacement)

Answer – 3

24. H_2O

2: 16 = 1:8

Answer – 1

25. In Black and white photography AgBr is involved.

$2\ AgBr \xrightarrow{Sunlight} 2Ag + Br_2$

Answer - 2

26. (1) $Mg + H_2SO_4 \longrightarrow MgSO_4 + H_2$ $(Occurs)$

(2) $Cu + 2HCl \longrightarrow CuCl_2 + H_2$ $(Do\ not)$

(3) $2Al + 6HCl \longrightarrow 2AlCl_3 + 3H_2$ $(Occurs)$

(4) $Fe + 2HCl \longrightarrow FeCl_2 + H_2$ (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

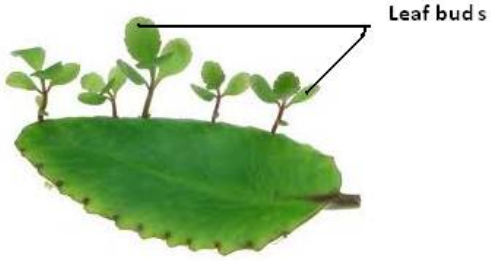
30. (2)

Hydra

Explanation Nerve net is primitive stage of development od 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 x TtYy , the groups of phenotypic characters are (TY, ty, Ty, tY)
34. (4)

Fish → Amphibians → Reptiles → Birds → Mammals
According to origin, identify the secondary air pollutants
35. (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)

Hint.

$1+3+5+.....\text{to}\,365 \text{ terms}$

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

$=\frac{365}{2}\{2+728\}$

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

$=365\times 365$

$=133225$

82. (2)

$\text{Let}\, x = \text{price of one apple}$

$y = \text{price of one guava}$

ATQ

$19x+11y-482=0$

$11x+19y-418=0$

by cross multiplicate

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

$\Rightarrow x=\frac{4560}{240}=19 \;\&\; y=\frac{2640}{270}=11$

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,

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

85. (2)

By expanding the determinants, we get

$$49-18=30-4b$$
$$\Rightarrow 4(a+b)=48$$
$$\Rightarrow a+b=12$$
ans.2

86. (3)

Given
$$a=\sqrt{6}+\sqrt{9},b=\sqrt{6}-\sqrt{5}$$
$$\therefore 2(a^2+b^2)=2.2(6+5)=4\times 11=44$$
$$5ab=5\cdot(1)=5$$
$$\therefore 2(a^2+b^2)-5ab=44-5=39.$$

87. (4)

Let the total no. of swan = x

ATQ.

$$\frac{7}{2}\sqrt{X}+2=X$$
$$\Rightarrow x-2=\frac{7\sqrt{x}}{2}$$
$$\Rightarrow 2x-4=7\sqrt{x}$$
$$\Rightarrow 4x^2-65x+16=0$$
$$\Rightarrow x=16$$

88. (2)

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

$\therefore n(s) = 12$

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

$\therefore n(E) = 3$

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

89. (4)

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

$\therefore 5.2 = 3 \times \left(\frac{11}{10} \times \text{Mean}\right) - 2\text{Mean}$

$= \left(\frac{33}{10} - 2\right) \times \text{Mean}$

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

$\Rightarrow \text{Mean} = 4$

90. (1)

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