

**PACE APTITUDE & TALENT HUNT
(ANSWER KEY)**

PHYSICS	CHEMISTRY	BOTANY	ZOOLOGY
1. (C)	26. (A)	51. (D)	76. (C)
2. (B)	27. (D)	52. (C)	77. (C)
3. (B)	28. (C)	53. (A)	78. (B)
4. (C)	29. (D)	54. (A)	89. (B)
5. (B)	30. (A)	55. (B)	80. (C)
6. (C)	31. (C)	56. (A)	81. (D)
7. (D)	32. (C)	57. (C)	82. (B)
8. (C)	33. (B)	58. (B)	83. (C)
9. (A)	34. (C)	59. (C)	84. (A)
10. (D)	35. (C)	60. (A)	85. (D)
11. (A)	36. (A)	61. (B)	86. (C)
12. (C)	37. (C)	62. (C)	87. (D)
13. (B)	38. (D)	63. (D)	88. (B)
14. (A)	39. (B)	64. (D)	89. (C)
15. (B)	40. (B)	65. (B)	90. (D)
16. (D)	41. (A)	66. (B)	91. (C)
17. (D)	42. (D)	67. (C)	92. (B)
18. (A)	43. (B)	68. (A)	93. (B)
19. (A)	44. (D)	69. (A)	94. (C)
20. (B)	45. (C)	70. (B)	95. (B)
21. (D)	46. (B)	71. (A)	96. (C)
22. (B)	47. (C)	72. (A)	97. (A)
23. (A)	48. (C)	73. (B)	98. (A)
24. (A)	49. (D)	74. (A)	99. (C)
25. (C)	50. (D)	75. (A)	100. (C)

**PACE APTITUDE & TALENT HUNT
(SOLUTION)**

1. $R_{\text{series}} = R_1 + R_2 + R_3$

$$\frac{1}{R_{\text{parallel}}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$
2. Magnetic monopoles do not exist.
3. \vec{B} is maximum at the centre of coil.

$$\vec{B} = \frac{\mu_0 I}{2R}$$
4. Use right hand thumb rule to find the direction of magnetic field.
5. Electric generator converts mechanical energy into electrical energy.
6. (C) Theoretical question
7. (D) Sound is a form of energy.
8. (C) $P = \frac{v^2}{R}$

$$100 = \frac{(200)^2}{R}$$

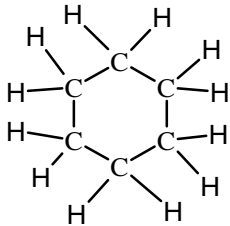
$$R = \frac{200 \times 200}{100} = 400\Omega$$
9. (A) $v = u + at$

$$\frac{v - u}{t} = a$$

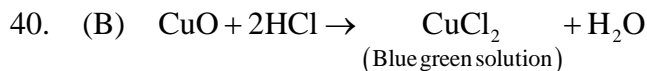
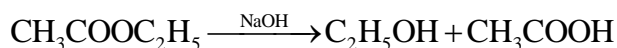
$$\frac{40 - 20}{2} = \frac{20}{2} = 10\text{sec}$$
10. (D) $e\nu \rightarrow \text{Energy}$
11. (A) Theory
12. (C) Theory
13. (B) Theory
14. (A) Theory
15. (B) $r_{\text{eq}} = 5 + 3 + \frac{6}{3}$

$$= 10\Omega$$
16. (D)
 $P = \rho hg$
 $\rho = \text{density}$
 $h = \text{depth}$
 $g = \text{gravity}$
17. (D) $R = 2f$

$$= 40 \text{ cm}$$

18. (A) distance = 7 cm
disp = 5 cm
19. (A) Theoretical
20. (B) Theoretical
21. (D) Wavelength and velocity depend on medium. Frequency depend on sources.
22. (B) Theoretical
23. (A) Theoretical
24. (A) $V_m = \frac{V_\ell}{\mu} = 2.25 \times 10^8 \text{ m/s}$
25. (C) Right hand thumb rule
26. (A) Acetic acid is present in vinegar
27. (D) Bleaching powder is given as CaOCl_2 (Calcium chloro hyperchlorite)
28. (C) $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ (plaster of paris) which doctors use as plaster for supporting fractured bones.
29. (D) CuSO_4 is acidic salt because it is made from $\text{Cu}(\text{OH})_2$ (weak base) and H_2SO_4 (strong acid)
30. (A) Sodium hydrogen carbonate (NaHCO_3) is used in soda acid fire extinguisher
31. (C) $\text{Ca}(\text{OH})_2$ -Slaked lime; CaO -Quick lime
32. (C) Group – 3 to group – 12, elements are called ‘d-block elements’.
33. (B) Pb (Lead) is used in storage battery
34. (C) I and II are correct.
Plaster of paris is $\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$ (Calcium sulphate hemihydrate)
35. (C) HgS - Cinnabar
36. (A) C and Si both belongs to the same group. Hence forms similar hydrides.
37. (C) Vinegar contains acetic acid (CH_3COOH)
38. (D) Cyclohexane is C_6H_{12}
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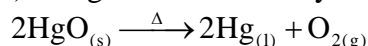
The diagram shows the structural formula of cyclohexane, a saturated hydrocarbon. It consists of a six-membered carbon ring. Each carbon atom is bonded to two hydrogen atoms, one above and one below the ring. The carbon atoms are arranged in a hexagon, and the hydrogen atoms are positioned at the vertices of a larger hexagon surrounding the carbon ring.
39. (B) Esters react in the presence of an acid or base to give back the alcohol and carboxylic acid. This reaction is known as saponification.



41. (A) In the reactivity series, Ag lies below Cu, so Ag cannot displace Cu.

42. (D) The compounds formed by the transfer of electrons from a metal to a non-metal are known as ionic compounds Eg, CaO, MgCl₂ etc;

43. (B) 'Hg' was obtained by heating mercuric oxide.



44. (D) Alloy of mercury is amalgam

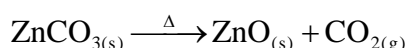
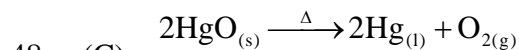
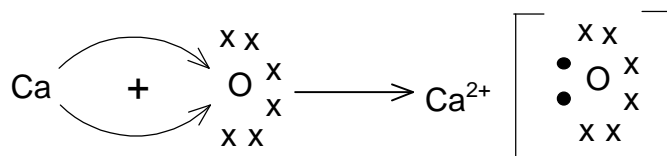
Brass is an alloy of Cu and Zn

Bronze is an alloy of Cu and Sn

45. (C) 'Au' is the least reactive element in the reactivity series, does not react with air hence does not corrode easily

46. (B) 'ZnO' is amphoteric as it reacts with both acids as well as bases to produce salts.

47. (C) The maximum number of electron transfer occurs in the formation of CaO is given as



49. (D) Copper reacts with moist carbon dioxide in the air and slowly loses its shiny brown surface and gains a green coat. This green substance is copper carbonate.

50. (D) In 22 carat gold, 22 parts of pure gold is alloyed with 2 parts of copper.

Brass – Cu and Zn

Bronze – Cu and Sn

Solder – Pb and Sn

51. Small sized organelles are called microbodies of cells

52. Segregation causes the separation and recombination of alleles

53. Recycling and reuse is best for environmental sustainability

54. Same flower and same plant can give 100% self pollination

55. Desert

56. (A) Seed is the fertilized ovule

57. (C) Carpel and stamen are essential whorls of flowers which play a direct role in reproduction. When a flower bears either of them, the flower is called unisexual.

58. (B) Four types of gametes are produced YR, yR, Yz, yz
59. (C) Living beings are directly or indirectly dependent on producers.
60. (A) 'Hot spots' are recognized areas where large number of different species are found.
61. (B) Glycolysis occurs in cytoplasm
62. (C) NADPH₂ and ATP
63. (D) Mitochondria
64. (D) Gene bank
65. (B) caused only by CO₂ rise.
66. (B) Phycology
67. (C) Ovule
68. (A) Plant root cell is $2n = 18$; so integument is $2n = 18$
69. (A) K⁺
70. (B) Bacteria
71. (A) Phosphorus cycle
72. (A) Elongated stem
73. (B) Stem tuber
74. (A) ATP
75. (A) Munch
76. Most common neurotransmitter is Acetylcholine.
77. (C)
78. Placenta is a physiological contact between foetal and maternal blood.
79. The epididymis leads to Vas deferens, that leads to ejaculatory duct opening in urethra.
80. (C) Pepsin is secreted as inactive enzyme pepsinogen and it needs to be activated into pepsin by the action of HCl secreted by gastric glands
81. (D)
82. (B) Progesterone maintains the thickness of endometrium of uterus.
83. (C)
84. (A)
85. (D)

86. (C) Blood group shall be AB as both the alleles show codominance.
87. (D) External and middle ear has no receptors.
88. (B) Thyroid produces chief hormones T_3 and T_4 .
89. (C) Duodenum is the smallest part of small intestine.
90. (D)
91. (C) Hypothalamus is the centre of thirst and hunger being a neuro endocrine organ.
92. (B) Archaeopteryx had both bird and reptilian characters.
93. (B) Dynamic equilibrium of the body is detected by receptors present in the 3 semicircular canals of Internal ear.
94. (C) Muscles get tired or fatigued when their reservoir of energy glycogen gets exhausted and the cell starts performing anaerobic respiration to generate lactic acid. Accumulation of this generates pain.
95. (B) Formation of urea takes place in liver via. Urea cycle / Ornithine cycle / Kreb's – Hansleit cycle.
96. (C) Hypersecretion of GH causes Acromegaly that causes abnormal increase in size of body ends.
97. (A) Human heart is myogenic as contraction is initiated by specialized cardiac muscles of SA node.
98. (A) Child birth is due uterine muscular contractions due to hormone oxytocin.
99. (C) In Myopia or near sightedness, due to loss of accommodation image is formed in front of Retina and is corrected by diverging lens i.e. concave lens
100. (C)