> ANSWER KEY MOCK 5 SOLTIONS

1. (a)	**2.** (a)	**3.** (b)	**4.** (d)	**5.** (a)	**6.** (a)	**7.** (b)	**8.** (b)	**9.** (d)	**10.** (c)
11. (a)	**12.** (a)	**13.** (b)	**14.** (c)	**15.** (b)	**16.** (c)	**17.** (b)	**18.** (c)	**19.** (b)	**20.** (a)
21. (d)	**22.** (c)	**23.** (b)	**24.** (d)	**25.** (c)	**26.** (d)	**27.** (a)	**28.** (b)	**29.** (c)	**30.** (d)
31. (b)	**32.** (c)	**33.** (d)	**34.** (d)	**35.** (b)	**36.** (b)	**37.** (d)	**38.** (c)	**39.** (d)	**40.** (c)
41. (d)	**42.** (d)	**43.** (a)	**44.** (c)	**45.** (b)	**46.** (a)	**47.** (b)	**48.** (a)	**49.** (d)	**50.** (b)
51. (c)	**52.** (a)	**53.** (d)	**54.** (c)	**55.** (b)	**56.** (b)	**57.** (b)	**58.** (b)	**59.** (d)	**60.** (c)
61. (a)	**62.** (b)	**63.** (c)	**64.** (c)	**65.** (c)	**66.** (a)	**67.** (a)	**68.** (a)	**69.** (c)	**70.** (a)
71. (b)	**72.** (b)	**73.** (a)	**74.** (b)	**75.** (a)	**76.** (c)	**77.** (c)	**78.** (b)	**79.** (c)	**80.** (b)
81. (b)	**82.** (d)	**83.** (b)	**84.** (b)	**85.** (d)	**86.** (c)	**87.** (d)	**88.** (c)	**89.** (b)	**90.** (b)
91. (b)	**92.** (d)	**93.** (c)	**94.** (a)	**95.** (d)	**96.** (d)	**97.** (d)	**98.** (c)	**99.** (a)	**100.** (a)

Hint & Solutions

1. **(A)**

$$\begin{array}{ccc} E & C & A \\ 5 & 3 & 1 \\ +6 & +6 & +6 \\ \hline 11 & 9 & 7 \\ K & I & G \end{array}$$

Similarly,

$$\begin{array}{ccc} Q & O & M \\ 17 & 15 & 13 \\ +6 & +6 & +6 \\ \hline 23 & 21 & 19 \\ \boxed{W} & \boxed{U} & \boxed{S} \end{array}$$

2. **(A)**

Water image & outer circle is extra

Similarly,

Water image & outer circle is extra
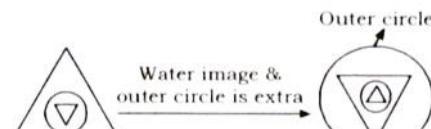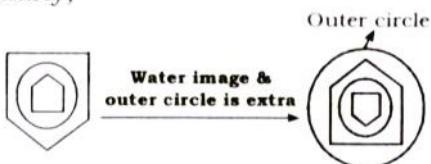
3. **(B)** For cleaning the Cloth, Wash them. Similarly, For cleaning the Floor, **Sweep** it.

4. **(D)** 9 : 80 :: 100 : **9999**

$9^2 - 1$ $100^2 - 1$

5. **(A)** Solving from the options.

(A) **58, 10, 67, 75**
(B) 77, 22, 67, 88
(C) 96, 42, 79, 87
(D) 89, 34, 86, 93

6. **(A)** 144, 64 and 21 all are perfect square of 12, 8 and 11 respectively but **51** is not a perfect square.

7. **(B)** Jacket, Shirt and Trousers are stiched but **Cloth** is not stiched.

8. **(B)**
(A) $\begin{array}{ccc} 11 & 13 & 14 \\ K & M & N \end{array}$ +2, +1
(B) $\begin{array}{ccc} 7 & 8 & 9 \\ \boxed{G} & \boxed{H} & \boxed{I} \end{array}$ +1, +1
(C) $\begin{array}{ccc} 4 & 6 & 7 \\ D & F & G \end{array}$ +2, +1
(D) $\begin{array}{ccc} 15 & 17 & 18 \\ O & Q & R \end{array}$ +2, +1

9. **(D)**

Package	Palace	Passport
3	5	1

Patience	Picture
4	2

Hence, as per the English dictionary the correct order is **35142**.

10. **(C)**
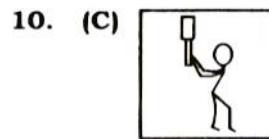
11. **(A)**

Root	Stem	Leaf	Bud	Flower
4	1	2	5	3

Hence, the meaningful order of given words is **41253**.
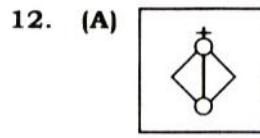
12. **(A)**

13. **(B)**
$$\begin{array}{cccccc} 18 & 21 & 24 & 1 & 4 & 7 \\ R & U & X & A & D & \boxed{G} \end{array}$$
+3, +3, +3, +3, +3

14. **(C)**
$$\begin{array}{cccccc} 2 & 14 & 38 & \boxed{86} & 182 & 374 \end{array}$$
+12   +24   +48   +96   192
×2, ×2, ×2, ×2

15. (B) p q / r r / p q / r r / p q / r r

16. (C)
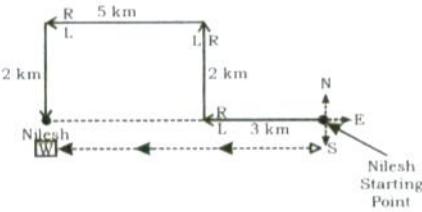
Nilesh's direction is **West** from the starting point.

17. (B)　　　　Middle

↑　↑　↑　↑　↑
C　D　**A**　B　E
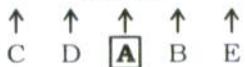
**18. (C)** Total students (20) = Mohan's rank from the top (13) + Mohan's rank from the bottom (x) – 1

∴　$20 = 13 + x - 1 \Rightarrow 20 - 13 = x - 1$

$7 = x - 1 \Rightarrow 7 + 1 = x \Rightarrow 8$

Hence, Mohan's rank from the bottom is **8ᵗʰ**.

19. (B)

C	O	D	I	N	G
3	15	4	9	14	7
+2	+2	+2	+2	+2	+2
5	17	6	11	16	9
E	Q	F	K	P	I

Similarly,

D	E	C	O	D	E
4	5	3	15	4	5
+2	+2	+2	+2	+2	+2
6	7	5	17	6	7
F	**G**	**E**	**Q**	**F**	**G**
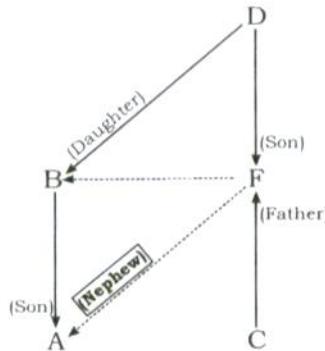
20. (A)

21. (D) The word **NEST** can't formed by using the letters of the word 'AWARE-NESS'. Because letter 'T' is present in 'NES**T**' but it is not present in the word 'AWARNESS'.

22. (C) I. According to conclusion I dance are beautiful but statement says Madhuri is beautiful.

II. Madhuri is beautiful and she can dance doesn't mean all beautiful women are dancers.
So, conclusion II is wrong.

III. Madhuri is beautiful and she can dance. It's sure, some beautiful women can also dance.
So, conclusion III is true.

IV. Not sure ugly women dance or not.
So, conclusion IV is wrong.

Hence, only III is true.

23. (B) $(4 \times 7) + (12 \div 3) = 32$ (Middle value)

$(5 \times 8) + (11 \div 1) = 56$ (Middle value)

Similarly,

$(9 \times 3) + (6 \div 2) = $ **30** (Middle value)

24. (D) From the choices:

(A) Replace (+, –, ÷, ×) signs to (×, ÷, –, +) respectively

We get,

$30 \times 10 \div 12 - 8 + 12 = 46$ [Use 'BODMAS' rule]

$30 \times 5 \div 6 - 8 + 12 = 46 \Rightarrow 25 + 4 = 46$

$\Rightarrow 29 \neq 46$

(B) Replace (×, –, ×, +) signs to (+, ÷, +, ×) respectively

We get,

$30 + 10 \div 12 + 8 \times 12 = 48$ [Use 'BODMAS' rule]

$30 + 0.83 + 96 = 48 \Rightarrow 126.83 \neq 48$

(C) Replace (÷, ×, +, –) signs to (–, +, ×, ÷) respectively

We get,

$30 - 10 + 12 \times 8 \div 12 = 44$ [Use 'BODMAS' rule]

$30 - 10 + 8 = 44 \Rightarrow 28 \neq 44$

(D) Replace (–, +, ÷, ×) signs to (÷, ×, –, +) respectively

We get,

30 ÷ 10 × 12 – 8 + 12 = 40

[Use 'BODMAS' rule]

$3 \times 12 + 4 = 40 \Rightarrow 36 + 4 = 40 \Rightarrow 40 = 40$

25. (C)
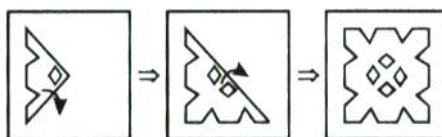
51. $\sec^4 \theta - \tan^4 \theta = \dfrac{2}{3}$

∵ $(\sec^2 \theta - \tan^2 \theta)(\sec^2 \theta + \tan^2 \theta)$

$= \dfrac{2}{3}$

∴　　　$\sec^2 \theta + \tan^2 \theta = \dfrac{2}{3}$

$$\therefore \quad \sec^2\theta + (\tan^2\theta - 1) = \frac{2}{3}$$

$$\therefore \quad 2\sec^2\theta - 1 = \frac{2}{3}$$

52. $\theta = 120^\circ$' **taking both sides** $\cos\theta = \cos120^\circ$

$$\cos120^\circ = \cos(90^\circ + 30^\circ)$$

$$= -\sin30^\circ$$

$$\therefore \quad 4\cos^2\theta + 8\cos\theta$$

$$= 4(-\sin30^\circ)^2 + 8(-\sin30^\circ)$$

$$= 4 \times \frac{1}{4} - 8 \times \frac{1}{2} = 1 - 4 = -3$$

53. figr

Let $ABCD$ is a trapezium which is inscribed in a semicircle with centre O

Diameter of circle $= 4$ cm

$\therefore$ Radius $= 2$ cm

$\therefore AOD, ODC$ and BOC are three equilateral triangle

$\therefore$ Area of trapezium $= 3 \times \dfrac{\sqrt{3}}{4} \times 2 \times 2$

$$= 3\sqrt{3} \text{ cm}^2$$

54. Length of minute hand = 6 cm

The minute hand will form a semicircle in 30 minutes

$\therefore$ Perimeter of region covered by minute hand in 30 minutes

$$= 3.14 \times 6$$

$$= 18.84 \text{ cm}$$

55. Let r_1 **and** r_2 **are the radii of two spheres**

$\therefore \quad r_1 \cdot r_2 = 98$ cm

Total surface are of both spheres

$= 4\pi r_1^2 + 4\pi_2^2 = 4\pi(r_1^2 + r_2^2)$

$$\therefore \quad 4 \times \frac{22}{7} \times (r_1^2 + r_2^2) = 3080$$

$$\therefore \quad r_1^2 + r_2^2 = 245$$

$$\therefore \quad (r_1 + r_2)^2 = r_1^2 + r_2^2 + 2r_1 r_2$$

$$= 245 + 196 = 441$$

$$\therefore \quad r_1 + r_2 = \sqrt{441} = 21$$

$\therefore$ Sum of radii $= 21$ cm

56. $\dfrac{8}{\sqrt[3]{49} + 1 - \sqrt[3]{7}} = a\sqrt[3]{49} + b\sqrt[3]{7} + C$

$$\therefore \quad \frac{(\sqrt[3]{7})^3 + (\sqrt[3]{7})}{\sqrt[3]{7^2} + \sqrt[3]{1^2} - \sqrt[3]{7}}$$

$$= \frac{\sqrt[3]{7} + \sqrt[3]{1})(\sqrt[3]{7^2} + \sqrt[3]{1^1} - \sqrt[3]{7})}{(\sqrt[3]{7^2} + \sqrt[3]{1^2} - \sqrt[3]{7})}$$

$[\because a^3 + b^3 = (a+b)(a^2 + b^2 - ab)$

$$\therefore \quad \sqrt[3]{7} + \sqrt[3]{1} = a\sqrt[3]{49}|b\sqrt[3]{7} + C$$

On comparing both sides

$$a = 0 b = 1, c = 1$$

$$\therefore \quad a + b + c = 2$$

57. $\sqrt{x^2 + x\sqrt{256 + 64}} = \sqrt{x^2 + x.16 + 8^2}$

$$= \sqrt{(x+8)^2}$$

$$= x + 8 = ax^2 + bx + c$$

On comparing both sides

$b = 1, c = 8, a = 0$

$$\therefore \quad a + b + c = 8 + 1 = 9$$

58. Given figr

In $\triangle ABC, D$ is the midpoint of AC / $\triangle ABC$

$$\therefore \quad AD = DC = BD = \frac{AC}{2}$$

Radius of the circle $= \dfrac{15}{2}$

$$= 7.5 \text{ cm}$$

59. figr

$$\angle BEC = 140^\circ$$

$$\angle AEB = 180^\circ - 140 = 40^\circ$$

($\because \angle AEB$ and $\angle BEC$ are linear pair

Jointed line AB and CD

$$\angle ACD = 30^\circ$$

$$\angle ABE = 30^\circ$$

$\therefore$ In $\triangle ABW$ / $\triangle ABE$

$$\angle ABE + \angle AEB + \angle BAE = 180^\circ$$

$$\therefore \quad 30^\circ + 40^\circ + \angle BAE = 180^\circ$$

$$\therefore \quad \angle BAE = 180^\circ - 70^\circ = 110^\circ$$

$$\therefore \quad \angle BAE = \angle BAC \text{ common angle of}$$

$\triangle ABE$ and $\triangle ABC$

$$\therefore \quad \angle BAC = 110^\circ$$

60. $\angle A - \angle B = 15^\circ$

$$\angle B - \angle C = 30^\circ$$

Subtract equation (i) from equation (ii)

$$\angle B - \angle C - \angle A + \angle B = 30^\circ - 15^\circ$$

$$-\angle A + 2\angle B - \angle C = 15^\circ$$

$$\angle A + \angle B + \angle C = 180^\circ$$

(Sum of all angles of triangle

Solving equation (iii) and (iv)

$$-\angle + 2\angle B - \angle C = 15^\circ$$

$$\underline{\angle A + \angle B + \angle C = 180^\circ}$$

$$\therefore \quad 3\angle B = 195^\circ$$

$$\therefore \quad \angle B = 65^\circ$$

61. Let the CP **of first fan** $= x$

$\therefore CP$ of second fan $= (4500 - x)$

SP of first fan

$$= CP \times \left(\frac{100 + \text{Profit}}{100}\right)$$

$$= CP \times \left(\frac{100 + 16}{100}\right)$$

$$= x \times \left(\frac{116}{100}\right) = \frac{29x}{25}$$

SP of second fan

$$= CP \times \left(1 - \frac{\%\text{Loss}}{100}\right)$$

$$= (4500 - x)\left(\frac{86}{100}\right)$$

$$= (4500 - x) \times \frac{43}{50}$$

Total SP

$$= \frac{29x}{25} + \frac{43(4500 - x)}{50}$$

$$= \frac{58x + 193500 - 43x}{50} = \frac{15x + 193500}{50}$$

$\because$ There is no profit or loss in whole transaction

$\therefore$ $CP = SP$

$\therefore$ $\dfrac{15x + 193500}{50} = 4500$

$\therefore$ $15x + 193500 = 225000$

$\therefore$ $15x = 225000 - 193500$

$\therefore$ $x = \dfrac{31500}{15} = 2100$

$\therefore$ Cost price of second fan $= 4500 - 2100 = 2400$

62. **Let the capital of money lender is** x

$\therefore$ Annual interest at the rate of 7%

$$= \frac{x \times 7 \times 1}{100} = \frac{7x}{100}$$

Annual interest at the rate of

$$= \frac{41}{6}\%$$

$$= \frac{x \times 41 \times 1}{100 \times 6} = \frac{41x}{600}$$

Decrement in income $\quad = \dfrac{7x \times 41 \times 1}{100 \times 6} = \dfrac{41x}{600}$

$$\frac{42x - 41x}{600} = 24$$

$$x = 24 \times 600 = 14400$$

$\therefore$ Capital of money lender

$$= 14400$$

63. **Relative speed of trains**

$$= 24 + 30 = 54 \text{ km/h}$$

Total distance= Distance between two place

$$= 324 \text{ km}$$

$\therefore$ Time to meet both the trains

$$= \frac{324}{54}$$

64. **Let the age of woman and her son is** $2x$ **and** x **years respectively**

Total age of woman and her son

$$= 51 \times 2 = 102 \text{ years}$$

$\therefore$ $2x + x = 102$

$\therefore$ $3x = 102$

$\therefore$ $x = \dfrac{102}{3} = 34$

$\therefore$ The age of son

$$= 34 \text{ years}$$

65. **30% of $(A + B)$ / $(A + B)$**

$\therefore$ $(A + B) \times \dfrac{30}{100} = B \times \dfrac{50}{100}$

$\therefore$ $3(A + B) = 5B$

$\therefore$ $3A + 3B = 5B$

$\therefore$ $3A = 2B$

$\therefore$ $\dfrac{3A + B}{3A - B} = \dfrac{2B + B}{2B - B} = \dfrac{3B}{B} = 3$

66. **Let the number of persons initially**

$$= x$$

$\therefore$ Total work $\quad = x \times 66 \text{units}$

If 10 persons come ten total number of persons

$$= (x + 10)$$

Time taken by $(x + 10)$ man to complete the work

$$= 66 - 11 = 55 \text{ days}$$

$\therefore$ $66x = 55(x + 10)$

$\therefore$ $66x = 55x + 550$

$\therefore$ $66x - 55x = 550$

$\therefore$ $x = \dfrac{550}{11} = 50$

$\therefore$ The number of persons initially

$$= 50$$

67. $\dfrac{A' \text{ Share}}{C' \text{s Share}}$

$\dfrac{B' s \text{Share}}{C' \text{s Share}} \qquad\qquad = \dfrac{1}{3}$

$\therefore$ $A : B = 1 : 3, B : C = 1 : 3$

$\therefore$ $A : B : C = 1 : 3 : 9$

Let share of A, B and C are $x, 3x$ and $9x$ respectively

$\therefore$ $9x = 27000$

$\therefore$ $x = 3000$

$\therefore$ Difference between $B's$ and $A's$ share

$$= 3x - x$$

$$= 2x = 2 \times 3000$$

$$= 6000$$

68. **Let selling price of 10 oranges** $= 1$

$\therefore$ Selling price of 1 orange $= \dfrac{1}{10}$

Cost price of 15 oranges $\quad = 1$

Profit $\qquad\qquad = \dfrac{1}{10} - \dfrac{1}{15} = \dfrac{3 - 2}{30} = \dfrac{1}{30}$

$\therefore$ $\% = \dfrac{\dfrac{1}{30} \times 100}{\dfrac{1}{15}}$

$$= \frac{100}{30} \times \frac{15}{1} = 50\%$$

69. $\dfrac{1}{3 + \dfrac{1}{1 + \dfrac{1}{2 + \dfrac{1}{4}}}} = \dfrac{1}{3 + \dfrac{1}{1 + \dfrac{1}{\dfrac{8 + 1}{4}}}}$

$$= \cfrac{1}{3+\cfrac{1}{1+\cfrac{4}{9}}} = \cfrac{1}{3+\cfrac{1}{\cfrac{9+4}{9}}}$$

$$= \cfrac{1}{3+\cfrac{9}{13}} = \frac{13}{48}$$

70. Let $x = \sqrt{2+\sqrt{2+\sqrt{2+\ldots\infty}}}$

Squaring both sides

$$x^2 = 2+\sqrt{2+\sqrt{2+\sqrt{2+\ldots\infty}}}$$
$$x^2 = 2-x = 0$$
$$x^2 = x-2 = 0$$
$$x^2 - 2x + x - 2 = 0$$
$$(x-2)(x+1) = 0$$
$$x = -1, 2$$
$$\therefore \qquad\qquad x = 2$$

71. **Total expenditure on raw material**

$$= \frac{144^\circ}{360^\circ} \times 36000$$
$$= 14400$$

72. **Expenditure on electricity bill**

$$= \frac{20}{100} \times 36000$$
$$= 7200$$

Expenditure on telephone bill

$$= \frac{36^\circ}{360^\circ} \times 3600 = 3600$$

$\therefore$ Ratio between expenditure on electricity bill and telephone bill

$$= 7200:3600 = 2:1$$

73. **Expenditure on transportation**

$$= 72^\circ$$

Expenditure on raw material

$$= 144^\circ$$

Let transportation expenditure is $x\%$ of raw material

$$\therefore \qquad\qquad 144^\circ \times \frac{x}{100} = 72^\circ$$

$$\therefore \qquad\qquad x = \frac{72^\circ \times 100}{144^\circ} = 50\%$$

$\therefore$ Required answer $\qquad = 50\%$

74. **Total expenditure on transport, telephone bill and raw material**

$$= 72^\circ + 36^\circ + 144^\circ = 252^\circ$$
$$= \frac{252^\circ}{360^\circ} \times 36000$$
$$= 25200$$

Expenditure on electricity bill

$$= \frac{20}{100} \times 36000 = 7200$$

Required answer $\qquad = \frac{25200}{7200}$

75. **Let the exprnditure on maintenance is $x\%$ of total expenditure**

$\therefore$ Maintenance cost $\qquad = \frac{36^\circ}{360^\circ} \times 36000 = 3600$

$$\therefore \qquad\qquad 36000 \times \frac{x}{100} = 3600$$

$$\therefore \qquad\qquad x = 10\%$$

$\therefore$ Required answer $\qquad = 10\%$