SOLUTION SSC MOCK-2

1. **(b)** Inch is smaller unit than yard. similarly, ounce is smaller unit than Quart.

2. **(c)** calorie is a unit of Heat. Similarly decibel is a unit of sound.

3. **(c)** $\underbrace{17 : 102}_{\times 6} :: \underbrace{23 : 138}_{\times 6}$

4. **(b)**

5. **(c)** All except (c) have difference of 17.

6. **(d)** Except PERU rest of the words have first and last letters as vowels.

7. **(a)** $47\frac{1}{2}$

8. **(b)** One side of the big cube $= \sqrt[3]{64} = 4$ cm Number of small cubes having three faces coloured = 1 at each corner.
$1 \times 8 = 8$

9. **(d)** 8^{th} Dec. 2006 is Friday.

10. **(a)**

11. **(c)**

12. **(d)** $4 \times 6 \div 2 - 4 + 8 = 16$
$4 \times 3 - 4 + 8 = 16$
$20 - 4 = 16$

13. **(b)** 2, 1, 4. 3

14. **(a)**

15. **(c)**
$4 + 4 + 7 + 4 = \sqrt{16}\,4$
$4 + 1 + 3 + 1 = \sqrt{9} = 3$
$5 + 6 + 6 + 8 = \sqrt{25} = 5$

16. **(d)**
L A C K = 396
$12 \times 1 \times 3 \times 11$
B A C K = 66
$2 \times 1 \times 3 \times 11$

17. **(b)**

18. **(c)**

19. **(b)**

20. **(b)** $20 + 10 = 30$

21. **(b)** The correct order = D > C > E > A > B

22. **(c)** a b a/ a b a/ a b a /a b a

23.(d) 24.(c) 25.(c) 26.(a) 27.(d) 28.(d) 29.(c)
30.(d) 31.(d) 32.(a) 33.(d) 34.(a) 35.(c) 36.(d) 37.(b) 38.(d) 39.(d) 40.(b) 41.(c) 42.(a) 43.(d) 44.(b) 45.(b) 46.(a) 47.(c) 48.(c) 49.(b) 50.(d)

51. **(b)**
$$x + \frac{1}{4}\sqrt{x} + a^2$$
$$\left(\sqrt{x}\right)^2 + 2.\sqrt{x}.\frac{1}{8} + (a)^2$$
Clearly, $a = \frac{1}{8}$
the expression $= \left(\sqrt{x} + \frac{1}{8}\right)^2$

52. **(c)**
in ΔDEB
$\tan 60° = \frac{DE}{BE} = \frac{x}{10}$
$x = 17.32$ m
Height of tower = DE + EC
$= 17.32 + 10$
$= 27.32$m

53. **(a)** Let the weight of new comer is x kg ATQ,
Total decrease in the weight of 30 boys
$= 30 \times 200$ gm = 6 kg
$\therefore x = 25 - 6 = 19$ kg

54. **(b)**
AB || EF || CD
$\Delta AGB = \frac{1}{2}$ (Area of rectangle) ABEF
$= \frac{1}{2} \times (\frac{1}{2}$ Area of rectangle ABCD)
$= \frac{1}{4}$ (Area of rectangle ABCD)

55. **(b)**
In figure L and M be the centres of the circles
$AQ = BQ = 2r$
in ΔAQB, L and M are the mid-points of AQ and BQ
LM || AB and LM = $\frac{1}{2}$ AB = r
Hence, AQ = BQ = AB = 2r [equilateral triangle]

56. **(b)** We known that y = 0 on x-axis
$\therefore$Putting y =0 in the line
$$5x + 9y = 45$$
$$5x = 45$$
$$x = 9$$

57. **(c)** Let the speed of the current is x km/hr
$$\left(\frac{28}{3} + x\right) t = 3\ t\left(\frac{28}{3} - x\right)$$
$$\frac{28 + 3x}{3} = \frac{84 - 9x}{3}$$
$$12x = 56$$
$$x = 4\frac{2}{3} \text{ km/h}$$

58. **(b)**
in first 10 minutes water will be filled = $10 \times 4l$
$= 40l$
Remaining time $= \left(\frac{60 - 40}{1}\right) = 20$ minutes

59. **(a)** Let the CP of article is Rs. 100
ATQ,
$$CP = \frac{10}{20} \times 100 = \text{Rs.}50$$

60. **(a)**

$$\text{Distance} = \frac{\frac{5}{2}\times\frac{7}{2}}{1}\times\frac{12}{60} = \frac{35}{20}$$
$$\frac{7}{4} = 1\frac{3}{4}\text{ km}$$

61. (c)

$$\frac{\cos x}{1+\frac{1}{\sin x}} + \frac{\cos x}{\frac{1}{\sin x}-1} = 2$$
$$\frac{\sin x\cos x}{1+\sin x} + \frac{\sin x\cos x}{1-\sin x} = 2$$
$$\frac{\sin x\cos x - \sin^2 x. + \sin x\cos x + \sin^2 x\cos x}{1-\sin^2 x} = 2$$
$$2\sin x\cos x = 2\cos^2 x$$
$$\tan x = 1,$$
then $\theta = 45°$

62. (c) Let the speed of train is x km/hr
ATQ,
$$(x-3)\times 10 = (x-5)\times 11$$
$$10x - 30 = 11x - 55$$
$$x = 25\text{ km/hr}$$

63. (a) Area of original circle $\pi r^2 = 36\pi cm^2$
Area of smallest circle $= \frac{1}{3}\times 36\pi = 12\pi cm^2$
Required radius $= 2\sqrt{3}$ cm

64. (d) 5, 4, $\sqrt{41}$ are the sides of a right angled triangle
Area of a triangle $= \frac{1}{2}\times 5\times 4 = 10\text{ cm}^2$

65. (c)
Required time $= \frac{24}{4} = 6$ days

66. (b) Volume of cone $= \frac{1}{3}\pi r^2$ h
$$\frac{1}{3}\times\pi\times 5x\times 5x\times 12x = \frac{2200}{7}$$
$$x = 1$$
$$r = 5x = 5cm$$
$$h = 12x = 12cm$$
$$1 = \sqrt{r^2+h^2} = 13\text{ cm}$$

67. (c) Length of the perpendicular
$$= \frac{12\times 3 + 5(-1) + 8}{\sqrt{12^2+5^2}}$$
$$= 3\text{ units}$$

68. (a) Time $= \frac{\text{SI}\times 100}{\text{Principle}\times\text{Rate}}$
$$= \frac{1080\times 100}{3000\times 12} = 3\text{ year}$$

69. (c) Let Boys : Girls
30 : 20
Non-adult boys $= 30\times\frac{80}{100} = 24$
Non-adult girls $= 20\times\frac{75}{100} = 15$
Total non-adult students = 24 + 15 = 39
then percentage $= \frac{39}{50}\times 100 = 78\%$

70. (b)
$$\sin^2 x + \sin x = 1$$
$$\sin x = 1 - \sin^2 x = \cos^2 x$$
$$\cos^{12} x + 3\cos^{10} x + 3\cos^8 x + \cos^6 x - 1$$
$$\cos^6 x[\cos^6 x + 3\cos^4 x + 3\cos^2 x + 1] - 1$$
$$\sin^3 x[\sin^3 x + 3\sin^2 x + 3\sin x + 1] - 1$$
$$\sin^3 x[\sin x + 1]^3 - 1$$
$$[\sin x(\sin x + 1)]^3 - 1$$
$$[\sin^2 x + \sin x]^3 - 1$$
$$1 - 1 = 0$$

71. (c)
$$\text{A : B : C} = \frac{1}{5}:\frac{1}{6}:\frac{1}{10} = \frac{6:5:3}{30}$$
$$\text{Share of A} = \frac{6}{14}\times 8400$$
$$= \text{Rs. } 3600$$

72. (a) By Alligation rule

73. (a) Persent age Ram : Shyam
$$5x + 10 : x + 10$$
$$5x + 30 = 2(x + 30)$$
$$x = 10$$

74. (a)
$$\text{Required \%} = \frac{62500}{75000}\times 100$$
$$\approx 83\%$$

75. (d)
Required difference = 137500 - 122500 = 15000

76.(d) 77.(c) 78.(b) 79(d) 80.(a) 81.(c) 82.(b) 83.(b) 84.(a) 85.(b) 86.(d) 87.(c) 88.(a) 89.(a) 90.(a) 91.(b) 92.(a) 93.(b) 94.(d) 95.(a) 96.(d) 97.(a) 98.(d) 99.(c) 100.(a)