

31. (2) $x = \frac{-3}{4}, \frac{-1}{2}$
 $y = -3, \frac{-4}{5}$
 $x > y$

32. (4) $x = \frac{-2}{3}, \frac{-1}{3}$
 $y = \frac{-7}{4}, \frac{-2}{3}$
 $x \geq y$

33. (4) $x = \frac{1}{5}, \frac{1}{2}$
 $y = \frac{1}{7}, \frac{1}{5}$
 $x \geq y$

34. (4) $x = -4, 2.5$
 $y = -5.5, -4$
 $x \geq y$

35. (4) $x = 3, 8$
 $y = 3, 1.5$
 $x \geq y$

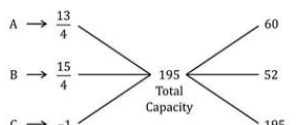
36. (3) P = 1,00,000 Rs.
 $A = P + \frac{P \times R \times T}{100} = 100000 + \frac{100000 \times 7.5 \times 6}{100} = 1,45,000 \text{ Rs.}$
 Total expenses = 6 (2525 + 575) = Rs. 18600
 Amount handed over to mirror boy = 145000 - 18600 = 1,26,400

37. (4)

A	B	C
5 : 2	4 : 1	4 : 1
$7 \times 5 \times 3$	$5 \times 7 \times 2$	$5 \times 7 \times 1$
$(75 : 30) \times \frac{1}{3}$	$(56 : 14) \times \frac{1}{2}$	$(28 : 7) \times \frac{1}{7}$
M	W	
25 : 10		
28 : 7		
4 : 1		
57 : 18		

% of water = $\frac{18}{75} \times 100 = 24\%$

38. (3)



A → $\frac{13}{4}$ → 60
 B → $\frac{15}{4}$ → 52
 C → 1 → 195
 Total Capacity = 195
 A fills till 3 pm = 60 × 2 = 120 units
 B fills till 3 pm = 52 × 1 = 52 units
 Total filled = 172 units
 Pipe C efficiency after 3 pm = 195 - 122 = 83 units/h
 Tank will be emptied in = $\frac{172}{83} = 2 \text{ hr } 4 \text{ min.}$

39. (4) B profit share in 1 year = 12 × 100 = Rs. 1200
 Interest of A = $\frac{10,000 \times 5 \times 1}{100} = \text{Rs. } 500$
 Interest of B = $\frac{4000 \times 5 \times 1}{100} = \text{Rs. } 200$
 Total profit of A and B = (1200 + 500 + 200) = Rs. 1900
 Remaining profit = 4000 - 1900 = Rs. 2100

Capital	A	:	B
	10000	:	4000
	5	:	2

Share of A in remaining profit = $\frac{5}{7} \times 2100 = \text{Rs. } 1500$
 Share of B in remaining profit = $\frac{2}{7} \times 2100 = \text{Rs. } 600$
 Total profit of A = 500 + 1500 = Rs. 2000
 Total profit of B = 1200 + 600 + 200 = Rs. 2000

40. (1) S.I. for 1 year = $\frac{3000}{3} = \text{Rs } 1000$
 C.I for 2 year = Rs 2050
 Required difference = (2050 - 2000) = 50
 Required rate % = $\frac{50}{1000} \times 100 = 5\%$
 $5\% = \frac{1000}{S} \times 100 = 20000$

41. (5) For year 1993, expenditure = $\frac{\text{income}}{100 + \text{profit\%}} \times 100$
 $= \frac{120}{(100+7.5)} \times 100 = 111.63$
 Profit = Income - expenditure = 120 - 111.63 = 8.37 lakh.
 Similarly,

For year 1994 profit = 20.86 lakh
 For year 1995 profit = 23.87 lakh
 For year 1996 profit = 25.32 lakh
 For year 1997 profit = 31.67 lakh
 For year 1998 profit = 32.35 lakh
 The amount of profit is maximum for the year 1998.

42. (2) Total expenditure
 $= \left(\frac{120}{107.5} + \frac{160}{115} + \frac{130}{112.5} + \frac{170}{117.5} + \frac{190}{120} + \frac{150}{127.5} \right) \times 100$
 $= 111.62 + 139.12 + 106.12 + 144.68 + 158.33 + 117.64$
 $= 777.51$

Avg. expenditure = $\frac{777.51}{6} = 130 \text{ Lakh}$

43. (1) For year 1994, increase in profit percentage
 $= \frac{15-7.5}{7.5} \times 100 = 100\% \text{ (maximum)}$

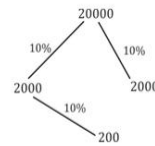
Similarly for year 1995 = 50%
 1996 = 22.22%
 1997 = 14.28%
 1998 = 37.5%

44. (3) Expenditure in 1994 = $\frac{160}{115} \times 100$
 $= 140 \text{ lakh (approximately)}$

45. (4) Expenditure = $\frac{190}{125} \times 100$
 $= 152 \text{ lakh}$

46. (2) Average = $\frac{32 \times 14 + 28 \times 13}{32 + 28} = \frac{448 + 364}{60} = 13.53$

47. (2) For first year



Amount end of the year = 20000 + 2000 + 2000 + 200 = 24200
 For second year 24200 → 20% → 4840
 Total interest = 4200 + 4840 = 9040

48. (4) Nandani's annual Salary = 2 × 1.08 = 2.16 lakh
 Nandani's monthly salary = 18000

Kaushal's monthly income = $\frac{16}{12} \times 18000 = 24000$

49. (4) Let the distance between the Tilak Nagar and Moti Nagar is d.

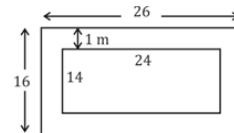
$$\frac{2d}{7} + \frac{10}{60} = \frac{d}{3} + \frac{d}{4}$$

$$\frac{4d}{7} + \frac{1}{6} = \frac{7d}{12}$$

$$\frac{1}{6} = \frac{7d}{12} - \frac{4d}{12} = \frac{3d}{12}$$

$d = 14 \text{ km}$

50. (3)



Area of path = 16 × 26 - 14 × 24
 $= 416 - 336$
 $= 80 \text{ m}^2$

Number of Marble = $\frac{80 \times 100 \times 100}{20 \times 20} = 2000$

51. (4) Req. Diff

$$= 50000 \times \frac{(68-32)}{100} + 20000 \times \frac{(64-36)}{100} + 50000 \times \frac{(74-26)}{100}$$

$$= 18000 + 5600 + 24000 = 47600$$

52. (1)

Total males matching Big Bang Theory
 $= 40000 \times \frac{12}{100} + 20000 \times \frac{10}{100} + 50000 \times \frac{18}{100} + 30000 \times \frac{16}{100} + 50000 \times \frac{22}{100}$
 $= 4800 + 2000 + 9000 + 4800 + 11000$
 $= 31600$
 Average = 6320

