

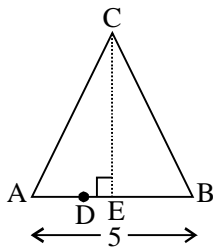
# WBCS (Main) Exam Paper – VI Practice Set

## Answers with Explanation

1. (a) Sum of A and B =  $20 \times 2 = 40$   
 Sum of B and C =  $19 \times 2 = 38$   
 Sum of C and A =  $21 \times 2 = 42$  প্র্যাচিউর্স  
 So, sum of A, B and C =  $\frac{40+38+42}{2} = 60$   
 So, value of A =  $60 - 38 = 22$

2. (a)  $M_1D_1 = M_2D_2$   
 $(4M + 6W) \times 8 = (3M + 7W) \times 10$   
 $32M + 48W = 30M + 70W$   
 $2M = 22W$   
 $M = 11W$   
 $M_1D_1 = M_3D_3$   
 $(4M + 6W) \times 8 = (20W) \times D_3$   
 $(4 \times 11W + 6W) \times 8 = (20W) \times D_3$   
 $D_3 = \frac{50 \times 8}{20} = 20$  days

3. (d)



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Required ratio = Area of  $\triangle ADC$  : Area of  $\triangle ABC$   
 $= \frac{1}{2} \times AD \times CE : \frac{1}{2} \times AB \times CE$   
 $= (5 - 3) : 5 = 2 : 5$

4. (d) Surface area of sphere =  $8\pi$

$$4\pi r^2 = 8\pi$$

$$r = \sqrt{2}$$

So, value of sphere =  $\frac{4}{3}\pi r^3$   
 $= \frac{4}{3} \times \pi \times (\sqrt{2})^3$   
 $= \frac{8\sqrt{2}}{3}\pi$  cubic unit

5. (a) Price of a pair of socks =  $180 \times \frac{80}{100} \times \frac{1}{12}$   
 $= ₹ 12/\text{dozen}$

So, pair of socks can be bought in

$$₹ 48 = \frac{48}{12} = 4 \text{ pairs}$$

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6. (b) Ratio of price of school bag and shoe =  $7 : 5$   
 ATQ,

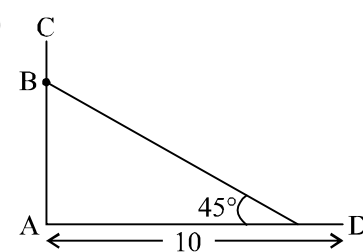
$$\text{Price of pair of shoe} = \frac{5 \times 200}{7 - 5} = ₹ 500$$

7. (c)  $x = 289N + 18$   
 $x = 17 \times 17N + 17 + 1$  প্র্যাচিউর্স  
 $= 17(17N + 1) + 1$   
 So, if same number is divided by 17 then remainder will be 1

8. (a) ATQ,

$$\text{Height of tower} = \frac{12}{8} \times 40 = 60 \text{ m}$$

9. (c)



In  $\triangle ABD$

$$AB = \tan 45^\circ \times AD = 10 \text{ m}$$

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$$BD = \sqrt{AB^2 + AD^2} = 10\sqrt{2} \text{ cm}$$

$$\text{Height of tree} = (10 + 10\sqrt{2}) \text{ m}$$

$$= 10(1 + \sqrt{2}) \text{ m}$$

10. (c) Difference =  $4 - 2 = 5 - 3 = 6 - 4 = 2$

So, required number = L.C.M. of 4, 5 and 6 - 2  
 $= 60 - 2 = 58$

11. (c) Let cost price of horse = ₹ x

Then cost price of carriage = ₹ (20000 - x)

ATQ,

$$x \times \frac{20}{100} - (20000 - x) \times \frac{10}{100} = 20000 \times \frac{2}{100}$$

$$20x - 20000 + 10x = 40000$$

$$30x = 240000$$

$$x = ₹ 8000$$

12. (d)  $x \times \left( \frac{100 - 4}{100} \right) \times \frac{100 - 10}{100} = 8640$  প্র্যাচিউর্স

$$x = \frac{8640 \times 100 \times 100}{96 \times 90}$$

$$= ₹ 10000$$

13. (a) Ratio of efficiency of men and women =  $3 : 2$

Work was completed in = 18 days

Let total units of work =  $18(3 + 2) = 90$

So, time taken by a woman to complete the work =  $\frac{90}{2} = 45$  days

$$14. (b) \text{ Speed of boat during downstream} = \frac{100}{10} = 10 \text{ km/hr}$$

$$\text{Speed of boat during upstream} = \frac{75}{15} = 5 \text{ km/hr}$$

$$\text{So, speed of stream} = \frac{10-5}{2} = 2.5 \text{ km/hr}$$

$$15. (d) \text{ Radio of conical tent} = 16 \text{ m} \quad \text{প্র্যাচিভর্স}$$

$$\text{Canvas required} = 427\frac{3}{7} \text{ m}^2$$

$$\pi r l = 427\frac{3}{7}$$

$$\frac{22}{7} \times 16 \times l = \frac{2992}{7}$$

$$l = \frac{2992}{7} \times \frac{7}{22 \times 16} = 8.5 \text{ m}$$

$$16. (a) \text{ Let fraction} = \frac{p}{q}$$

$$\frac{p+p \times \frac{150}{100}}{q+q \times \frac{300}{100}} = \frac{5}{18}$$

$$\frac{250p}{400q} = \frac{5}{18}$$

$$\frac{p}{q} = \frac{5}{18} \times \frac{8}{5} = \frac{4}{9}$$

$$17. (b) \text{ At the end, passenger in bus} = 80$$

Passenger in bus before 40 boarded =  $80 - 40 = 40$

Passenger in bus before second stop

$$= 40 \times \frac{5}{4} = 50 \quad \text{প্র্যাচিভর্স}$$

Passenger in bus before 35 boarded =  $50 - 35 = 15$

So, passenger in bus originally =  $15 \times 2 = 30$

$$18. (b) \text{ Speed of train} = 72 \text{ km/hr} = 72 \times \frac{5}{18} \text{ m/s} = 20 \text{ m/s}$$

$$\text{Distance covered in 1 minute} = 20 \times 60 = 1200 \text{ m}$$

Length of tunnel = 500 m

So, length of train =  $1200 - 500 = 700 \text{ m}$

$$19. (b) \text{ Total cost price} = ₹ 240$$

$$\text{Total banana purchased} = \frac{240}{48} \times 12 = 60$$

$$\text{Total selling price} = 240 \times \frac{125}{100} = ₹ 300$$

$$\text{Selling price of half bananas} = 30 \times 5 = ₹ 150$$

$$\text{Remaining bananas} = 60 - 30 = 30$$

$$\text{Bananas got rotten} = \frac{1}{6} \times 30 = 5$$

$$\text{So, remaining bananas} = 30 - 5 = 25$$

Selling price for remaining bananas

$$= \frac{300-150}{25} = ₹ 6 \quad \text{প্র্যাচিভর্স}$$

$$20. (d) M_1 D_1 = M_2 D_2$$

$$(40 - 35) \times (100 + 100) = 100 \times D_2$$

$$D_2 = 10$$

$$\text{So, extra days needed} = 35 + 10 - 40 = 5 \text{ days}$$

$$21. (b) \text{ Length of train} = 180 \text{ m}$$

$$\text{Relative speed} = (20 - 10) \text{ m/s} = 10 \text{ m/s}$$

$$\text{Time required to cross the man} = \frac{180}{10}$$

$$= 18 \text{ sec}$$

$$22. (a) \text{ Required Percentage} = \left(100 - \frac{100 \times 100}{100 + 20}\right)\%$$

$$= \left(100 - \frac{10000}{120}\right)\% = \frac{200}{12}\% = 16\frac{2}{3}\%$$

$$23. (c) \text{ Let speed of train initially} = x \text{ km/hr}$$

$$\frac{63}{x} + \frac{72}{x+6} = 3$$

$$\frac{21}{x} + \frac{24}{x+6} = 1$$

$$x^2 + 6x = 21x + 126 + 24x$$

$$x^2 - 39x - 126 = 0$$

$$(x - 42)(x + 3) = 0$$

$$\text{So, } x = 42$$

So, speed of train = 42 km/hr

$$24. (b) \begin{array}{rcc} & A & B \\ \text{First 6 months} & 35000 \times 6 & 0 \times 6 \\ \text{Last 6 months} & 35000 \times 6 & 60000 \times 6 \\ \hline & 35000 \times 12 & 60000 \times 6 \end{array}$$

So, ratio of profit of A and B = 7 : 6

Total profit = ₹ 26000

Difference between profit of A and B

$$= \frac{7-6}{7+6} \times 26000 = ₹ 2000$$

$$25. (d) \text{ Let principal} = ₹ x$$

$$\frac{3}{8}x = \frac{x \times \frac{25}{4} \times r}{100}$$

$$r = \frac{3 \times 100 \times 4}{8 \times 25}$$

$$r = 6\% \quad \text{প্র্যাচিভর্স}$$

26. (b) Defeated candidates get vote = 46%  
 Number of vote defeated by = 3680  
 So, total number of vote

$$= \frac{100}{(100-46)-46} \times 3680$$

$$= \frac{100}{8} \times 3680 = 46000$$

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27. (d) Selling price of sugar =  $\frac{608}{2} \times \frac{5}{100} = ₹ 15.20$

28. (d) Edge of larger cube (A) = 5 cm  
 Edge of smaller cube (a) = 1 cm  
 Required ratio =  $6a^2 : 6A^2 = 1^2 : 5^2 = 1 : 25$

29. (d) 

$S_1$	2.5	Time	14	Early/Delay
				+6 minutes
			35	
$S_2$	3.5	Time	10	-6 minutes
			4 hrs	+12 minutes

If there is difference of 4 hrs then distance = 35 km  
 Originally difference is 12 minutes then distance

$$= \frac{35}{4 \times 60} \times 12 = 1\frac{3}{4} \text{ km}$$

30. (c) 

25	4	
		100
4	29 hrs	25

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If it takes total 29 hrs then total distance = 100 kms  
 Originally takes total 5 hours 48 minutes then total distance

$$= \frac{100}{29} \times \frac{29}{5} = 20 \text{ km}$$

31. (c) Area of tank =  $180 \times 120 = 21600 \text{ m}^2$   
 Area of land (without tank) =  $40000 \text{ m}^2$   
 Area of field =  $40000 + 21600 = 61600 \text{ m}^2$   
 ATQ,  
 $\pi R^2 = 61600$

$$R^2 = 61600 \times \frac{7}{22} = 1960$$

$$R = 140 \text{ m}$$

Radius of field = 140 m

32. (c) 

C.P.	100	-20%	S.P.	80	} +25
	100	+5	105		

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If selling price is increased by ₹ 25 then cost price of article = ₹ 100  
 Originally selling price is increased by ₹ 100, so cost price of article

$$= ₹ \left( \frac{100}{25} \times 100 \right) = ₹ 400$$

33. (d) Principal =  $\frac{5400 \times 100}{12 \times 3} = ₹ 15000$  শ্রুতিভঙ্গ

34. (c) Amount after  $2\frac{1}{2}$  years = ₹ 1012  
 Amount after 4 years = ₹ 1067.20

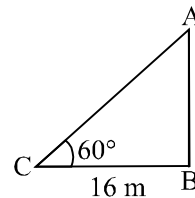
$$\text{S.I. for } 1\frac{1}{2} \text{ years} = ₹ (1067.20 - 1012) = ₹ 55.20$$

$$\text{So, S.I. for } 2\frac{1}{2} \text{ years} = \frac{55.20 \times 2 \times 5}{3 \times 2} = 92$$

$$\text{Principal} = ₹ (1012 - 92) = 920$$

$$\text{Rate of interest} = \frac{92 \times 100 \times 2}{920 \times 5} = 4\%$$

35. (c)



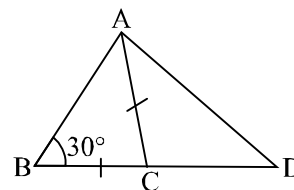
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Length of the shadow of tree (BC) = 16 m  
 So, height of tree (AB) =  $\tan 60^\circ \times 16 = 16\sqrt{3} \text{ m}$

36. (d) Radius of sphere =  $a$  units  
 Length of cube =  $2a$  units

$$\text{Required ratio} = (2a)^3 : \frac{4}{3} \pi (a)^3 = 6 : \pi$$

37. (b)



In  $\triangle ABC$

$$AC = BC$$

$$\angle BAC = \angle ABC = 38^\circ$$

$$\angle ACB = 180^\circ - 2 \times 38^\circ = 104^\circ$$

$$\angle ACD = 180^\circ - \angle BCA = 180^\circ - 104^\circ = 76^\circ$$

In  $\triangle ACD$

$$AD = CD$$

$$\angle ACD = \angle DAC = 76^\circ$$

$$\angle D = 180^\circ - 2 \times 76^\circ = 28^\circ$$

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38. (a) Let age of Seema =  $x$  years

$$\text{So, age of Harish} = 2x - 4$$

ATQ,

$$x(2x - 4) = 240$$

$$x^2 - 2x - 120 = 0$$

$$(x - 12)(x + 10) = 0$$

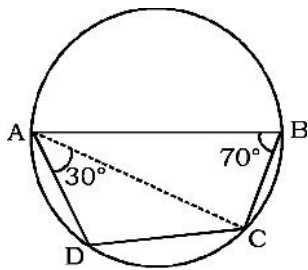
So,  $x = 12$  or  $-10$   
So, age of Seema = 12 years

39. (c) Weight of new player =  $42 + \frac{11 \times 100}{1000}$   
= 43.1 kg

40. (c) Volume of wall = 18225 m<sup>3</sup>  
Let breadth of the wall =  $x$  m  
So, Height of the wall =  $5x$  m  
So, Length of the wall =  $8 \times 5x = 40x$  m  
 $x \times 5x \times 40x = 18225$   
 $x^3 = \frac{18225}{200} = \frac{729}{8} = \left(\frac{9}{2}\right)^3$   
 $x = \frac{9}{2} = 4.5$  m

41. (b) First number  $\times$  second number = HCF  $\times$  LCM  
First number  $\times 32 = 16 \times 160$   
First number = 80

42. (a)



In  $\Delta ABC$   
 $\angle ABC = 70^\circ$   
 $\angle BCA = 90^\circ$   
 $\angle CAB = 180^\circ - \angle ABC - \angle BCA$   
 $= 180^\circ - 90^\circ - 70^\circ = 20^\circ$   
So,  $\angle BAD = \angle DAC + \angle CAB$   
 $= 30^\circ + 20^\circ = 50^\circ$   
So,  $\angle BCD = 180^\circ - 50^\circ = 130^\circ$   
 $\angle ACD = 130^\circ - 90^\circ = 40^\circ$

43. (a)  $\left(1^2 - \frac{1}{3^2}\right)\left(1^2 - \frac{1}{4^2}\right)\left(1^2 - \frac{1}{5^2}\right) \dots \left(1^2 - \frac{1}{100^2}\right)$   
 $= \left(\frac{3^2 - 1^2}{3^2}\right)\left(\frac{4^2 - 1^2}{4^2}\right)\left(\frac{5^2 - 1^2}{5^2}\right) \dots \left(\frac{100^2 - 1^2}{100^2}\right)$   
 $= \frac{(2 \times 4)(3 \times 5)(4 \times 6) \dots (98 \times 100)(99 \times 101)}{3 \times 3 \times 4 \times 4 \times 5 \times 5 \times \dots \times 100 \times 100}$   
 $= \frac{2 \times 3 \times 100 \times 101}{2 \times 3 \times 100 \times 100} = \frac{101}{150}$

44. (a)  $\sin \alpha + \sin \beta = a$

$$2 \sin \left(\frac{\alpha + \beta}{2}\right) \cos \left(\frac{\alpha - \beta}{2}\right) = a \dots (i)$$

$$\cos \alpha + \cos \beta = b$$

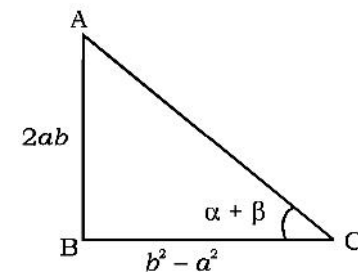
$$2 \cos \left(\frac{\alpha + \beta}{2}\right) \cos \left(\frac{\alpha - \beta}{2}\right) = b \dots (ii)$$

By equation (i) and (ii)

$$\tan \left(\frac{\alpha + \beta}{2}\right) = \frac{a}{b}$$

$$\tan 2A = \frac{2 \tan A}{1 - \tan^2 A}$$

$$\tan(\alpha + \beta) = \frac{2 \times \frac{a}{b}}{1 - \frac{a^2}{b^2}} = \frac{2ab}{b^2 - a^2}$$



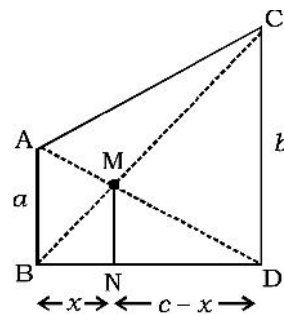
$$AC = \sqrt{(2ab)^2 + (b^2 - a^2)^2}$$

$$= \sqrt{4a^4b^2 + b^2 + a^2 - 2a^2b^2} = a^2 + b^2$$

$$\cos(\alpha + \beta) = \frac{b^2 - a^2}{a^2 + b^2}$$

45. (d)  $p + q = 2$   
 $(p + q)^3 = (2)^3$   
 $p^3 + q^3 + 3pq(p + q) = 8$   
 $p^3 + q^3 + 6pq = 8$

46. (b)



$$\Delta BNM \sim \Delta BDC$$

$$\frac{BN}{BD} = \frac{MN}{CD} = \frac{MB}{BC}$$

$$\frac{x}{c} = \frac{h}{b} \Rightarrow x = \frac{ch}{b} \dots (i)$$

$$\Delta DNM \sim \Delta DBA$$

$$\frac{DN}{DB} = \frac{MN}{AB} = \frac{MD}{AD}$$

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$$\frac{c-x}{c} = \frac{h}{a} \Rightarrow ac - ax = hc$$

$$x = \frac{ac - ch}{a}$$

From equation (i) and (ii)

$$\frac{ch}{b} = \frac{ac - ch}{a}$$

$$ach = abc - bch$$

$$h(ac + bc) = abc$$

$$h = \frac{abc}{ac + bc}$$

$$h = \frac{ab}{a+b} m$$

47. (c) 13% of monthly salary = ₹ 8554

$$\text{Monthly salary} = 8554 \times \frac{100}{13} = ₹ 65800$$

$$\text{Total investment} = 13 + 23 + 8 = 44\%$$

$$\text{So, monthly investment} = 65800 \times \frac{44}{100} = ₹ 28952$$

$$\text{So, annually investment} = ₹ (28952 \times 12) = ₹ 347424$$

48. (a) Let amount = ₹ x

Rate of interest = 15%

ATQ,

$$x \left( 1 + \frac{15}{100} \right)^3 - x = 6500.52$$

$$x \left[ \left( \frac{23}{20} \right)^3 - 1 \right] = 6500.52$$

$$x \left[ \frac{12167 - 8000}{8000} \right] = 6500.52$$

$$x = \frac{6500.52 \times 8000}{4167}$$

$$= ₹ 12480$$

49. (d) Cost price of article =  $\left( \frac{878 + 636}{2} \right) = ₹ 757$

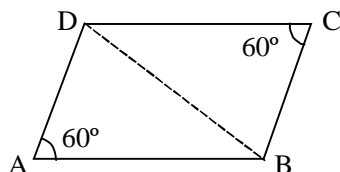
50. (b) Total distance = 1230 kms

Time taken by train = 5 hrs

$$\text{Speed of train} = \frac{1230}{5} = 246 \text{ km/hr}$$

$$\text{So, Speed of truck} = \frac{1}{3} \times 246 = 82 \text{ km/hr}$$

51. (a)



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In ABCD

$$\angle BAD = \angle DCB = 60^\circ$$

$$AB = AD = 15 \text{ cm } (\because \text{Rhombus})$$

In  $\triangle ABD$

$$\angle BAD = 60^\circ$$

$$AB = AD$$

$$\therefore \angle BDA = \angle ABD = \frac{180^\circ - \angle BAD}{2}$$

$$= \frac{180^\circ - 60^\circ}{2} = 60^\circ$$

$$\angle ABD = \angle BDA = \angle BAD = 60^\circ$$

So,  $\triangle ABC$  is an equilateral triangle

$$\text{So, } AB = BD = DA = 15 \text{ cm}$$

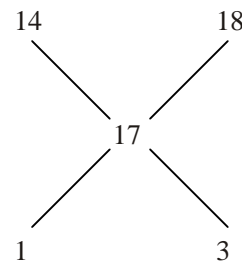
52. (d) Number will be =  $969x + 143$

$$= 57 \times 17x + 57 \times 2 + 29$$

$$= 57(17x + 2) + 29$$

So, if same number is divided by 57, then remainder will be 29.

53. (a) **Gold Type-1**      **Gold Type-2**



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So, required ratio of gold = 1 : 3.

54. (b) **Milk Water**      **Milk Water**

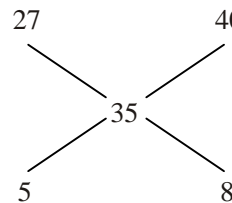
$$\text{Mixture A} \quad 3 : 7 \times 9 \Rightarrow 27 : 63$$

$$\text{Mixture B} \quad 4 : 5 \times 10 \Rightarrow 40 : 50$$

$$\text{Final Mixture} \quad 7 : 11 \times 5 \Rightarrow 35 : 55$$

**Mixture - A**

**Mixture - B**



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So, required ratio = 5 : 8

55. (c) 6% of Sandeep's salary = ₹ 4800

$$\text{Sandeep's salary} = ₹ \left( \frac{4800}{6} \times 100 \right) = ₹ 80000$$

$$\text{So, Keshav's salary} = ₹ \left( 80000 \times \frac{100}{160} \right)$$

$$= ₹ 50000$$

56. (b) Amount = 9 × Principal

$$A = P \left( 1 + \frac{R}{100} \right)^2$$

$$9P = P \left( 1 + \frac{R}{100} \right)^2$$

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$$(3)^2 = \left( 1 + \frac{R}{100} \right)^2$$

$$1 + \frac{R}{100} = 3$$

$$\frac{R}{100} = 2$$

$$R = 200\%$$

57. (d) Let C.P. = ₹ 100

$$\text{M.P.} = ₹ 130$$

$$\text{Discount} = 40\%$$

$$\text{S.P.} = \left( 130 \times \frac{60}{100} \right) = ₹ 78$$

$$\text{Loss\%} = ₹ (100 - 78) = ₹ 22$$

58. (b) A : B : C : D : E =  $\frac{1}{2} : \frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{1}{6}$  প্র্যাচিভর্স

$$= 30 : 20 : 15 : 12 : 10$$

So, minimum number of peus required

$$= 30 + 20 + 15 + 12 + 10 = 87$$

59. (a) Let the correct answered questions are = x

$$x \times 5 - (36 - x) \times 3 = 52$$

$$5x - 108 + 3x = 52$$

$$5x + 3x = 160$$

$$x = 20$$

60. (b) Marked price = ₹ 640

$$\text{Cost price} = ₹ 448$$

$$\text{First discount} = 20\%$$

So, price of watch after first discount

$$= ₹ \left( 640 \times \frac{80}{100} \right) = ₹ 512$$

$$\text{So, second discount} = \frac{512 - 448}{512} \times 100$$

$$= \frac{64}{512} \times 100 = 12\frac{1}{2}\%$$

61. (c) Let marked price of shirt be = ₹ 200

So, marked price of trouser be = ₹ 300

$$\text{Selling price of shirt} = ₹ \left( 200 \times \frac{7}{100} \right) = ₹ 140$$

Total selling price

$$= ₹ (200 + 300) \times \frac{80}{100} = ₹ 400$$

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Required discount

$$= \frac{100 - (200 - 140)}{300} \times 100 = \frac{40}{3} = 13\frac{1}{3}\%$$

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62. (c) Increase in area =  $3 + 3 + \frac{3 \times 3}{100} = 6.09\%$

63. (c) Ratio of their daily income =  $\frac{125}{8} : \frac{140}{10}$   
= 125 : 112

64. (a) **Investment Investment Investment**

**of A of B of C**

For First 2000×3 0×3 0×3

3 months

For next 2000×7 4000×7 0×7

7 months

For last 2000×2 4000×2 1000×2

2 months

24000 36000 20000

So, ratio of profit of A, B and C = 6 : 9 : 5

Total profit = ₹ 5600

$$\text{So, profit of A} = \frac{6}{20} \times 5600 = ₹ 1680$$

$$\text{So, profit of B} = \frac{9}{20} \times 5600 = ₹ 2520$$

$$\text{So, profit of C} = \frac{5}{20} \times 5600 = ₹ 1400$$

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65. (d) Required difference

$$= \frac{2200 \times 36 \times 2}{100} - \left[ 2200 \left( 1 + \frac{30}{100} \right)^2 - 2200 \right]$$

$$= 1584 - [3718 - 2200] = 66$$

66. (d) Percentage of candidates passed in both the subjects

$$= 100 - [23 + 57 - 13]$$

$$= 100 - 67 = 33\%$$

67. (b) Let whole capital = ₹ 300

ATQ,

Total interest

$$= \frac{300}{3} \times \frac{3}{100} + \frac{300}{2} \times \frac{7}{100} + 50 \times \frac{9}{100}$$

$$= 3 + 10.5 + 4.5 = 18$$

$$\text{So, rate of interest} = \frac{18}{300} \times 100 = 6\%$$

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68. (c)  $P_1$  25  $\begin{matrix} \diagup \\ \diagdown \end{matrix}$  2

$$\frac{P_1 + P_2}{P_2} \quad 50 \quad \frac{1}{-1}$$

So, leak ( $P_2$ ) can empty the tank

$$= \frac{50}{1} = 50 \text{ minutes}$$

অ্যাচিভার্স

69. (c) ATQ,

$$\begin{aligned} \text{Length of platform} &= 60 \times \frac{6}{18} \times 30 - 200 \\ &= 500 - 200 = 300\text{m} \end{aligned}$$

$$\begin{array}{r} 70. \text{ (a) } A + B \quad 8 \text{ ————— } 3 \\ \quad \quad \quad B \quad 12 \text{ — } 24 \text{ ————— } 2 \\ \quad \quad \quad C \quad 12 \text{ — } \quad \quad \quad 2 \end{array}$$

Let total units of work = 24

So, units of work done by A = 3 - 2 = 1

Work done by A and B in 4 days = 3 × 4 = 12

Work done by B in next 2 days = 2 × 2 = 4

Remaining units of work = 24 - 12 - 4 = 8

Time taken by C to finish the work =  $\frac{8}{2}$

= 4 days

71. (c) Present age of 6 members family

= 17 × 6 = 102 years

Present age of 5 members family

= (17 × 5) + 3 × 5 = 100 years.

So, age of new born baby = 102 - 100

= 2 years

72. (b) Sum of first 25 terms

$$= \frac{25}{2} [2 \times 6 + (25 - 1) \times 4]$$

$$= \frac{25}{2} (12 + 96) = 1350$$

$$73. \text{ (b) Total sum} = 114.75 \times \frac{100}{80} \times \frac{100}{60} \times \frac{100}{70}$$

$$= 341.51$$

74. (b) Each friend invested = ₹ x

Amount invested by 3 friends = ₹ 3x

If two more friends invest ₹ x each then total amount = ₹ (3x + 2x) = ₹ 5x

Amount saved by 3 friends = Amount invested by 2 friends = 2x

$$3 \times 14400 = 2x$$

$$x = 21600$$

Total investment of 3 friends

$$= ₹ (3 \times 21600) = ₹ 64800$$

$$75. \text{ (b) Decrease in area} = 50 + 50 - \frac{50 \times 50}{100} = 75\%$$

$$76. \text{ (d) Rise in level of field} = \frac{40 \times 30 \times 12.5}{1000 \times 30} = 0.5 \text{ m}$$

77. (d) Average age of seven person = 30 years

Average age of five person = 31 years

So, average age of remaining two

$$= \frac{30 \times 7 - 31 \times 5}{2} = 27.5 \text{ years}$$

অ্যাচিভার্স

$$78. \text{ (b) Height of cone} = \frac{\frac{1}{3} \pi \times 1.6 \times 1.6 \times 3.6}{\frac{1}{3} \pi \times 1.2 \times 1.2} = 6.4 \text{ cm}$$

79. (c) Let first number = 2x

So, Second number = 5x

Let third number = y

ATQ,

$$= \frac{(2x + 6)(5x + 6)y}{2x \times 5x \times y} = \frac{3200}{800}$$

$$10x^2 + 30x + 12x + 36 = 40x^2$$

$$30x^2 - 42x - 36 = 0$$

$$(5x + 3)(x - 2) = 0$$

So, x = 2

First number = 2 × 2 = 4

Second number = 5 × 2 = 10

$$\text{Third number} = \frac{800}{4 \times 10} = 20$$

So, largest among all number = 20

80. (a) Average weight of 45 boys in a school = 50 kg

Average weight of (45 boys + 5 girls) in that school = 49.5 kg

So, average weight of 5 girls

$$= \frac{50 \times 49.5 - 45 \times 50}{5} = 45 \text{ kg}$$

$$81. \text{ (d) Distance to be travelled} = 48 \times \frac{50}{60} = 40 \text{ km}$$

Time = 40 minutes

$$\text{So, speed must be} = \frac{40}{\frac{40}{60}} = 60 \text{ km/hr}$$

82. (c) Ratio of number of coins = 5 : 9 : 4

$$\text{So, amounts to be} = 5 \times \frac{1}{2} + 9 \times \frac{1}{4} + 4 \times \frac{1}{10}$$

$$= ₹ 5.15$$

Total amount we have = ₹ 412

So, number of 10 paise coins

$$= \frac{4}{5.15} \times 412 = 320$$

83. (a) Ratio of investment of A, B and C = 2 : 3 : 5

Ratio of profit of A, B and C = 5 : 3 : 12

$$\text{So, ratio of time of A, B and C} = \frac{5}{2} : \frac{3}{3} : \frac{12}{5}$$

$$= 25 : 10 : 24$$

84. (a)  $120^\circ + \frac{x}{2} = x \times 6$

$$x = \frac{120^\circ \times 12}{11} = 21 \frac{9}{11}$$

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So, required time =  $4 : 21 \frac{9}{11}$

85. (a)  $A(\uparrow) \quad 3 \frac{\text{—————}}{\text{—————}} 7$   
 $\frac{A+B}{B(\downarrow)} \quad \frac{7}{2} \frac{\text{—————}}{\text{—————}} \frac{6}{-1}$

So, time taken by leakage to empty the tank

$$= \frac{21}{1} = 21 \text{ hours}$$

86. (b)  $A \quad 8 \frac{\text{—————}}{\text{—————}} 15$   
 $B \quad 12 \frac{\text{—————}}{\text{—————}} 120 \frac{\text{—————}}{\text{—————}} 10$   
 $C \quad 15 \frac{\text{—————}}{\text{—————}} 8$

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Let total units of work = 120

Work done by (A + B) in 2 days =  $2 \times (15 + 10)$   
 = 50 units

Remaining units of work =  $120 - 50 = 70$  units

Work done by (B + C) in a day =  $10 + 8 = 18$

Time taken of finish the remaining work

$$= \frac{70}{18} = 3 \frac{8}{9}$$

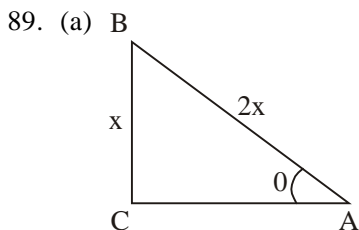
Total the taken =  $2 + 3 \frac{8}{9} = 5 \frac{8}{9}$  days

87. (a)

88. (d)  $\frac{1}{x} + \frac{2}{2y} = \frac{3}{6z}$

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$$\frac{1}{2z} = \frac{2}{x} + \frac{1}{y}$$

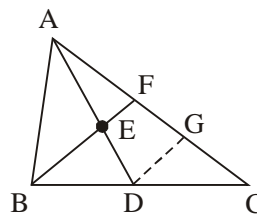


$$\sin \theta = \frac{2}{2x} = \frac{1}{x} = \sin 30^\circ$$

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$$\theta = 30^\circ = \frac{\pi}{6}$$

90. (c)



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In  $\triangle AGD$

$$AE = GD$$

$$\text{So, } AF = FG \quad \dots (i)$$

In  $\triangle BCF$

$$CD = BD$$

$$\text{So, } FG = CG$$

$$AF = \frac{AC}{3}$$

91. (c) Weight of alloy A = 60 kg

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Ratio of lead and tin = 3 : 2

So, weight of lead and tin = 36 kg and 24 kg

Weight of alloy B = 100 kg

Ratio of tin and copper = 1 : 4

So, Weight of tin and copper = 20 kg and 80 kg

So, weight of tin in mixture A and B

$$= 24 + 20 = 44 \text{ kg}$$

92. (c) Required percentage

$$= \left( \frac{100 + 200}{150 + 225} \right) \times 100 = 80\%$$

93. (c)

94. (b) Required percentage =  $\frac{150}{275} \times 100 = 54.5\%$

95. (a) Required percentage

$$= \frac{150 - 125}{150} \times 100 = 16.7\%$$

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96. (d) Required ratio =  $1200 : 1025 = 48 : 41$

97. (a)  $4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} = 4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{\frac{9}{4}}}}$

$$= 4 - \frac{5}{1 + \frac{1}{3 + \frac{4}{9}}}$$

$$= 4 - \frac{5}{1 + \frac{1}{\frac{31}{9}}}$$

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$$= 4 - \frac{5}{1 + \frac{9}{31}}$$

$$= 4 - \frac{5 \times 31}{40}$$

$$= \frac{160 - 155}{40} = \frac{5}{40} = \frac{1}{8}$$

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98. (d) P + Q  $\frac{6}{5}$  ————— 10

Q + R  $\frac{60}{7}$  ————— 7

60

Let total units of work = 60 units  
 So, work done by (P + Q) in 3 days =  $3 \times 10 = 30$  units  
 So, work done by (Q + R) in 3 days =  $3 \times 7 = 21$  units  
 Remaining work =  $60 - 30 - 21 = 9$  units  
 Time taken by R = 3 days

So, R can complete the work =  $\frac{3}{9} \times 60$

= 20 days  
 Units of work done by R in a day = 3 units  
 So, units of work done by Q in a day =  $7 - 3$  units  
 So, units of work done by P in a day =  $10 - 4 = 6$  units  
 Time taken by P to complete the work =  $\frac{60}{6} = 10$  days

শ্রুতিভঙ্গি

Required number of days =  $20 - 10 = 10$  days

99. (b) 60% of A = 30% of B  $\Rightarrow 2A = B$

B = 40% of C  $\Rightarrow B = \frac{2}{5} C$

So,  $2A = \frac{2}{5} C$

$5A = C$   
 500% of A = C

100.(c) Cost price of 200 oranges = ₹ 1000

Profit percent = 25%

Selling price of 200 oranges = ₹ 1250

So, number of oranges in ₹ 100 he sold

=  $\frac{200}{1250} \times 100 = 16$

101.(b)  $25 \times (2 + 5) - (2 + 5) = 168$

Similarly,

$32 \times (3 + 2) - (3 + 2) = 155$

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102.(a) A P P L E : 45 :: O R A N G E : 54

↓ ↓ ↓ ↓ ↓ ↑   ↓ ↓ ↓ ↓ ↓ ↓ ↑

Sum of Place (1+16+16+12+5)=45   (15+18+1+14+7+5+)-6=54  
 Value - number of digits

103.(d)

104.(b)

105.(a) (a)  $66 - 56 = 10$

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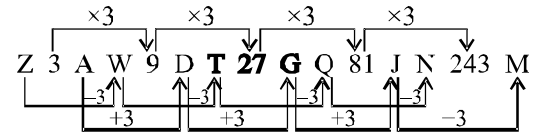
(b)  $101 - 90 = 11$

(c)  $41 - 30 = 11$

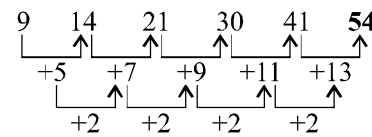
(d)  $33 - 22 = 11$

106.(b) Deva > Shiva > Meena = Mani > Sudha

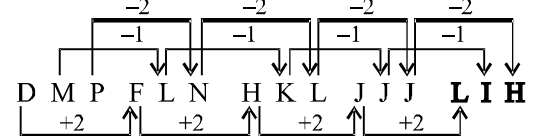
107.(b)



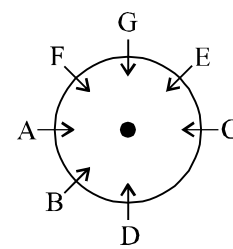
108.(d)



109.(b)

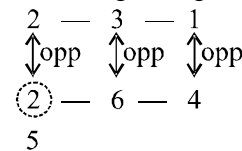


110.(c)



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111.(c) According to figure II and IV



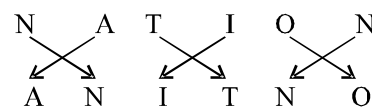
112.(b)  $(15 \times 10) + (130 \div 10) - 50$

=  $(150) + (13) - 50$

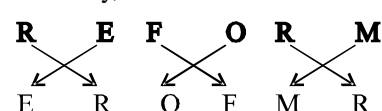
=  $150 + 13 - 50$

=  $163 - 50 = 113$

113.(a)



Similarly,



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114.(c)  $0 \times 3 + 1 = 1$

$1 \times 3 + 1 = 4$

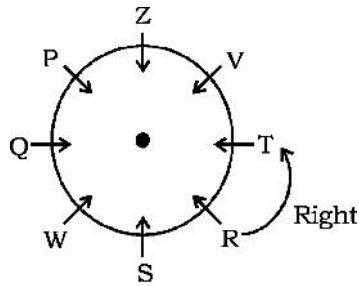
$4 \times 3 + 1 = 13$

$13 \times 3 + 1 = 40$

Then,  $40 \times 3 + 1 = 121$



138.(b)



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139.(d)  $\frac{\text{Ambivalence}}{3} \quad \frac{\text{Ecstasy}}{4} \quad \frac{\text{Euphoria}}{1} \quad \frac{\text{Happiness}}{2}$   
 $\frac{\text{Pleasure}}{5}$

140.(a) a **a** b b / a **a** b **b** / a a b **b** / a **a** b b / a a b

141.(b) Number of cube without painted

$$(n - 2)^3 = (4 - 2)^3 = 2^3 = 8$$

142.(c)  $\begin{matrix} 6 & 8 & 4 \\ \downarrow & \downarrow & \downarrow \\ 1 & 3 & 2 \end{matrix}$  and  $\begin{matrix} 9 & 7 & 0 \\ \downarrow & \downarrow & \downarrow \\ 5 & 4 & 6 \end{matrix}$

$$\begin{matrix} 4 & 7 & 8 \\ \downarrow & \downarrow & \downarrow \\ 2 & 4 & 3 \end{matrix} + \begin{matrix} 6 & 0 & 9 \\ \downarrow & \downarrow & \downarrow \\ 1 & 6 & 5 \end{matrix} = 408$$

শ্রুতিভঙ্গ

143.(c)  $\begin{matrix} M & U & N & I \\ \swarrow & \searrow & \swarrow & \searrow \\ I & N & M & U \end{matrix} \quad \begin{matrix} C & I & P & A \\ \swarrow & \searrow & \swarrow & \searrow \\ A & P & C & I \end{matrix} \quad \begin{matrix} L & I & T & Y \\ \swarrow & \searrow & \swarrow & \searrow \\ Y & T & L & I \end{matrix}$

Similarly,

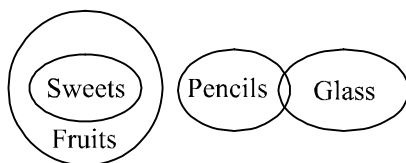
$\begin{matrix} J & U & D & I \\ \swarrow & \searrow & \swarrow & \searrow \\ I & D & J & U \end{matrix} \quad \begin{matrix} C & I & A & L \\ \swarrow & \searrow & \swarrow & \searrow \\ L & A & C & I \end{matrix}$

144.(a) Pit **nae** **tom** → apple **is** **green** ....(i)  
**nae** **ho** tap → **green** and white ....(ii)  
**ho** **tom** ka → shirt **is** white ....(iii)

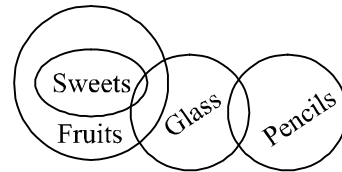
145.(c)

146.(b)

147.(d)



or,



Either Conclusion (I) or (III) follows

148.(b)  $(9 \times 4) - (4 \times 4) = 20$   
 $(8 \times 5) - (5 \times 5) = 15$

Similarly,

$(7 \times 6) - (6 \times 6) = 6$

শ্রুতিভঙ্গ

149.(a)  $(7 - 2) \Rightarrow 5^2 - 2 = 23$   
 $(9 - 5) \Rightarrow 4^2 - 5 = 11$

$(11 - 4) \Rightarrow 7^2 - 4 = 45$

$(10 - 3) \Rightarrow 7^2 - 3 = 46$

150. ... TRANSMIT

151.(b) As, 22 April is celebrated as World Earth Day. Similarly, 24 April is celebrated as **National Women's Political Empowerment Day**.

152.(a)  $4 : 32 :: 7 : 98$   
 $\frac{4^2 + 4^2}{4} \quad \frac{7^2 + 7^2}{7}$

153.(b) Length  $\times$  Breadth = Area

Similarly,

$2(\text{length} + \text{breadth}) = \text{Perimeter}$

154.(b)  $72 : 18 :: 56 : 22$   
 $\frac{(7+2) \times 2}{7} \quad \frac{(5+6) \times 2}{5}$

শ্রুতিভঙ্গ

155.(d)  $\frac{123}{(1+2+3)=6=6^2} : 36 :: \frac{221}{(2+2+1)=5=5^2} : 25$

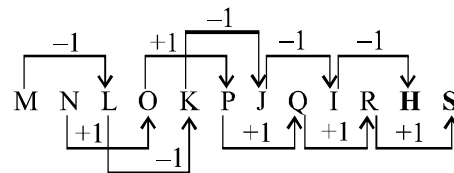
156.(d)

157.(d) Except option (d), all are capital cities.

158.(d) 729, 784, 841, 900, **1904**  $\leftrightarrow$  961  
 $\frac{+55}{729} \quad \frac{+57}{784} \quad \frac{+59}{841} \quad \frac{+61}{900} \quad \frac{+61}{1904} \quad \frac{+61}{961}$

159.(c)  $\begin{matrix} 1, & 2, & 5, & 16, & 65, & 326 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 0 \times 0 + 1 & 1 \times 1 + 1 & 2 \times 2 + 1 & 5 \times 3 + 1 & 16 \times 4 + 1 & 65 \times 5 + 1 \end{matrix}$

160.(c)



161.(d)

$\frac{2}{(2 \times 5)} \quad \frac{5}{10} \quad \frac{10}{50} \quad \frac{50}{500} \quad \frac{500}{2500}$   
 $\frac{10 \times 50}{500} \quad \frac{2500}{500 \times 50}$

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162.(b) a a **a** b / a a b c / a a c d / a a d a

163.(c)  $3^2 + 4^2 = 25 = 25 \times 3 = 75$

$6^2 + 7^2 = 85 = 85 \times 3 = 255$

Similarly,

$$9^2 + 11^2 = 202 = 202 \times 3 = \mathbf{606}$$

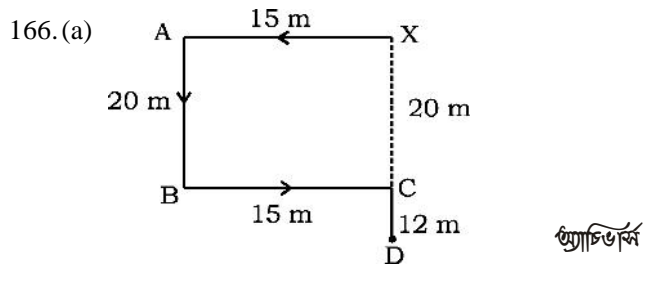
164.(c)  $\sqrt{144} \times \sqrt{121} = 12 \times 11 = 132$  প্র্যাচিভর্স

Similarly,

$$\sqrt{64} \times \sqrt{121} = 8 \times 11 = \mathbf{88}$$

165.(c)

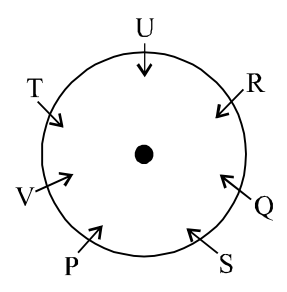
1	H	E	A	T	2
	A			R	
	N			E	
3	D	I	N	E	4



Required Distance = 20 + 12 = 32 m in South Direction

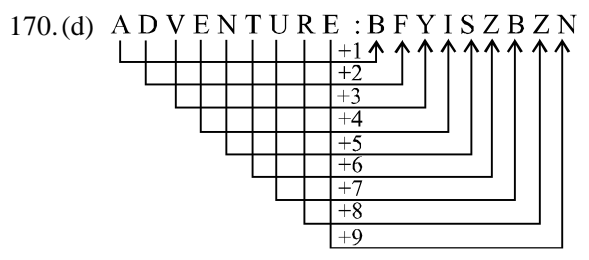
167.(d)

168.(d) Read 'True' as 'False'

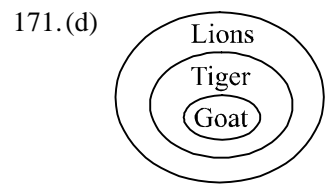
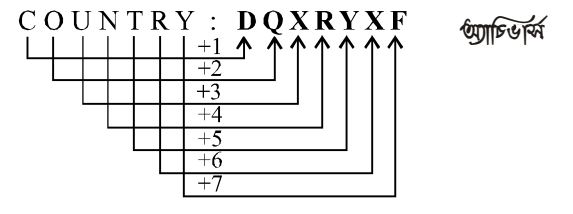


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169.(c) Boy is shy =  $\boxed{2}$  5 6 ... (i)  
 Ram was shy =  $\triangle$   $\boxed{4}$   $\boxed{2}$   $\textcircled{3}$  ... (ii)  
 He was wise =  $\textcircled{3}$  9 7 ... (iii)  
 From (i), (ii) and (iii) Ram = 4



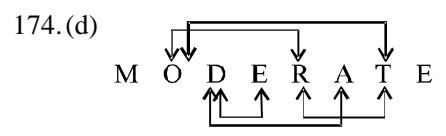
Similarly,



Conclusion- I - ×  
 II - ×  
 III - ×  
 IV - ×

172.(d)  $(15 - 9) + (12 - 4) - (4 + 4) = 6 + 8 - 8 = 6$  প্র্যাচিভর্স

173.(c)



175.(a)

176.(b)  $64 : 513 :: 144 : 1729$   
 $8^2 : 8^3 + 1 :: 12^2 : 12^3 + 1$

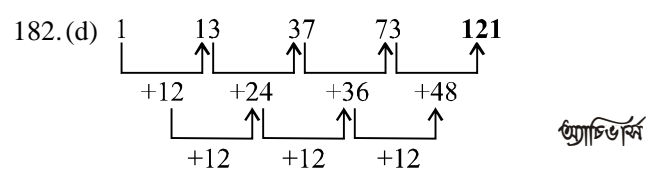
177.(a) Skating is played in the ring. Similarly, ..... **court**.

178.(d) Create is the antonym of destroy. Similarly, Purchase is the antonym of **Sell**.

179.(a)  $6 : 2 \ 2 \ 2 :: 7 : 350$   
 $\boxed{(6)^3 + 6} \uparrow \quad \boxed{(7)^3 + 7} \uparrow$

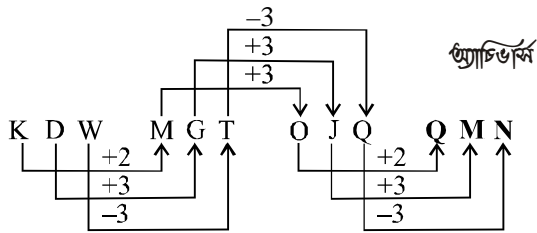
180.(d) Place value  $\rightarrow$  A B : L :: B C : W  
 $\rightarrow 1 \ 2 \ 12 \ 2 \ 3 \ 23$

181.(a) Dean is the authority of college. Similarly, Curator is the Authority of Museum.



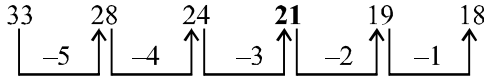
183.(a)

184.(d)



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185.(a)



- 186.(a) (a) SCHAMOT = STOMACH  
 (b) LABLOTOF = FOOTBALL  
 (c) CEKTRIC = CRICKET  
 (d) SNINET = TENNIS
- After arrangement

187.(b) Except option (b), all pairs have the difference of 16.

188.(d) Vikas stood up in 15 seconds and then, after every 26 seconds, he repeats the process.

- Ist time → 15 seconds  
 IInd time → 15 + 26 = 41 seconds  
 IIIrd time → 41 + 26 = 67 seconds  
 IVth time → 67 + 26 = 93 seconds

শ্রুতিভঙ্গ

189.(d) **b a a b / a b b a / b a a b / a b b a**

190.(d) **e b d d / e b d d / e b d d / e b d d**

191.(b) 

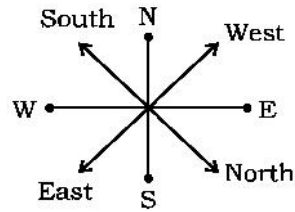
Infant	Child	Education	Profession	Marriage
4	1	5	2	3

192.(b)

193.(c)

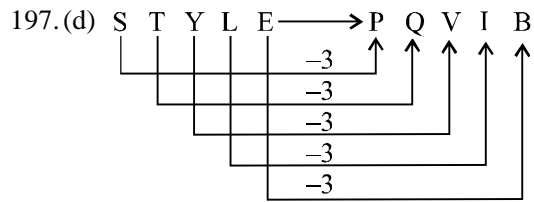
194.(b)  $13 \times 5 + 5 = 15 \times 5 - 5$   
 $70 = 70$

195.(d)

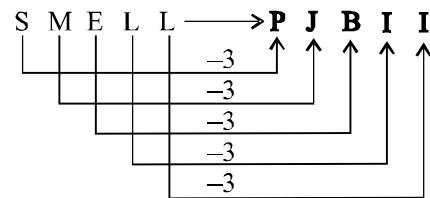


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196.(c) T E R M I N A L



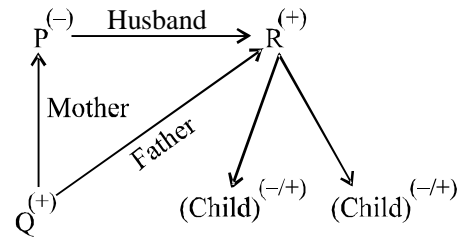
Similarly,



- 198.(b)  $9 - 2 = 7 \Rightarrow (7)^3 = 343$   
 $26 - 12 = 14 \Rightarrow (14)^3 = 2744$   
 $8 - 2 = 6 \Rightarrow (6)^3 = 216$   
 Similarly,  
 $22 - 10 = 12 \Rightarrow (12)^3 = 1728$

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199.(d)



200.(b)

