## WBCS Main Exam. (Paper-VI) – Practice Set

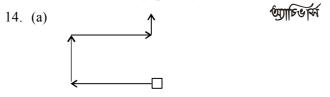
## = Answer with Explanation

- (d) Architect is responsible for the construction of building. Similarly, statues are carved out by Sculptor.
- 2. (c) The lack of blood is called Anaemia. Similarly, the absence of Government is called Anarchy.
- 3. (c) Editor is responsible for the production of newspaper. Similarly, author writes novel.
- 4. (c) Chaos is opposite in meaning to peace. Similarly, destruction is opposite in meaning to creation.
- (a) As President is the constitutional head of India, similarly the constitutional head of England is king.
- 6. (b) D is the father of C.
  C is mother of A and B.
  Therefore, B is granddaughter of D.
- 7. (c) A is daughter of B.B is the mother of A and C.D is brother of A and C.

Obviously P and M are parents (father and mother respectively) of T. Hence P and M are husband-wife. Hence P is son-in law of M's mother/father 'K'.

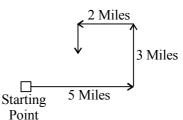
9. (a) 
$$\boxed{\times \Rightarrow + \div \Rightarrow -}$$
  
 $? = 39 \times 23 \div 21 \times 5$   
or,  $? = 39 + 23 - 21 + 5$   
or,  $? = 67 - 21 = 46$   
10. (d)  $\boxed{\times \Rightarrow - \div \Rightarrow +}$   
 $+ \Rightarrow \times$   
Given expression  
 $(16 \times 5) \div 5 + 3 = ?$   
After conversion  
 $? = (16 - 5) + 5 \times 3$   
or,  $? = 11 + 5 \times 3$   
or,  $? = 11 + 15 = 26$ 

- (d) Except the pair of words given in alternative (d), all other pair of words indicate similar kind of items.
- 12. (a) Except amoeba all others are multicellular organisms. Amoeba is a tiny living creature consisting of a single cell.
- 13. (d) Except Ample all others are synonymous to one another denoting quantity.

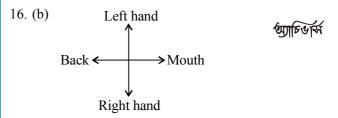


Now, he is walking towards North.

15. (a) According to question



It is clear from the diagram that I was going towards south finally.

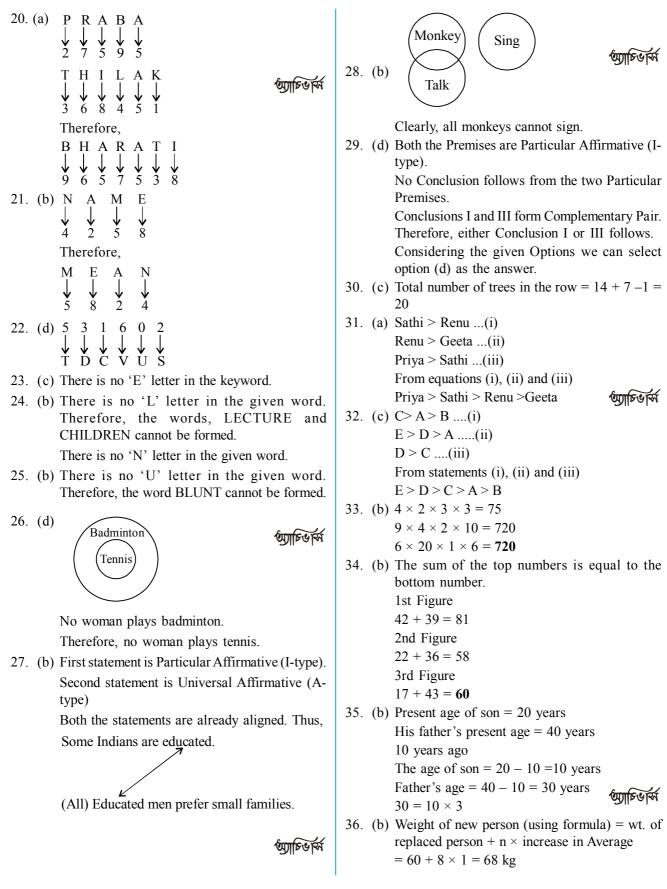


- 17. (b) Today is Tuesday. Therefore, the day after tomorrow would be Thursday.
- (d) Add 2, 3, 4, 5 .... respectively to numerators and add 4, 6, 8, 10.... respectively to the denominators. Thus,

$$\frac{2+2}{3+4} \Rightarrow \frac{4+3}{7+6} \Rightarrow \frac{7}{13}$$

2





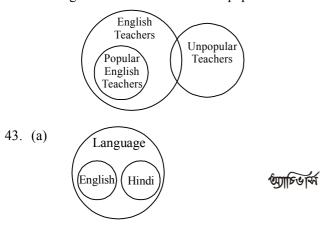
- 37. (a) Meaningful order of words:
  - c. Root
    - $\downarrow$
  - a. Stem  $\downarrow$

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- d. Leaves
  - $\downarrow$
- b. Flower
  - $\downarrow$
- e. Fruit
- 38. (a) Meaningful order of words:
  - (a) Study
    - $\downarrow$
  - (c) Examination
    - $\downarrow$
  - (e) Appointment
    - 1
  - (b) Job
  - $\downarrow$
  - (d) Earn
- 39. (c) The numbers 2, 4 and 5 cannot be on the opposite face of 6. From the two views of dice, it is clear that 2 is at bottom when 4 is at top.
- 40. (b) The numbers 2, 4, 5 and 6 cannot be on the face opposite to 3.
  The numbers 1, 3, 4 and 6 cannot be on the face opposite to 5.
  Therefore, 2 lies opposite 5.

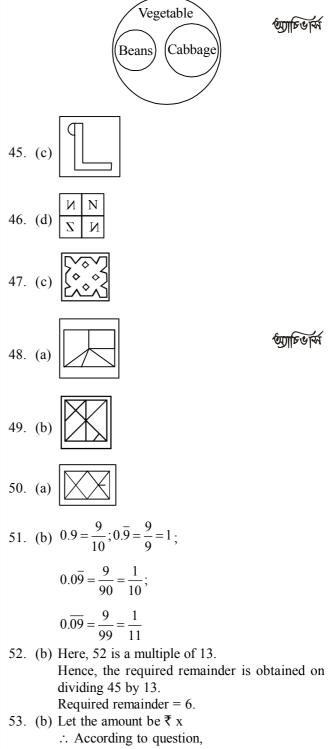
Clearly, 4 lies opposite 6.

- 41. (a) From the two views of dice, it is clear that number '1' lies opposite to number '4'.
- 42. (b) Popular English Teachers form sub-set of English Teachers. Also, there may be some English Teachers who are not popular.



English and Hindi are two different languages.

44. (b) Cabbage is different from beans but both are included in the class "vegetables".



$$\frac{\frac{8}{3}x - \frac{3}{8}x = 55$$
  
$$\Rightarrow \frac{64x - 9x}{24} = 55$$

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$$\Rightarrow \frac{55x}{24} = 55$$
  

$$\therefore x = 24$$
  
54. (b) First number × second number  

$$= HCF × LCM$$
  

$$\Rightarrow 84 × second number$$
  

$$= 12 × 336$$
  

$$\therefore Second number$$
  

$$= \frac{12 \times 336}{84} = 48$$
  
55. (a) HCF of two-prime numbers = 1  

$$\therefore Product of numbers = their LCM = 117$$

- 55. (a) HCF of two-prime numbers = 1
  ∴ Product of numbers = their LCM = 117
  117 = 13 × 9 where 13 & 9 are co-prime. L.C.M
  (13,9) = 117.
- 56. (b) HCF = 12 Numbers = 12x and 12y where x and y are prime to each other.  $\therefore 12x \times 12y = 2160$   $\Rightarrow xy = \frac{2160}{12 \times 12}$   $= 15 = 3 \times 5, 1 \times 15$ Possible pairs = (36, 60) and (12, 180) 57. (b) Expression

$$= 3 + \frac{3}{3 + \frac{1}{9 + 1}}$$
  

$$= 3 + \frac{3}{3 + \frac{3}{10}} = 3 + \frac{3}{\frac{30 + 3}{10}}$$
  

$$= 3 + \frac{30}{33} = 3 + \frac{10}{11} = \frac{33 + 10}{11} = \frac{43}{11}$$
  
58. (a) Expression  

$$= 9 - \frac{11}{9} \text{ of } \frac{36}{11} \div \frac{36}{7} \text{ of } \frac{7}{9}$$
  

$$= 9 - \frac{11}{9} \times \frac{36}{11} \div \frac{36}{7} \times \frac{7}{9}$$
  

$$= 9 - 4 \div 4$$
  

$$= 9 - 4 \times \frac{1}{4} = 9 - 1 = 8$$
  
59. (b)  $I = \frac{3}{4} \times \frac{6}{5} = \frac{9}{10}$   

$$II = 3 \div \left[\frac{4}{5} \times \frac{1}{6}\right] = 3 \div \frac{2}{15} = \frac{45}{2}$$

$$III = \left[ 3 \div \frac{4}{5} \right] \div 6 = \frac{15}{4} \div 6 = \frac{5}{8}$$
$$IV = 3 \div 4 \times \frac{5}{6} = 3 \div \frac{10}{3} = \frac{9}{10}$$

Obviously, (I) and (IV) are equal 60. (b) Expression

$$= \frac{3 \times \sqrt{12}}{2 \times \sqrt{28}} \times \frac{\sqrt{98}}{2 \times \sqrt{21}}$$

$$= \frac{3 \times 2 \times \sqrt{3}}{2 \times 2 \times \sqrt{7}} \times \frac{7 \times \sqrt{2}}{2 \times \sqrt{3} \times \sqrt{7}}$$

$$= \frac{3\sqrt{2}}{4} = \frac{3 \times 1.414}{4} = 1.0605 \approx 1.0606$$
(c) Given expression
$$= \left(\frac{2 + \sqrt{3}}{2 - \sqrt{3}} + \frac{2 - \sqrt{3}}{2 + \sqrt{3}} + \frac{\sqrt{3} - 1}{\sqrt{3} + 1}\right)$$
EXAMPLE 1.10605

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

$$= \left[ \frac{4+3+4\sqrt{3}+4+3-4\sqrt{3}}{(2)^2 - (\sqrt{3})^2} + \frac{(\sqrt{3}-1)^2}{(\sqrt{3})^2 - (1)^2} \right]$$
$$= \left[ \frac{14}{4-3} + \frac{3+1-2\sqrt{3}}{3-1} \right]$$
$$\left[ 2(2-\sqrt{3}) \right] = -$$

$$= \left[14 + \frac{-(-++)}{2}\right] = 16 - \sqrt{3}$$

62. (b) Required average price

$$=\frac{13 \times 70 + 15 \times 60 + 12 \times 65}{13 + 15 + 12}$$
  
=  $\frac{910 + 900 + 780}{40} = \frac{2590}{40} = ₹ 64.75$ 

- 63. (c) Mean of Ten observations-Mean of nine observations Tenth observation  $= 10 \times 17 - 16 \times 9$ = 170 - 144 = 26
  - = 83 53 = 30 Incorrect observation > Correct observation

∴ Required average  

$$= 35 - \frac{30}{100} = 35 - 0.3 = 34.7$$
65. (c) x : y = 3 : 2  

$$\Rightarrow x^{2} : y^{2} = 9 : 4$$

$$\therefore \frac{2x^{2} + 3y^{2}}{3x^{2} - 2y^{2}} = \frac{2\frac{x^{2}}{y^{2}} + 3}{3\frac{x^{2}}{y^{2}} - 2}$$

$$= \frac{2 \times \frac{9}{4} + 3}{3 \times \frac{9}{4} - 2} = \frac{\frac{18 + 12}{27 - 8}}{4} = 30 : 19$$
66. (b)  $A \times \frac{2}{3} = B \times \frac{4}{5}$   

$$\Rightarrow \frac{A}{B} = \frac{4}{5} \times \frac{3}{2} = 6 : 5$$
67. (d) Sumit's present age = 2x years  
Prakash's present age = 3x years  
 $\therefore 3x - 2x = 6$   
 $x = 6$   
 $\therefore$  Required ratio  
 $= (2 \times 6 + 6) : (3 \times 6 + 6)$   
 $= 18 : 24 = 3 : 4$ 
68. (c) Required percentage  
 $= \frac{1.14}{1.9} \times 100 = 60\%$ 
69. (a) Number to be added = x (let)  
 $\therefore \frac{320 \times 10}{100} + x = \frac{230 \times 30}{100}$   
 $\Rightarrow 32 + x = 69$   
 $\Rightarrow x = 69 - 32 = 37$ 
70. (a) Required sum  
 $= \frac{24.2 \times 16}{100} + \frac{2.42 \times 10}{100}$   
 $= 3.872 + 0.242$   
 $= 4.114$ 
71. (b) If the cost price is ₹ 100, then selling price = ₹ 120 and gain = ₹ 20  
Required gain \% = \frac{20}{120} \times 100 = \frac{50}{3} = 16\frac{2}{3}\%
72. (a) Cost price = ? x  
 $S.P. = \frac{120x}{100} = ₹ \frac{6x}{5}$   
Gain = ₹  $\frac{x}{5}$ 

∴ Required gain per cent  

$$= \frac{x}{5} \times 100 = \frac{100}{6} = \frac{50}{3} = 16\frac{2}{3}\%$$
(6) Gain % =  $\frac{18-15}{15} \times 100$   
 $= \frac{3}{15} \times 100 = 20\%$   
74. (c) Equivalent discount for successive discounts of 20% and 10%  
 $= \left[ 20 + 10 - \frac{20 \times 10}{100} \right]\% = 28\%$   
∴ Net selling price = 72% of 2000  
 $= \overline{\overline{\overline{72} \times 2000}} = \overline{\overline{\overline{1440}}$   
75. (c) Case I,  
Discount  $= \frac{30 \times 2000}{100} = \overline{\overline{\overline{600}}}$   
Single equivalent discount for discounts of 25%  
and 5%.  
 $= \left( 25 + 5 - \frac{25 \times 5}{100} \right)\%$   
 $= (30 - 1.25)\% = 28.75\%$   
∴ Difference = ₹ (600 - 575) = ₹ 25  
76. (a) Let Cost price = ₹ 100  
Marked price = ₹ 120  
Selling price  $= \frac{120 \times 80}{100} = \overline{\overline{\overline{575}}}$   
∴ Difference = ₹ (100  
Marked price = ₹ 120  
Selling price  $= \frac{120 \times 80}{100} = \overline{\overline{\overline{575}}}$   
∴ Loss = ₹ 4 and loss per cent = 4%  
77. (b) Principal + SI for 2 years = ₹ 720 .... (i)  
Principal + SI for 7 years = ₹ 1020 .....(ii)  
Subtracting equation (i) from (ii) get,  
SI for 5 years  
 $= 300 \times \frac{2}{5} = \overline{\overline{\overline{5120}}} \times 100$   
 $\therefore$  Required and  $\overline{\overline{575}} = \overline{\overline{575}}$   
(d)  $R = \left(\frac{A_1 - A_2}{A_2T_1 - A_1T_2}\right) \times 100$   
 $= \left(\frac{2900 - 3000}{3000 \times 8 - 2900 \times 10}\right) \times 100$ 

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$$= \left(\frac{-100}{24000 - 29000}\right) \times 100$$
  

$$= \frac{-100}{-5000} \times 100 = 2\%$$
(a)  $5832 = P\left(1 + \frac{8}{100}\right)^2$   

$$\Rightarrow 5832 = P\left(1 + \frac{2}{25}\right)^2$$
  

$$\Rightarrow 5832 = P \times \frac{27}{25} \times \frac{27}{25}$$
  

$$\Rightarrow P = \frac{5832 \times 25 \times 25}{27 \times 27} = ₹5000$$
80. (b)  $A = P\left(1 + \frac{R}{100}\right)^T$   

$$\Rightarrow 882 = 800\left(1 + \frac{5}{100}\right)^T$$
  

$$\Rightarrow \frac{882}{800} = \left(\frac{21}{20}\right)^T$$
  

$$\Rightarrow \frac{441}{400} = \left(\frac{21}{20}\right)^2 = \left(\frac{21}{20}\right)^T$$
  

$$\therefore T = 2 \text{ years}$$
81. (a) A's 1 day's work  $= \frac{1}{12}$   

$$(A+B)'s 1 day's work = \frac{1}{8}$$
  

$$\therefore B's 1 day's work = \frac{1}{8}$$
  

$$\therefore B \text{ alone can do the work in 24 days.}$$
82. (a)  $(A + B)'s 1 day's work = \frac{1}{8}$   

$$(B + C)'s 1 day's work = \frac{1}{24}$$
  

$$(C + A)'s 1 day's work = \frac{7}{60}$$
  
On adding all three,  
 $2(A + B + C)'s 1 day's work = \frac{7}{60}$   
On adding all three,  
 $2(A + B + C)'s 1 day's work = \frac{1}{12}$   

$$= \frac{15 + 5 + 14}{120} = \frac{34}{120}$$

 $\therefore (A + B + C)'s \ 1 \ day's \ work = \frac{17}{120}$ ∴ C's 1 day's work  $=\frac{17}{120}-\frac{1}{8}=\frac{17-15}{120}=\frac{1}{60}$ থ্যাচিভাৰ্ম  $\therefore$  C alone will complete the work in 60 days. 83. (b) Part of the cistern filled by pipe Q in 1 minute  $=\frac{1}{20} - \frac{1}{30} = \frac{3-2}{60} = \frac{1}{60}$  $\therefore$  Required time = 60 minutes 84. (a) Time taken to fill the  $\frac{3}{5}$  of the cistern = 60 seconds  $\therefore$  Time taken in filling  $\frac{2}{5}$  part  $=\frac{60\times5}{3}\times\frac{2}{5}=40$  seconds 85. (a) Speed of bus = 72 kmphজ্যাচিভাৰ্ম  $=\left(\frac{72\times5}{18}\right)$  metre/second = 20 metre/second  $\therefore$  Required distance =  $20 \times 5 = 100$  metre 86. (c) Remaining time  $=\frac{2}{5}\times15=6$  hours  $\therefore$  Required speed  $=\frac{60}{6}=10$  kmph 87. (d) Distance = Speed  $\times$  TIme  $=\left(40\times 6\frac{1}{4}\right)$ km  $= \left(\frac{40 \times 25}{4}\right) \text{km} = 250 \text{ km}$ New speed = 50 kmph.: Required time  $=\frac{\text{Distance}}{\text{Speed}}=\frac{250}{50}=5$  hours 88. (c) Let the speed of boat in still water be x kmph and that of current be y kmph, then  $\frac{12}{x-y} + \frac{18}{x+y} = 3$  ...(i)  $\frac{36}{x-y} + \frac{24}{x+y} = \frac{13}{2} \quad ...(ii)$ থ্যাচিভাৰ্ম

By equation (i)  $\times$  3 – equation (ii),

$$\frac{54}{x+y} - \frac{24}{x+y} = 9 - \frac{13}{2}$$

## Achievers

$$\Rightarrow \frac{1}{-256} = \frac{1}{2} \cdot \frac{1}{(-2)^{n-1}}$$

$$\Rightarrow \frac{1}{-2^7} = \frac{1}{(-2)^{n-1}}$$

$$\Rightarrow n - 1 = 7 \Rightarrow n = 8$$
(d) Let the breadth be x m.  

$$\therefore \text{ Length} = (23 + x) \text{ m}$$

$$\Rightarrow 2 (x + 23 + x) = 206$$

$$\Rightarrow 4x = 206 - 46$$

$$\Rightarrow x = \frac{160}{4} = 40 \text{ m}$$

$$\therefore \text{ Length} = 40 + 23 = 63 \text{ m}$$

$$\therefore \text{ Required area} = 63 \times 40 = 2520 \text{ m}^2$$
(c)  

$$AD = \sqrt{AB^2 - BD^2}$$

$$= \sqrt{4a^2 - a^2} = \sqrt{3a}$$

$$\therefore \sqrt{3a} = 15$$

$$\Rightarrow a = 5\sqrt{3}$$

$$\therefore 2a = \text{Side} = 10\sqrt{3} \text{ cm}$$

$$\therefore \text{ Area of triangle}$$

$$= \frac{\sqrt{3}}{4} \times (10\sqrt{3})^2 = 75\sqrt{3} \text{ sq.cm}$$
(d) Let the sides be 3x, 4x and 5x respectively.  
Here,  $(3x)^2 + (4x)^2 = (5x)^2$   
Hence, the triangle is right angled.  

$$\therefore \frac{1}{2} \times 3x \times 4x = 216$$

$$\Rightarrow 6x^2 = 216 \Rightarrow x^2$$

$$= \frac{216}{6} = 36$$

 $\therefore x = \sqrt{36} = 6$ Perimeter of triangle = (3x + 4x + 5x) cm = 12x cm $= 12 \times 6 = 72$  cm

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97. (c) House rent per month = 18% of ₹ 33650 = ₹ $\frac{18 \times 33650}{100} = ₹ 6057$ 98. (a) Annual provident fund savings = 12% of (₹ 33650 × 12) = ₹ $\frac{12 \times 33650 \times 12}{100} = ₹ 48456$	99. (c) Remaining monthly income = [100 - (12 + 18)]% of ₹ 33650 = ₹ $\frac{70 \times 33650}{100}$ =₹23555 100.(b) Amount spent on food and entertainment together = 34% of 33650 = ₹ $\frac{34 \times 33650}{100}$ =₹11441
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