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

### **Answers with Explanation**

1.	(c)	Check through option গ্র্যাচিওন্স
		$\frac{303375}{303375} - \frac{303375 \times 4}{303375 \times 4} - \frac{1213500}{12135} - 12135$
		$25$ $25 \times 4$ $100$ $-12135$
		A number is divisible by 25 if the last two
		digits are divisible by 25 or zero.
2.	(d)	Let four numbers be a, b, c and d respectively.
		$\therefore a + b + c + d = 48$ (1)
		and, $a + 5 = b + 1 = c - 5 = d - 7 = x$ (let)
		a = x - 3, b = x - 1, c = x + 3, d = x + 7
		From equation (i).
		x - 5 + x - 1 + x + 3 + x + 7 = 48
		$\Rightarrow$ 4x + 4 = 48
		$\Rightarrow 4x = 48 - 4 = 44$
		→ x - 44 - 11 WINF
		$\Rightarrow x - \frac{1}{4} - 11$
		$\therefore a = x - 5 = 11 - 5 = 6$
		b = x - 1 = 11 - 1 = 10
		c = x + 3 = 11 + 5 = 14 d = x + 7 = 11 + 7 = 18
3.	(c)	Let the number be $x$ .
0.	(•)	: According to question,
		$x x \dots 7x-5x$
		$2x$ to $10 \times 35$ the
		$\Rightarrow \frac{1}{35} = 10 \Rightarrow x = \frac{1}{2} = 175$
4.	(a)	HCF of two-prime numbers $= 1$
		$\therefore$ Product of numbers = their LCM = 117
		$117 = 13 \times 9$ where 13 & 9 are co-prime.
_		L.C.M $(13, 9) = 117.$
5.	(c)	LCM of 4, 5, 6, 7 and 8 2 4 5 6 7 8
		$=$ $\frac{2}{2}$ $\frac{4}{3}$ $\frac{5}{6}$ $\frac{6}{7}$ $\frac{7}{8}$
		2 2, 5, 3, 7, 4
		1, 5, 3, 7, 2
		$= 2 \times 2 \times 2 \times 3 \times 5 \times 7 = 840.$
		let required number be 840 K + 2 which is multiple of 13
		Least value of K for which $(840 \text{ K} + 2)$ is
		divisible by 13 is $K = 3$
		$\therefore$ Required number = 840 $\times$ 3 + 2
		= 2520 + 2 = 2522
6.	(d)	LCM of 6, 9, 15 and 18
		= 2 6, 9, 15, 18
		3 3, 9, 15, 9
		3 1, 3, 5, 3
		1, 1, 5, 1

 $\therefore \text{ LCM} = 2 \times 3 \times 3 \times 5 = 90$  $\therefore \text{ Required number} = 90k + 4, \text{ which must}$ be a multiple of 7 for some value of k. For k = 4,

Number =  $90 \times 4 + 4 = 364$ , which is exactly divisible by 7.

7. (b) 
$$2 = x + \frac{1}{1 + \frac{1}{3 + \frac{1}{4}}}$$
  
 $\Rightarrow 2 = x + \frac{1}{1 + \frac{1}{1 + \frac{1}{12 + 1}}} \Rightarrow 2 = x + \frac{1}{1 + \frac{4}{13}}$   
 $\Rightarrow 2 = x + \frac{1}{\frac{13 + 4}{13}} \Rightarrow 2 = x + \frac{1}{17}$   
 $\Rightarrow 2 = x + \frac{13}{17} \Rightarrow x = 2 - \frac{13}{17}$   
 $= \frac{34 - 13}{17} = \frac{21}{17}$   
8. (a) Expression  $= 1 + \frac{1}{1 + \frac{1}{5}} = 1 + \frac{1}{5} = 1 + \frac{5}{6}$   
 $= \frac{6 + 5}{6} = \frac{11}{6}$   
9. (c)  $80 \times \sqrt{P} = 1120$   
 $\Rightarrow \sqrt{P} = \frac{1120}{80} = 14$   
 $\Rightarrow P = (14)^2 = 196$   
10. (b) Required average  $= \frac{32 \times 60 + 33 \times 40}{72}$   
 $= \frac{1920 + 1320}{72} = \frac{3240}{72} = 45$   
11. (a) Average of all numbers  
 $= \frac{30 \times 40 + 40 \times 30}{70} = \frac{2400}{70} = 34\frac{2}{7}$   
12. (b)  $x + x + 1 + x + 2 + x + 3 + x + 4 + x + 5 + x + 6 + x + 7$   
 $= 6.5 \times 8 = 52$ 

$$\Rightarrow 8x + 28 = 52$$
  

$$\Rightarrow 8x = 52 - 28 = 24$$

$$\Rightarrow x = 3$$

$$\therefore \text{ Required average } = \frac{3+10}{2} = 6.5$$
13. (b)  $a:b = \frac{2}{9}: \frac{1}{3} = 2:3$   
 $b:c = \frac{2}{7}: \frac{5}{14} = 4:5$   
 $d:c = \frac{7}{10}: \frac{3}{5} = 7:6$   
 $\Rightarrow c: d = 6:7$   
Thus,  
 $a:b = 2:3$   
 $b:c = 4:5$   
 $c:d = 6:7$   
 $a:b:c:d = (2 \times 4 \times 6): (3 \times 4 \times 6):$   
 $(3 \times 5 \times 6): (3 \times 5 \times 7)$   
 $= 48:72:90:105$   
 $= 16:24:30:35$   
14. (c)  $A:B = 3:4$   
 $B:C = 6:5$   
 $A:B:C = (3 \times 6): (4 \times 6): (4 \times 5)$   
 $= 18:24:20)$   
 $9:12:10$   
 $\Rightarrow A: (A + C)$   
 $= 9:(9 + 10)$   
 $= 9:19$   
15. (d)  $x:y = 3:4 = 9:12$   
 $y:z = 3:4 = 12:16$   
 $\therefore x:y:z = 9:12:16$   
 $\therefore \frac{x+y+z}{3z} = \frac{9k+12k+16k}{3\times16k} = \frac{37}{48}$   
16. (b) 20% of  $A = 50\%$  of  $B$   
 $\Rightarrow 2A = 5B \Rightarrow A = \frac{5B}{2}$   
Let B is  $x \%$  of A.  
 $\therefore \frac{5B}{2} \times \frac{x}{100} = B$   
 $\Rightarrow x = \frac{200}{5} = 40\%$   
17. (d) Required number  $= \frac{240 \times 25}{100} - \frac{160 \times 15}{100}$   
 $= 60 - 24 = 36$   
18. (b) Required number  $= 60\%$  of  $90 = \frac{90 \times 60}{100} = 54$ 

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19. (d) Let the C.P. of article be 'x'  
∴ (100 - 7)% x = 651  
∴ x = 
$$\frac{651}{93} \times 100 = ₹700$$

20. (c) S.P. of the fan 
$$=\frac{150 \times 80}{100} = ₹120$$
  
21. (c) Loss per cent  $=\frac{400 - 320}{100} \times 100$ 

$$= \frac{80}{400} \times 100 = 20\%$$

22. (d) Equivalent discount = 
$$30 + 10 - \frac{30 \times 10}{100} = 37\%$$

10023. (b) Single equivalent discount for successive discounts of 10% and 20%.

$$= \left(10 + 20 - \frac{20 \times 100}{100}\right)\% = 28\%$$

Single equivalent discount for 28% and 30%.

$$= \left(28 + 30 - \frac{28 \times 30}{100}\right)\% = 49.6\%$$
 by Figure 49.6%

24. (c) Let the cost price be x

Mark Price 
$$=\left(1+\frac{20}{100}\right)x = 1.2x$$
  
Cash price  $=\left(1-\frac{30}{100}\right)1.2x$   
 $= 0.7 \times 1.2x = 0.84x$   
Net Loss  $= x - 0.84x = 0.16x$   
 $\therefore$  Net loss%  $=\frac{0.16x}{x} \times 100 = 16\%$   
25. (c) Principal (P)  $= ₹1600$   
T = 2 years 3 months  
 $=\left(2+\frac{3}{12}\right)$  yrs.  $=\left(2+\frac{1}{4}\right)$  yrs.  $=\frac{9}{4}$  yrs.  
S.I  $= ₹252$   
R  $= \%$  rate of interest per annum  
 $\Rightarrow R = \frac{100 \times S.I}{P \times t} = \frac{100 \times 252}{1600 \times \frac{9}{4}}$   
Rate of interest  $= 7\%$  per annum.  
26. (a) Time  $=\frac{SI \times 100}{Principal \times Rate}$ 

$$=\frac{1080\times100}{3000\times12}=3$$
 years

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27. (c) Let the principal be x.  
Case-I  

$$2x = \frac{x \times R \times 15}{100}$$

$$\Rightarrow R = \frac{2 \times 100}{15} = \frac{40}{3}\%$$
Case-II  
SI = 4x  

$$\therefore 4x = \frac{x \times 40 \times T}{300}$$

$$\Rightarrow T = \frac{4 \times 300}{40} = 30 \text{ years}$$
28. (c) According to question,  

$$2420 = 2000 \left(1 + \frac{10}{100}\right)^{t}$$

$$= \frac{2420}{2000} = \left(\frac{11}{10}\right)^{t}$$
or,  $\left(\frac{11}{10}\right)^{t} = \frac{121}{100}$  or,  $\left(\frac{11}{10}\right)^{t} = \left(\frac{11}{10}\right)^{2}$   

$$\therefore t = 2 \text{ years}$$
29. (c) CI = P $\left[\left(1 + \frac{R}{100}\right)^{T} - 1\right] - \frac{PR}{100}$ 

$$\Rightarrow 420 = P\left[\left(\frac{21}{20}\right)^{2} - 1\right] - \frac{P \times 5}{100}$$

$$\Rightarrow 420 = P\left[\left(\frac{21}{20}\right)^{2} - 1\right] - \frac{5P}{100}$$

$$\Rightarrow 420 = P\left[\left(\frac{21}{20}\right)^{2} - 1\right] - \frac{5P}{100}$$

$$\Rightarrow 420 = P\left[\left(\frac{21}{20}\right)^{2} - 1\right] - \frac{5P}{100}$$

$$\Rightarrow P = \frac{420 \times 400}{21} = ₹ 8,000$$
30. (d) If the sum be P, then  
CI. = P $\left[\left(1 + \frac{R}{100}\right)^{T} - 1\right]$ 

$$\Rightarrow 102 = P\left[\left(\frac{26}{25}\right)^{2} - 1\right]$$

$$\Rightarrow 102 = P\left[\left(\frac{26}{25}\right)^{2} - 1\right]$$

$$\Rightarrow 102 = P\left[\left(\frac{26}{25}^{2} - 1\right)$$

$$\Rightarrow 102 = P\left(\frac{676-625}{625}\right)$$
  

$$\Rightarrow 102 = P \times \frac{51}{625}$$

$$\Rightarrow P = \frac{102 \times 625}{51} = ₹1250$$

$$\therefore S.I = \frac{1250 \times 2 \times 4}{100} = ₹100$$
31. (c) According to question,  
A can finish the whole work in 6 days.  

$$\therefore A's \text{ one day's work} = \frac{1}{6}$$

$$\text{Similarly,}$$
B's one day's work  $= \frac{1}{9}$   
(A + B)'s one day's work  

$$= \left(\frac{1}{6} + \frac{1}{9}\right) = \left(\frac{3+2}{18}\right) = \frac{5}{18}$$
Therefore, (A + B)'s can finish the whole work  
in  $\frac{18}{5}$  days i.e., 3.6 days.  
32. (c) C alone can do in  

$$= \frac{2 \times 10 \times 12 \times 15}{10 \times 12 - 12 \times 15 + 10 \times 15}$$

$$= \frac{240 \times 15}{120 - 180 + 150} = \frac{240 \times 15}{90} = 40 \text{ days}$$
33. (d) (A+B)'s 2 days' work  

$$= 2\left(\frac{1}{12} + \frac{1}{18}\right) = \frac{10}{36}$$
Remaining work  $= 1 - \frac{10}{36} = \frac{26}{36}$ 
Time taken by B to complete  $\frac{26}{36}$  part of work  

$$= \frac{26}{36} \times 18 = 13 \text{ days}$$
34. (c) Hours/day Days Pumps  

$$6 \uparrow 15 \uparrow 12 \uparrow x \checkmark$$
Let x be number of pumps  

$$\therefore 9 : 6 :: 12 : x = 12 : 15 :: 12 : x$$

$$\Rightarrow 9 \times 12 \times x = 6 \times 12 \times 15$$

$$\Rightarrow x = \frac{6 \times 12 \times 15}{9 \times 12} = 10$$

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35. (c) Let the capacity of the tank be x litres. According to the question,

$$\frac{3x}{4} = 30$$
  
⇒  $3x = 30 \times 4$   
⇒  $x = \frac{30 \times 4}{3} = 40$  litres

36. (d) Work done in 1 hour by the filling pump  $=\frac{1}{2}$ Work done in 1 hour by the leak and the

> filling pump  $=\frac{3}{7}$  $\therefore$  Work done by the leak in 1 hour

$$=\frac{1}{2}-\frac{3}{7}=\frac{7-6}{14}=\frac{1}{14}$$

Hence, the leak can empty the tank in 14 hours. 37. (d) Let the required speed is x km/hr

Then, 
$$240 \times 5 = \frac{5}{3} \times x$$
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 $\therefore$  x = 720 km/hr.

38. (a) 30.6 kmph

$$= \left(30.6 \times \frac{5}{8}\right) \text{m/sec.} = 8.5 \text{ m/sec}$$

39. (b) When a train crosses a tunnel, it covers a distance equal to the sum of its own length and tunnel.

Let the length of tunnel be x Speed = 78 kmph

$$= \frac{78 \times 1000}{60 \times 60} \text{ m/sec.} = \frac{65}{3} \text{ m/sec.}$$

$$\therefore \text{ Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\Rightarrow \frac{65}{3} = \frac{800 + x}{60}$$

$$\Rightarrow (800 + x) \times 3 = 65 \times 60$$

$$\Rightarrow 800 + x = 65 \times 20 \text{ m}$$

$$\Rightarrow x = 1300 - 800 = 500$$

$$\therefore \text{ Length of tunnel} = 500 \text{ metres.}$$

40. (a) Let the speed of boat in still water be x kmph and that of stream be y kmph.

$$\therefore \frac{20}{x+y} = 2$$

$$\Rightarrow x + y = 10 \qquad \dots (i)$$

$$\therefore \frac{20}{x-y} = 5$$

$$\Rightarrow x - y = 4 \qquad \dots (ii)$$
On adding,  $2x = 14$  kmph = 7 kmph

41. (d) Speed of boat in still water = x kmph (let) Speed of current = y kmph Rate downstream = (x + y) kmph Distance = Speed × Time  $\therefore$  (x - y) × 2t = (x + y) × t  $\Rightarrow$  2x - 2y = x + y  $\Rightarrow$  2x - x = 2y + y  $\Rightarrow$  x = 3y  $\Rightarrow \frac{x}{y} = \frac{3}{1} = 3:1$ 

42. (b) Let the speed of stream be x kmph, then speed of boat in still water = 4x kmph
∴ Rate downstream = 4x + x = 5x kmph Rate upstream = 4x - x = 3x kmph

$$\therefore \frac{30}{3x} + \frac{30}{5x} = 8 \Rightarrow \frac{10}{x} + \frac{6}{x} = 8$$
$$\Rightarrow \frac{16}{x} = 8 \Rightarrow x = \frac{16}{8} = 2 \text{ kmph}$$

43. (d) Side of the first square

$$=\frac{1}{\sqrt{2}}\times 4\sqrt{2}=4$$
 cm.

Its area =  $(4)^2 = 16 \text{ cm}^2$ .  $\therefore$  Area of second square =  $2 \times 16 = 32 \text{ cm}^2$ . Its side =  $\sqrt{32} = 4\sqrt{2} \text{ cm}$ .  $\therefore$  Required diagonal =  $\sqrt{2} \times 4\sqrt{2} = 8 \text{ cm}$ . 44. (d) Let the breadth of rectangular hall = x m.  $\therefore$  length = (x + 5) m. Area of hall = Length  $\times$  Breadth  $\Rightarrow 750 = (x + 5)$  x  $\Rightarrow x^2 + 5x - 750 = 0$   $\Rightarrow x^2 + 30x - 25x - 750 = 0$  $\Rightarrow x(x + 30) - 25 (x + 30) = 0$ 

- $\Rightarrow (x 25) (x + 30) = 0$
- $\Rightarrow$  x = 25, as x cannot be negative.  $\therefore$  Length of hall = x + 5

$$25 + 5 = 30$$
 m.

45. (b) For the equilateral triangle of side a,

In radius 
$$=\frac{a}{2\sqrt{3}}$$

Circum-radius  $=\frac{a}{\sqrt{3}}$  ∴ Required ratio

$$= \pi \left(\frac{a}{\sqrt{3}}\right)^2 : \pi \left(\frac{a}{2\sqrt{3}}\right)^2 = \frac{1}{3} : \frac{1}{12} = 4 : 1$$

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.: Required ratio

$$= (PQ + QR + RP) : (AB + BC + CA)$$

= 2 : 1

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- 49. (a) Maximum expenditure of the family is on food, i.e., 23%.
- 50. (b) Expenditure on the education of children = 12% of ₹100000

- 51. (d) Editor supervises magazine in the same way as director does in the case of drama and film also.
- 52. (b) The foot of human being is analogus to the hoof of cow.
- 53. (a) The ocean contains a large number of drops of water. Similarly, several stars twinkle in the sky.
- 54. (c) Doctor cures patients in the hospital. Similarly, priest offers prayer and worships god in the temple.

55. (b) 
$$\sqrt{169} = 13$$

Therefore, 
$$\sqrt{289} = 17$$

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56. (d) 3 2 6 5 
$$\rightarrow$$
 4 3 7 6  
 $+1$   $+1$   $+1$ 

Similarly,

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Obviously, O is the husband of P, hence P is wife of O. Now M is son of P. So M's parents are P (mother) and O (father). Hence M is O's son.

60. (b) Husband of Suresh's mother means father of Suresh.

Mother of Suresh's father means grandmother of Suresh.

The son of grandmother means either father or uncle.

Therefore, Suresh is the son of that man.

[Note : Nephew is not mentioned in the options]

61. (c) 
$$x \Rightarrow - - \Rightarrow \div$$
  
 $+ \Rightarrow x \div \Rightarrow +$   $\forall \Rightarrow +$ 

Given expression  

$$16 \times 8 \div 4 - 3 + 9 = ?$$
  
After conversion  
 $? = 16 - 8 + 4 \div 3 \times 9$   
or,  $? = 16 - 8 + 4 \div 3 \times 9$   
or,  $? = 16 - 8 + 12 = 20$   
(c)  $\boxed{-\Rightarrow \div +\Rightarrow \times}$   
 $\div \Rightarrow - \times \Rightarrow +$   
**Option (a)**  
 $19 + 5 - 4 \times 2 \div 4 = 11$   
 $\Rightarrow 19 \times 5 \div 4 + 2 - 4 = 11$   
 $\Rightarrow \frac{95}{4} + 2 - 4 \neq 11$   
**Option (b)**  
 $19 \times 5 - 4 \div 2 + 4 = 16$   
 $\Rightarrow 19 + 5 \div 4 - 2 \times 4 = 16$ 

62.

$$\Rightarrow 19 + \frac{5}{4} - 8 \neq 16$$

Option (c)

 $19 \div 5 + 4 - 2 \times 4 = 13$  $\Rightarrow 19 - 5 \times 4 \div 2 + 4 = 13$  $\Rightarrow 19 - 5 \times 2 + 4 = 13$ 

$$\Rightarrow 19 - 10 + 4 = 13$$

. (a) 
$$\begin{array}{|c|c|c|c|c|c|c|c|} \hline \times \to + & \div \to - \\ \hline - \to \times & + \to \div \\ \hline & \\ Given expression \\ 54 \div 16 - 3 \times 6 + 2 = ? \end{array}$$

After conversion ? =  $54 - 16 \times 3 + 6 \div 2$ 

or, 
$$? = 54 - 48 + 3 = 9$$

- 64. (c) Except February, all other months have 31 days each. There are 28 or 29 days in the month of February.
- 65. (c) Except Panchsheel, all others are holy books. Panchsheel is a set of principles to be followed in relation with other countries.
- 66. (d) Dilution is different from the others. Dilution means the process of making a liquid weaker by adding water.
- 67. (d) Except 3375, all others are perfect squares.  $625 = 25 \times 25$

$$50625 = 225 \times 225$$
  

$$225 = 15 \times 15$$
  
68. (a)  $16 \times 4 - 1 = 063$   
 $91 \times 4 - 1 = 363$   
 $64 \times 4 - 1 = 255$   
But,  
 $36 \times 4 + 1 = 145$ 

69. (b) 4 miles 2 miles 3 miles 4 miles 4 miles 5 tarting Point

Now the man is facing towards south.





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90. (c) Total number of trees in the row <u>ক্ষা গুৰীয়ে</u> = 14 + 7 - 1 = 2091. (a) First figure 15 + 16 = 22 + 9or, 31 = 31Second figure 13 + 7 = 11 + 9or, 20 = 20Third figure 21 + 15 = ? + 13or, ? = 36 - 13 = 23দ্যাগুৰায়ে 92. (c) 22 + 42 = 6427 + 52 = 79Therefore, ? = 91 - 18 = 7393. (b) The upper numbers are multiples of the lower number. 94. (c)  $13 \times 17 = 221$  $12 \times 19 = 228$  $13 \times 18 = 234$ 95. (b) The sum of the top numbers is equal to the bottom number. **1st Figure** 42 + 39 = 812nd Figure 22 + 36 = 58**3rd Figure** 17 + 43 = 6096. (c) The meaningful order would be : দিন গুবায়ি (d) Jungle  $\downarrow$ (c) Timber  $\downarrow$ to the two dots. Therefore, six dots are on (b) Pulp the face opposite to one dot.

 $\downarrow$ 

(e) Paper  $\downarrow$ (a) Book দিন গুৰায়ে 97. (d) Meaningful order of words: (c) Soil  $\downarrow$ (a) Seed  $\downarrow$ (d) Plant  $\downarrow$ (b) Flower  $\downarrow$ (e) Fruit 98. (c) Meaningful order of words: দ্যা গুৰায়ে (b) Fever  $\downarrow$ (a) Doctor  $\downarrow$ (d) Diagnose  $\downarrow$ (c) Prescribe  $\downarrow$ (e) Medicine 99. (b) When both 6 and 4 are in the same position of cube, 5 should be opposite to 1. WIFFER 100.(d) There are respectively one, three, five and six dots on faces adjacent to the face having two dots. So, four dots lies on the face opposite

