

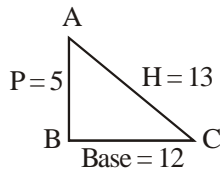
WBCS Mains Exam. 2021 — Paper — VI (Series - B)

Answers with Explanation

1. (A) Rita's friend's mother's brother-in-law = Rita's friend's uncle.
Rita's friend's uncle's youngest daughter = Rita's friend's cousin.

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2. (C) $\sin \theta = \frac{5}{13} = \frac{P}{H}$



$$\begin{aligned} \text{Base} &= \sqrt{H^2 - P^2} \\ &= \sqrt{(13)^2 - (5)^2} \\ &= \sqrt{169 - 25} = \sqrt{144} = 12 \end{aligned}$$

$$\begin{aligned} \text{Now, } \tan \theta + \sec \theta &= \left(\frac{P}{\text{Base}}\right) + \left(\frac{H}{\text{Base}}\right) \\ &= \left(\frac{5}{12} + \frac{13}{12}\right) = \frac{18}{12} = 1.5 \end{aligned}$$

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3. (A) Now, $A = p\left(1 + \frac{r}{200}\right)^{2T}$

$$\Rightarrow 92610 = 80,000\left(1 + \frac{10}{200}\right)^{2T}$$

$$\Rightarrow \frac{9261}{8000} = \left(\frac{21}{20}\right)^{2T}$$

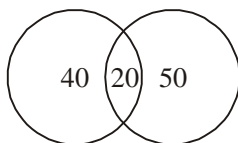
$$\Rightarrow \left(\frac{21}{20}\right)^3 = \left(\frac{21}{20}\right)^{2T}$$

$$\Rightarrow 2T = 3$$

$$\Rightarrow T = \frac{3}{2} = 1.5 \text{ years.}$$

4. (B)

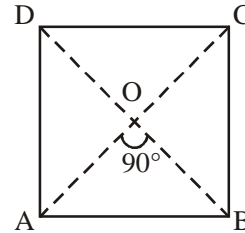
| | |
|-------------------------|--------------------------|
| Passed in Statistics | Passed in Mathematics |
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Number of students failed in both subjects = $150 - (40 + 20 + 50) = 40$

5. (D)



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AO = OC and DO = OB & $\angle AOB = 90^\circ$

$$\therefore AO = OC = \left(\frac{24}{2}\right) = 12 \text{ cm \& DO = OB}$$

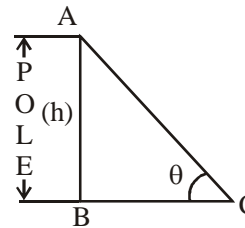
$$= \left(\frac{10}{2}\right) = 5 \text{ cm.}$$

Then; from $\triangle AOB \rightarrow AB$

$$= \sqrt{(12)^2 + (5)^2} = 13$$

$$\therefore \text{Perimeter : } 4AB = (4 \times 13) \text{ cm } 52 \text{ cm.}$$

6. (C)



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$$\text{Now, } \tan \theta = \frac{AB}{BC}$$

$$\Rightarrow \tan \theta = \frac{h}{\sqrt{3}h}$$

$$\Rightarrow \theta = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$$

$$\Rightarrow \theta = 30^\circ$$

7. (B) $363 \Rightarrow 3 + 6 + 3 = 12 \Rightarrow 1 + 2 = 3$

$$489 \Rightarrow 4 + 8 + 9 = 21 \Rightarrow 2 + 1 = 3$$

$$579 \Rightarrow 5 + 7 + 9 = 21 \Rightarrow 2 + 1 = 3$$

Similarly,

$$471 \Rightarrow 4 + 7 + 1 = 12 \Rightarrow 1 + 2 = 3$$

8. (A) Now, We know; $t_n = a + (n-1)d$

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t_n = value of the term; a = 1st term; d = common difference;

n = Number of term.

$$\begin{aligned} \text{Then, 17th term } \rightarrow t_{17} &= a + (17 - 1)d \\ &= a + 16d \rightarrow (i) \end{aligned}$$

Now, 10th term $\rightarrow t_{10} = a + (10 - 1)d$
 $= a + 9d \rightarrow$ (ii)

According to the question : $t_{17} - t_{10} = 7$

$$\Rightarrow (a + 16d) - (a + 9d) = 7$$

$$\Rightarrow a + 16d - a - 9d = 7$$

$$\Rightarrow 7d = 7$$

$$\therefore d = 1$$

$$\therefore 1$$

9. (C) Total CP :

$$[(50 \times 2x) + (20 \times 4x) + (30 \times 3x)] = 270x$$

Total SP :

$$[(2x + 4x + 3x) \times 33] = (9x \times 33) = 297x$$

\therefore Profit (%)

$$\left[\frac{SP - CP}{P} \right] \times 100 = \left[\frac{297x - 270x}{270x} \right] \times 100$$

$$= \left(\frac{27x}{270x} \times 100 \right) \% = 10\%$$

10. (A) Words are antonyms of each other

11. (B) $D^- \Leftrightarrow E^+$

|

$B^+ \Leftrightarrow C^-$

|

A — F

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12. (A) According to the question

$$\frac{2}{3} \pi r^3 = 3\pi r$$

$$\frac{r^3}{y^2} = \frac{9}{2}$$

$$r = \frac{9}{2} = 4.5 \text{ cm.}$$

13. (C) Let the numbers are a, b, c, d, e

$$\text{Now, } (a + b + c) = (8 \times 3) = 24 \rightarrow \text{(i)}$$

$$\text{Now, } (c + d + e) = (6 \times 3) = 18 \rightarrow \text{(ii)}$$

$$\text{Then, } (a + b + c + d + e) = 6 \times 5 = 30 \rightarrow \text{(iv)}$$

$$(a + b) = (30 - 18) = 12$$

$$\therefore c = (24 - 12) = 12$$

14. (B) LCM of 3, 5, 6, 8, 9 \rightarrow 360

$$\begin{array}{r} 3 \overline{) 3, 5, 6, 8, 9} \\ 2 \overline{) 1, 5, 2, 8, 3} \\ 1, 5, 1, 4, 3 \end{array}$$

$$\begin{array}{r} 2 \overline{) 1, 5, 2, 8, 3} \\ 1, 5, 1, 4, 3 \end{array}$$

Now, after 360 sec or $\frac{360}{60} = 6$ minutes both would ring together again.

15. (D) $5 \sin \theta + 12 \cos \theta$

Minimum value \rightarrow

$$\tan \theta = \frac{3h}{\sqrt{3}h} = \sqrt{3}$$

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16. (C) Let total number of Indian is $100x$.

\therefore Like apples = $73x$ and like ranges = $65x$

$$\text{Now, } \eta(A \cup B) = \eta(A) + \eta(B) - \eta(A \cap B)$$

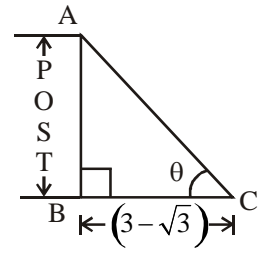
$$\rightarrow 100x = 73x + 65x - \eta(A \cap B)$$

$$\eta(A \cap B) = 38x$$

$\therefore 38\%$

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17. (D) Let the height of the post is h unit



$$\therefore BC = (3 - \sqrt{3})h \text{ unit.}$$

$$\text{Then; } \tan \theta = \frac{h}{(3 - \sqrt{3})h} = \frac{3 + \sqrt{3}}{(3 + \sqrt{3})(3 - \sqrt{3})}$$

$$\Rightarrow \tan \theta = \frac{3 + \sqrt{3}}{6}$$

According to the option; we can't find any of them.

\therefore None of the above

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18. (A) Ulna is located in forearm Similarly, tibia is located in leg.

19. (A) Let the sum = S ; Annual instalment = ₹ x

$$\therefore S = x \left[\left(\frac{100}{100 + 4} \right) + \left(\frac{100}{100 + 4} \right)^2 \right]$$

$$\Rightarrow 2550 = x \left[\left(\frac{100}{104} \right) + \left(\frac{100}{104} \right)^2 \right]$$

$$\Rightarrow 2550 = x \times \frac{25}{26} \left(1 + \frac{25}{26} \right)$$

$$\Rightarrow 2550 = x \times \frac{25}{26} \times \frac{51}{26}$$

$$\Rightarrow x = (676 \times 2) = 1352$$

20. (C) Input - 31 59 06 72 84 12 36 98 63

Step-1 - 31 59 36 72 84 12 06 98 63

Step-2 - 63 59 36 72 84 12 06 98 31

Step-3 - 63 59 36 84 72 12 06 98 31

Step-4 - 63 59 98 84 72 12 06 36 31

21. (A) Let the side of the triangle is x m.

$$\text{According to the question : } \frac{\sqrt{3}}{4} x^2 = 400\sqrt{3}$$

$$\Rightarrow x^2 = 1600$$

$$\Rightarrow x = 40$$

Perimeter :

$$3x = (3 \times 40) = 120 \text{ m.}$$

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22. (D) $15 \times 2 + 21 = 51$

Similarly,

$35 \times 2 + 21 = 91$

23. (C) $x = 7 - 4\sqrt{3}$

$\Rightarrow x = 7 - 2.2\sqrt{3}$

$\Rightarrow x = (2)^2 + (\sqrt{3})^2 - 2.2\sqrt{3}$

$\Rightarrow x = (2 - \sqrt{3})^2$

$\Rightarrow \sqrt{x} = 2 - \sqrt{3}$

$\frac{1}{\sqrt{x}} = \frac{1}{(2 - \sqrt{3})}$

$\frac{1}{\sqrt{x}} = \frac{(2 + \sqrt{3})}{(2 + \sqrt{3})(2 - \sqrt{3})}$

$\frac{1}{\sqrt{x}} = \frac{2 + \sqrt{3}}{1}$

$\frac{1}{\sqrt{x}} = 2 + \sqrt{3}$

$\sqrt{x} + \frac{1}{\sqrt{x}}$

$= 2 - \sqrt{3} + 2 + \sqrt{3} = 4$

24. (B) According to the question :

$(3x + 5x + 7x) = (15 \times 3)$

$\Rightarrow 15x = 15 \times 3$

$\Rightarrow x = 3$

\therefore Age of youngest boy : $3x$

$= (3 \times 3) = 9$ years

25. (A) Let the numbers are x and $(x + 1)$

\therefore According to the question :

$\Rightarrow x(x + 1) = 7482$

$\Rightarrow x^2 + x - 7482 = 0$

$\Rightarrow x^2 + 87x - 86x - 7482 = 0$

$\Rightarrow x(x + 87) - 86(x + 87) = 0$

$\Rightarrow (x + 87)(x - 86) = 0$

$\Rightarrow x \neq -87$

$\Rightarrow x = 86$

\therefore Greatest integer : $(86 + 1) = 87$

26. (B) We know that $\rightarrow A = p\left(1 + \frac{r}{100}\right)^T$

\therefore C.I. = $A - P = p\left[\left(1 + \frac{r}{100}\right)^T - 1\right]$

there; A = Amount
p = Principal
r = Rate of Interest
t = Time (Year)

$= 14,000 \left[\left(1 + \frac{5}{100}\right)^2 - 1 \right]$

$= 14,000 \left[\left(1 + \frac{5}{100}\right)^2 - 1 \right]$

$= 14,000 \left[\left(\frac{21}{20}\right)^2 - 1 \right]$

$= 14,000 \times \left[\frac{441}{400} - 1 \right]$

$= \left(14,000 \times \frac{41}{400}\right) = 1435$

27. (C) Number of vowels (v) = 11

Number of consonants (C) = 17

$\frac{(c - v) \times c}{5v - 4} = \frac{(17 - 11) \times 17}{5 \times 11 - 4} = \frac{102}{51} = 2$

28. (D) The sum of opposite angles of a cyclic quadrilateral 180° .

29. (B) Let the age of father is x years.

\therefore The age of son is $= \frac{x}{4}$ years.

According to the question :

$(x + 20) = 2\left(\frac{x}{4} + 20\right)$

$\Rightarrow x + 20 = \frac{x}{2} + 40$

$\Rightarrow \left(x - \frac{x}{2}\right) = (40 - 20)$

$\Rightarrow \frac{x}{2} = 20$

$\Rightarrow x = 40$

Presentage Ratio : Father Son

4 : 1

After 20 years 3(2 : 1)

\therefore 4 : 1

6 : 3

Then; $(6 - 4) = 20$

$\Rightarrow 2 = 20$

$\Rightarrow 1 = 10$

$\Rightarrow 4 = 40$

30. (B) Area of (regular) hexagon

$= \frac{3\sqrt{3}}{2} s^2$ where s is the side length of the hexagon.

$$= \frac{3\sqrt{3}}{2} \times 10^2$$

$$= 150\sqrt{3}\text{cm}^2$$

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31. (B) 11 observations

└───> odd number.

Arranging the data first, we've
30, 32, 36, 38, 40, 40,

$$\text{Median} = \frac{11+1}{2} \text{th term} = 6^{\text{th}} \text{ term} = 40$$

$$32. (C) \frac{x}{y} = \frac{a+2}{a-2} \Rightarrow \frac{x^2}{y^2} = \frac{(a+2)^2}{(a-2)^2}$$

$$\Rightarrow \frac{x^2 - y^2}{x^2 + y^2} = \frac{(a+2)^2 - (a-2)^2}{(a+2)^2 + (a-2)^2}$$

$$= \frac{4a \cdot 2}{2(a^2 + 2^2)} = \frac{4a}{4 + a^2}$$

33. (A) Option Test

$$24 \times (2 + 4) = 24 \times 6 = 144$$

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34. (A) Required percentage

$$= \frac{30 + 35 + 50}{30 + 35 + 45 + 15 + 25 + 40 + 50} \times 100$$

$$= \frac{115}{240} \times 100 = 48\%$$

35. (A) 16th term

$$= 10 + (16 - 1) \times (-4)$$

$$= 10 - 60 = -50$$

Sum to 16th term

$$= \frac{16}{2}(10 - 50) = \frac{16}{2} \times -40 = -320$$

36. (B)

37. (B) Suppose the leak (only :) empties the tank in x hours.

$$\therefore 2.5\left(\frac{1}{2} - \frac{1}{x}\right) = 1$$

$$\Rightarrow \frac{1}{2} - \frac{1}{x} = \frac{2}{5}$$

$$\Rightarrow \frac{1}{x} = \frac{1}{2} - \frac{2}{5} = \frac{1}{10}$$

$$\Rightarrow x = 10$$

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38. (B) $\sqrt{5} - 3 < 0$ (as $\sqrt{5} < 3$)

$$\sqrt{5} - 2 > 0 \text{ (as } \sqrt{5} > 2)$$

∴ Second quadrant.

$$39. (B) \frac{1}{p+q+x} = \frac{1}{p} + \frac{1}{q} + \frac{1}{x}$$

Roots are $-p, -q$ (option test)

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40. (B)

41. (C) Input - 59 36 12 98 84 31 06 72 63Step-1 - 59 36 06 98 84 31 12 72 63Step-2 - 63 36 06 98 84 31 12 72 59Step-3 - 63 36 06 84 98 31 12 72 59

Step-4 - 63 36 72 84 98 31 12 06 59

Required sum = 72 + 12 = 84

42. (C) Except Pneumonia all are caused by Virus

43. (C) LCM (12, 15, 20, 54) = 540

∴ Required number = 540 + 4 = 544.

$$44. (D) \frac{x}{y+z} = \frac{y}{z+x} = \frac{z}{x+y} = \frac{x+y+z}{2(x+y+z)}$$

$$= \frac{1}{2} \text{ (In case } x+y+z \neq 0)$$

$$\text{If } x+y+z=0, \frac{x}{y+z} = \frac{x}{-x} = -1$$

$$\text{So, } k = \frac{1}{2} \text{ or } -1$$

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$$45. (C) S_B = \frac{S_D + S_U}{2} = \frac{13+9}{2} = 11 \text{ (in km/hr.)}$$

46. (B) Average marks

$$= \frac{55 \times 50 + 60 \times 55 + 45 \times 60}{55 + 60 + 45}$$

$$= \frac{2750 + 3300 + 2700}{160} = \frac{8750}{160} \sim 54.68$$

47. (B) LCM (45, 18, 35) = 630

$$\begin{array}{r} 630)10000(15 \\ -630 \\ \hline 3700 \\ -3150 \\ \hline 550 \end{array}$$

∴ Reqd. no : 10000 - 550 = 9450

48. (B) 50000 ≡ 117

47000 ≡ ?

$$\therefore ? = \frac{47000 \times 117}{50000} = \frac{5499}{50} \sim \frac{550}{50} = 110$$

∴ Profit % ~ 10

∴ Option B is correct.

49. (A) $\tan \theta + \sec \theta = 4$

$$\sec \theta - \tan \theta = \frac{1}{4}$$

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$$\Rightarrow 2\sec \theta = 4 + \frac{1}{4}$$

$$\Rightarrow \sec \theta = \frac{17}{8}$$

$$\sec^2 \theta - \tan^2 \theta = 1 \text{ \& \; } \sec \theta + \tan \theta = 4$$

$$\Rightarrow \sec \theta - \tan \theta = \frac{1}{4} \quad \text{অ্যাচিভার্স}$$

$$\Rightarrow \cos \theta = \frac{8}{17}$$

50. (A) a friend of mine – 4916..... (i)
mine lot of metal – 3109..... (ii)
a piece of metal – 7163..... (iii)
From (i), (ii) & (iii) we get common word 'of' and common code '1'. So code of 'of' is '1'
From (i) & (iii) we get common word 'a' and common code '6'. So code of 'a' is '6'.
From (ii) & (iii) we get common word 'metal' and common code '3'. So code of 'metal' is '3'.
From (iii) we get code of 'piece' is '7'.
So '673' can be written in the same coding system – A metal piece.

51. (C) LCM (21, 28, 36, 45) = 1260
∴ Required no. = 1260 + 5 = 1265

52. (B) Input – 12 31 59 36 63 72 98 84 06
Step-1 – 12 31 98 36 63 72 59 84 06
Step-2 – 06 31 98 36 63 72 59 84 12
Step-3 – 06 31 98 63 36 72 59 84 12
Step-4 – 06 31 84 63 36 72 59 98 12
Required sum = 31 + 72 = 103.

53. (D) $P(P^2 + 3P + 3)$
 $= P^3 + 3P^2 + 3P + 1 - 1$
 $= (P + 1)^3 - 1 = 100^3 - 1 = 999999$

54. (C) Remaining amount = 100 – (18 + 32) = 50%
of the remaining amount, he spent 42%, so he was left with (100 – 42) = 58%. If we take the monthly salary to be n , we have

$$\frac{58}{100} \times \frac{50}{100} \times x = 12,325$$

$$\Rightarrow x = \frac{12325 \times 100}{29}$$

$$\Rightarrow 12x = \frac{12325 \times 12 \times 100}{29} = 510000$$

55. (D) By the problem, $P\left(\frac{r}{100}\right)^2 = 32$

$$\Rightarrow \left(\frac{r}{100}\right)^2 = \frac{32}{5000}$$

$$\Rightarrow r^2 = \frac{32}{5000} \times 10000$$

$$\Rightarrow r = 8$$

56. (B) 3P#NE17?G65Y\$WF.8@JBA4MR92+K

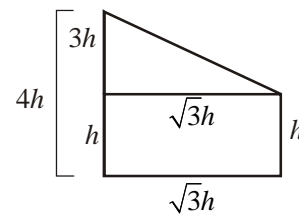
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57. (B) If HCF = x , the numbers are $3x, 4x, 5x$.
By the problem, $3 \times 4 \times 5 \times x = 1200$
 $\Rightarrow x = 20$
∴ smallest no. = $3x = 60$.
58. (B) There are 26 days in between two dates
59. (B) Third angle = $180 - (75 + 45) = 60^\circ$

$$\therefore \text{angle} = \frac{60 \times \pi}{180} = \frac{\pi}{3}$$

60. (A)



$$\tan \theta = \frac{3h}{\sqrt{3}h} = \sqrt{3}$$

$$\tan \theta = \tan 60^\circ$$

$$\theta = 60^\circ$$

61. (D) After 2nd year → 676
∴ 1st year → 650
1yr interest → 26

$$\frac{650 \times 1 \times 91}{100} = 26$$

$$r = \frac{26 \times 100}{65} = 4\%$$

$$P + \frac{P \times 1 \times 4}{100} = 650$$

$$\Rightarrow \frac{26P}{25} = 650$$

$$\Rightarrow P = \frac{650 \times 25}{26} = 625$$

62. (D) Entomology is the study of insects.

63. (*)

64. (B) $\frac{450 \times t \times 4.5}{100} = 81$

$$\Rightarrow \frac{45 \times 45 \times t}{100} = 81$$

$$\Rightarrow t = \frac{81 \times 100}{45 \times 45} = 4 \text{ yrs.}$$

65. (C) $100 \times \frac{130}{100} \times \frac{120}{100} = 156$

$$(156 - 100) = 56\%$$

অ্যাচিভার্স

অ্যাচিভার্স

66. (C) If yesterday was Sunday then the day after tomorrow will be Wednesday.
But in the question it is given that yesterday is not Sunday.
So the day after tomorrow cannot be Wednesday.

67. (C) Required percentage প্র্যাচিভর্স

$$= \frac{25}{35 + 45 + 30 + 40 + 25 + 15 + 50} \times 100$$

$$= \frac{25}{240} \times 100 \approx 10\%$$

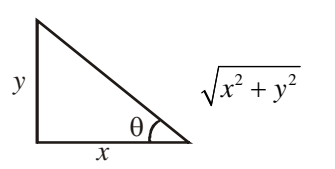
68. (B) 1, 3, 5, 19
 Avg. = $\frac{1+19}{2} = 10$

69. (*)

70. (A) $\begin{array}{r} 5629 \overline{)75} \\ \underline{49} \\ 145 \\ \underline{145} \\ 5 \\ \underline{4} \end{array}$
 4 must be substrate

71. (A) 3, 6, 9, 12, 15 প্র্যাচিভর্স
 Average = $\left(\frac{3+15}{2}\right) \times 5$
 $= 9 \times 5 = 45$

72. (B) $\cot \theta = \frac{x}{y}$



$$\frac{x \cos \theta - y \sin \theta}{x \cos \theta + y \sin \theta}$$

$$= \frac{x \cdot \frac{x}{\sqrt{x^2 + y^2}} - y \cdot \frac{y}{\sqrt{x^2 + y^2}}}{x \cdot \frac{x}{\sqrt{x^2 + y^2}} + y \cdot \frac{y}{\sqrt{x^2 + y^2}}}$$

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

73. (C)

74. (D) প্র্যাচিভর্স

75. (B) $\frac{256 \times 256 - 144 \times 144}{112}$
 $= \frac{256^2 - 144^2}{112}$

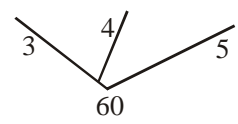
$$= \frac{(256 + 144)(256 - 144)}{112}$$

$$= \frac{400 \times 112}{112} = 400$$

76. (C) First is used to make the second.

77. (A) $\frac{\sqrt{32} + \sqrt{48}}{\sqrt{8} + \sqrt{12}}$ প্র্যাচিভর্স
 $= \frac{4\sqrt{2} + 4\sqrt{3}}{2\sqrt{2} + 2\sqrt{3}}$
 $= \frac{4(\sqrt{2} + \sqrt{3})}{2(\sqrt{2} + \sqrt{3})} = 2$

78. (B) $\frac{A+B}{20} \quad \frac{B+C}{15} \quad \frac{C+A}{12}$



$$2(A + B + C) = 3 + 4 + 5 = 12$$

$$A + B + C = \frac{12}{2} = 6$$

$$A + B + C = \frac{60}{6} = 10 \text{ day}$$

79. (C) 250
 $\frac{-10}{240}$

$$\frac{240}{4} = 60$$

80. (B) 6 shirts + 7 trousers = 4130
 4 shirts + 9 trousers = 4270
 $9(6s + 7t) = 4130 \times 9 = 37170$
 $54s + 63t = 37170 \dots (i)$
 $7(4s + 9t) = 4270 \times 7 = 29890$
 $28s + 63t = 29890 \dots (ii)$
 (i) - (ii)
 $26s = 7280$

$$S = \frac{7280}{26} = 280$$

$$3 \text{ shirts} = 3 \times 280 = 840$$

81. (D)

82. (A) $\frac{n}{2}[2a + (n-1)d] = 16500$ প্র্যাচিভর্স

$$\Rightarrow \frac{10}{2}[2 \times a + (10-1)100] = 16500$$

$$\Rightarrow [2a + 900] = 3300$$

$$\Rightarrow 2a = 2400$$

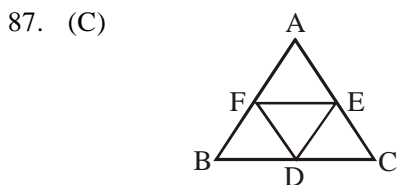
$$\Rightarrow a = 1200$$

83. (D) $\operatorname{cosec} \theta + \cot \theta = \sqrt{3}$
 $\operatorname{cosec}^2 \theta - \cot^2 \theta = 1$
 $(\operatorname{cosec} \theta + \cot \theta)(\operatorname{cosec} \theta - \cot \theta) = 1$
 $\Rightarrow \sqrt{3} \times (\operatorname{cosec} \theta - \cot \theta) = 1$
 $\Rightarrow \operatorname{cosec} \theta - \cot \theta = \frac{1}{\sqrt{3}}$
 $\operatorname{cosec} \theta + \cot \theta = \sqrt{3}$
 $\operatorname{cosec} \theta - \cot \theta = \frac{1}{\sqrt{3}}$
 $\frac{2 \operatorname{cosec} \theta}{2} = \sqrt{3} + \frac{1}{\sqrt{3}} = \frac{4}{\sqrt{3}}$
 $\operatorname{cosec} \theta = \frac{4}{\sqrt{3} \times 2} = \frac{2}{\sqrt{3}}$

84. (B) 5th, 12th, 19th, 26th day is Wednesday.
 So 23rd day = 19th + 4 = Wednesday + 4 = Sunday.

85. (D) 2, 4, 6, 20
 $\text{Avg} = \frac{2+20}{2} = 11$

86. (D) $(a, b, c) * (d, e, f) = a \times f + b \times e + \frac{c}{d}$
 $(5, 7, 10) * (2, 3, 2) = 5 \times 2 + 7 \times 3 + \frac{10}{2}$
 $= 10 + 21 + 5 = 36$



$ABC = AFE + FBD + FDE + EDC$
 $\square FBCE = \Delta FDB + \Delta FDC + \Delta EDC$
 4 triangle = 16 sq cm.
 3 triangle = 12sq cm.
 are of trapezium = 12 sq cm.

88. (C) $n \times (n+1) = 132$
 if, $n = 11$ then $11 \times 12 = 132$

89. (B) $\frac{2}{3}, \frac{4}{5}, \frac{6}{7}$
 $\text{H.C.F} = \frac{\text{HCF of Numerator}}{\text{L.C.M of denominator}} = \frac{2}{105}$

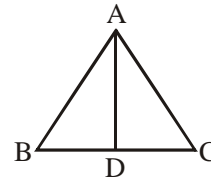
90. $\left(\frac{243}{32}\right)^5$?????

91. (B)

$$\begin{array}{ccc} 27 & & 17 \\ & \backslash & / \\ & 23 & \\ & / & \backslash \\ 6 & & 4 \end{array}$$

3 : 2

92. (B) If AD is median on BC then $BD = DC$ & according to question $AD = \frac{1}{2}BC$



Then $AD = BD = CD$

In ΔABD , $AD = BD$ then $\angle ABD = \angle DAB$ & ΔACD , $AD = CD$, then $\angle DAC = \angle DCA$
 \therefore In ΔABC , $\angle ABC + \angle BCA + \angle BAC = 180^\circ$

$\Rightarrow \underbrace{\angle BAD + \angle DAC}_{\downarrow} + \angle BAC = 180^\circ$

$\Rightarrow \angle BAC + \angle BAC = 180^\circ$

$\Rightarrow 2\angle BAC = 180^\circ \Rightarrow \angle BAC = \frac{180^\circ}{2} = 90^\circ$

Therefore ΔABC is right angled triangle.

93. (B) $\frac{a^2}{b+c} = \frac{b^2}{c+a} = \frac{c^2}{a+b} = 1$

Put, $a = b = c = 2$ (Satisfy)

$$\begin{aligned} & \frac{1}{1+a} + \frac{1}{1+b} + \frac{1}{1+c} \\ &= \frac{1}{1+2} + \frac{1}{1+2} + \frac{1}{1+2} \\ &= \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{3}{3} = 1 \end{aligned}$$

94. (C)
$$\begin{array}{l} 2 \overline{)12, 10, 16, 18} \\ \underline{2 \overline{)6, 5, 8, 9}} \\ \quad 3 \overline{)3, 5, 4, 9} \\ \quad \quad 1, 5, 4, 3 \end{array}$$

L.C.M = 720

Least 5 digit no. 10000

$$\begin{array}{r} 720 \overline{)10000} \overline{)131} \\ \underline{720} \\ 2800 \\ \underline{2160} \\ 640 \\ \underline{720} \\ 80 \end{array}$$

$10000 + 80 = 10080$

Remainder = 5

So, $10080 + 5 = 10085$

95. (D) $\frac{1}{1+x} + \frac{2}{x+5} = \frac{1}{2}$

Direct hit by option, test put $x = \frac{1}{3+1} + \frac{2}{3+5}$

$= \frac{1}{4} + \frac{2}{8} = \frac{2}{4}$ Satisfy. প্র্যাচিভর্স

if take, $x = -3$, then $x = \frac{1}{-3+1} + \frac{2}{-3+5}$

$= -\frac{1}{2} + 1 = \frac{1}{2}$

So, $x = \pm 3$

96. (C) B is the sister-in-law of C's mother.

So, B is the aunt of C. C is the sister of F.

So B is the aunt of F.

97. (D) $2 \overline{)1394}$
 $17 \overline{)697}$
 41

$1394 = 2 \times 17 \times 41 = 82 \times 17$

Therefore required largest possible number is 82.

98. (C) $\sqrt{0.09} = 0.3$

$\sqrt[3]{0.064} = 0.4$

$\frac{3}{5} = 0.6$ (greatest) প্র্যাচিভর্স

0.5

99. (D) $\sec \theta = \csc \phi$

$\Rightarrow \frac{1}{\cos \theta} = \frac{1}{\sin \phi}$

$\Rightarrow \cos \theta = \sin \phi$

$\Rightarrow \sin(90^\circ - \theta) = \sin \phi$

$\Rightarrow 90^\circ - \theta = \phi$

$\Rightarrow \theta + \phi = 90^\circ$

$\sin(\theta + \phi)$

$= \sin 90^\circ = 1$

100. (C) $\left(\frac{r_1}{r_2}\right)^2 = \frac{4}{9}$

$\frac{r_1}{r_2} = \frac{2}{3}$

$\left(\frac{r_1}{r_2}\right)^3 = \left(\frac{2}{3}\right)^3 = \frac{8}{27}$

101. (D) H.C.F of 910 & 1001 is = 91 প্র্যাচিভর্স

Therefore maximum number of students is = 91.

102. (C) According to question,

$\pi r^2 = 154$

$\Rightarrow r^2 = 154 \times \frac{7}{22} = r = 7$

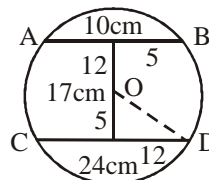
Radius of lawn including the path is

$= 7 + 7 = 14$ meter

Area of lawn including the path is প্র্যাচিভর্স

$= \frac{22}{7} \times 14 \times 14 = 22 \times 28 = 11 \times 56 = 616 \text{m}^2$

103. (B)



Therefore radius of the circle is

$= \sqrt{12^2 + 5^2} = \sqrt{144 + 25} = \sqrt{169} = 13 \text{cm}$

104. (C) Each child get $= \frac{84105}{35} = 2403$

105. (A) The length of the sides of a triangle are 5cm, 12cm and 13cm

Then semi perimeter of this triangle is

$= \frac{5+12+13}{2} = 15 \text{ cm}$

Therefore, area of this triangle is প্র্যাচিভর্স

$= \sqrt{15 \times 2 \times 3 \times 10} \text{ cm}^2 = 3 \times 5 \times 2 = 30 \text{ cm}^2$

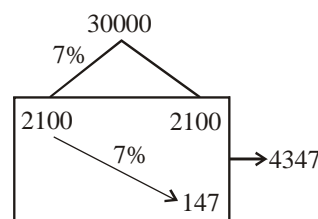
106. (C) $(a-u) \times (b-u) \times (c-u) \times \dots \times (u-u) \times \dots \times (z-u)$
 $= (a-u) \times (b-u) \times (c-u) \times \dots \times 0 \times \dots \times (z-u) = 0$

107. (C)

108. (B) A sum of money placed at compound interest, 2 times it self in 5 year

8 times $= 2^3$ times it self in 5×3 year = 15 years.

109. (A)



Therefore time is 2 years.

110. (D) $(10-7) = 3$ rd element from the right = 2.

111. (D) Relative velocity of two automobile is

$= (60 + 40) = 100 \text{ km/hr.}$

Time taken to cover the distance 150 km is

$= \frac{150}{100} = 1.5 \text{hr.}$ প্র্যাচিভর্স

112. (A) Each interior angle of a regular polygon is = 144°

Each Exterior angle of this regular polygon is = $180^\circ - 144^\circ = 36^\circ$

Therefore number of sides of this polygon is
 $= \frac{360}{36} = 10$ প্র্যাচিভার্স

113. (C) Number of digit = 9

Number of symbol = 7

Required product = $9 \times 7 = 63$

114. (A) The HCF & LCM of two numbers is 4 & 520.
 If one of the numbers is 52, then Other number

$$\text{is} = \frac{4 \times 520}{52} = 40$$

115. (A) Let, Number of hens are = x , then numbers of rabbits are = $50 - x$

According to question

$$2x + 4(50 - x) = 160$$

$$\Rightarrow 2x + 200 - 4x = 160$$

$$\Rightarrow -2x = -40 \Rightarrow x = 20$$

Therefore number of hens are = 20.

116. (A) All the letter of the word are written in alphabetical order.

117. (B) Required percentage

$$= \frac{45 + 15 + 40}{30 + 45 + 35 + 15 + 25 + 40 + 50} \times 100$$

$$= \frac{100}{240} \times 100 = 42\%$$

118. (A) Students enrolled in Spanish

$$= 35 + 45 + 25 + 15 = 120$$

119. (C) X Y

$$125 \leftarrow 100$$

$$100 \longrightarrow 100 \times \frac{100}{125} = 80$$

Therefore income of y is $(100 - 80) = 20\%$ less than the income of x.

120. (B)

121. (D) 7:15, 15:23, 17:25, 21:29

$$= \frac{7}{15} \times 8 \quad \frac{15}{23} \times 8 \quad \frac{17}{25} \times 8 \quad \frac{21}{29} \times 8$$

$$\text{Therefore greatest ratio is} = \frac{21}{29}$$

122. (B)

123. (C) Number of students learning photography

$$= 30 + 40 + 25 + 45 = 140$$

Number of students learning spanish

$$= 35 + 45 + 25 + 15 = 120$$

Number of students learning photography is 20 more than the students who are learning spanish.

124. (B) The ratio of cost price to sate price is 20 : 23.

$$\text{Then profit \%} = \frac{23 - 20}{20} \times 100\%$$

$$= \frac{3}{20} \times 100 = 15\%$$

125. (D) Masood Aftab Zahid

$$\text{Rs.}8000 \xrightarrow{20\% \uparrow} 9600 \xrightarrow{20\% \downarrow} 7680$$

Therefore the, cost price of Zahid is 7680.

126. (C) The average of first ten prime numbers which are odd is

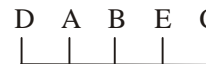
$$= \frac{3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31}{10}$$

$$= \frac{158}{10} = 15.8$$

127. (A) His average speed is = $\frac{\text{Distance}}{\text{time}}$

$$= \frac{20 + 20 + 20 + 20}{1 + 1 + 1.5 + 1.5} = \frac{50}{5} = 16 \text{ km/hr.}$$

128. (C) From both P and Q we get



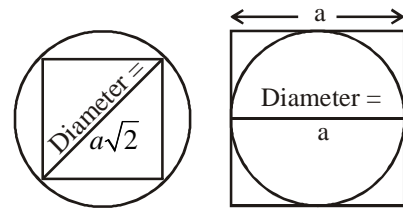
129. (A) H.C.F of 240, 336 and 96 = 48.

$$\begin{array}{r} 240 \overline{) 336} \quad | 1 \\ \underline{240} \\ 96 \overline{) 240} \quad | 2 \\ \underline{192} \\ 48 \overline{) 96} \quad | 2 \end{array}$$

And total no. of books = $240 + 336 + 96 = 672$

No. of minimum stack (s) = $672 \div 48 = 14$

130. (A)



Let the side of the square be a

$$\therefore \text{the reqd. ratio} = \pi \left(\frac{a\sqrt{2}}{2} \right)^2 : \pi \left(\frac{a}{2} \right)^2 = 2:1$$

131. (A)



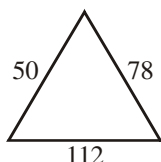
$$\therefore \text{the volume of water} = \frac{2}{3} \pi (9)^3 \text{ cm}^3$$

\therefore Radius = 9cm.

the vol. of a bottle = $\pi\left(\frac{3}{2}\right)^2 \cdot 4 \text{ cm}^3$

\therefore No. of bottles = $\frac{2\pi \times 9 \times 9 \times 9}{3 \times 3 \times 3 \times \pi} = 54$

132. (C)



$\therefore S = \frac{50+78+112}{2} = \frac{240}{2} = 120$

\therefore Area = $\sqrt{s(s-a)(s-b)(s-c)}$
 $= \sqrt{120 \times 70 \times 42 \times 8}$
 $= \sqrt{10 \times 4 \times 3 \times 7 \times 10 \times 7 \times 3 \times 2 \times 4 \times 2}$
 $= 10 \times 4 \times 3 \times 7 \times 2 = 1680 \text{ mt}^2$

133. (*) Let, the speed of the boat in still water be x km/hr. and the speed of the current be y km/hr.

Now, the relative velocity of the boat by stream

$= \frac{2 \times 60}{20} = 6 \text{ km/hr.}$

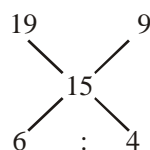
and the relative velocity of the boat down

stream = $\frac{2 \times 60}{15} = 8 \text{ km/hr.}$

$\therefore x + y = 8$
 $\frac{x - y}{2x} = 14$

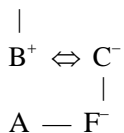
$\therefore x = 7 \text{ km/hr.}$

134. (C) Gold Copper



Gold : Copper = 3 : 2

135. (D) $D^- \leftrightarrow E^+$



136. (C) $\sqrt{529} = 23$, Value of $\sqrt{0.000529}$

$\therefore \sqrt{0.000529} = 0.023$

137. (B) Average of 1, 2, 3, 4, 5, 6, 7, 8, 9 & 10

$= \frac{10+1}{2} = 5.5$

138. (C) The dimensions of square tile = 2×2

$10 \overline{)26} \overline{)2}$ \therefore No. of square tiles
 $\frac{6 \overline{)10} \overline{)1}$ $= \frac{\text{Area of the floor}}{\text{Area of tile}}$
 $\frac{4 \overline{)6} \overline{)1}$ $= \frac{26 \times 10}{2 \times 2} = 65$
 $\frac{2 \overline{)4} \overline{)2}$
 $\frac{4}{\times}$

139. (C) Time taken = $12:30 - 11 = 1:30 \text{ hr}$
 $= 60 + 30 = 90 \text{ minutes.}$

We know, $m_1 t_1 w_1 = m_2 t_2 w_2$

$\therefore 1 \times 6 \times 1845 = m_2 \times 90 \times 1$

$\therefore m_2 = 123$

$m_1 = 1$

$t_1 = 6 \text{ minutes}$

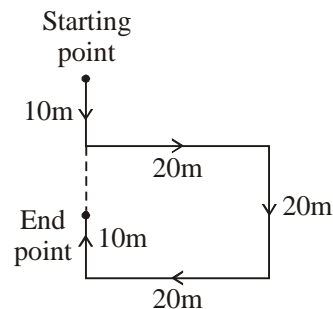
$w_2 = 1845 \text{ bottles}$

$m_2 = ?$

$t_2 = 90 \text{ minutes}$

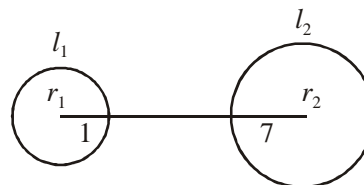
$w_1 = 1 \text{ bottle}$

140. (B)



Sanjeev is in 20m South from the starting point.

141. (C)



$d = 10 \text{ cm}$

$r_1 = 1 \text{ cm}$

$r_2 = 7 \text{ cm}$

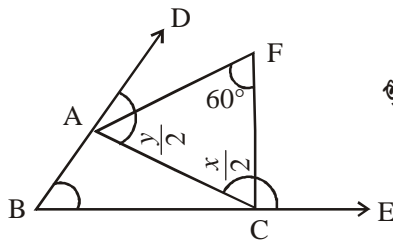
\therefore the length of direct common tangent

$= \sqrt{d^2 - (r_2 - r_1)^2} = \sqrt{100 - 36} = \sqrt{64} = 8$

142. (B) The length of the largest rod that can be placed in the room

$= \sqrt{l^2 + b^2 + h^2} = \sqrt{100 + 100 + 25}$
 $= \sqrt{225} = 15 \text{ mt.}$

143. (C)



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Let, $\angle ACF$ and $\angle CAD$ be x by respectively.

\overline{CF} and \overline{AF} are bi-sectors.

$$\therefore \angle CAF + \angle ACF = \frac{y}{2} + \frac{x}{2}$$

$$\begin{aligned} \therefore \angle CAF + \angle ACF + \angle AFC \\ = \frac{y}{2} + \frac{x}{2} + 60^\circ = 180^\circ \end{aligned}$$

$$\therefore x + y = 240^\circ$$

Again, $\angle ACB + \angle CAB + \angle ABC = 180^\circ$

$$\therefore x + y = 240^\circ$$

$$180^\circ - x + 180^\circ - y + z = 180^\circ - (x + y) + z$$

$$= -180^\circ$$

$$\therefore z = 60^\circ$$

$$\therefore \angle ABC = 60^\circ$$

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144. (*)

145. (C)

146. (B)

147. (D)

148. (B) Word after arranging in alphabetical order

R A M A K R I S H N A
A A A H I K M N R R S

149. (A) $S = ut + \frac{1}{2}at^2$, $u = 50$, $a = 9.8$ & $t = 2$

$$= 50 \times 2 + \frac{1}{2} \times 4 \times 9.8 = 100 + 19.6 = 119.6$$

150. (D) $7 \times 9 = 63$; $7 \times 7 = 49$; $7 \times 5 = 35$

Similarly,

$$9 \times 9 = 81$$
; $9 \times 7 = 63$; $9 \times 5 = 45$

151. (A) \therefore No of articles bought at Re 1

$$= 20 \times \frac{120}{100} = 24$$

152. (B) \therefore A is twice good as B, then if A does in x day; B does in $2x$ days.

$$\therefore \frac{1}{x} + \frac{1}{2x} = \frac{1}{28}$$

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$$\therefore \frac{3}{2x} = \frac{1}{24}$$

$$\therefore x = 42 \text{ days.}$$

153. (C) LCM of 15, 27, 35 & 42 = $3 \times 5 \times 7 \times 9 \times 2$
= $30 \times 63 = 1890$

$$\begin{array}{r} 3 \overline{)15, 27, 35, 42} \\ \underline{5 \overline{)5, 9, 35, 14}} \\ \underline{7 \overline{)9, 7, 14}} \\ 9, 2 \end{array}$$

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if remainder 7 will be there in each case, then the required no. = $(1890 + 7) = 1897$

154. (D) E, G, I, K are fifth, seventh, ninth and eleventh letters from the beginning of the alphabet and W, U, S, Q are fourth, sixth, eighth and tenth letters from the end of the alphabet.

Similarly,

D, F, H, J are fourth, sixth, eighth and tenth letters from the beginning of the alphabet. So the required group will consist of letter which are third, fifth, seventh and ninth from the end of the alphabet.

155. (A) $a = 28$, $d = -4$ $n = 7$, $a = ?$

$$\therefore a_n = a + (n - 1)d = \text{last term of the series.}$$

$$= 28 + 6 \times (-4) = 4$$

156. (A) $\frac{\text{Amals Capital} \times 9}{\text{Bimal's Capital} \times 6} = \frac{\text{A's profit}}{\text{B's profit}}$

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$$= \frac{(69 - 46)}{46} = \frac{23}{46} = \frac{1}{2}$$

$$\frac{5 \times 9}{x \times 6} = \frac{1}{2} \therefore x = 15, \text{ then } x = 1500$$

157. (A) The words in each pair are synonyms of each other.

158. (D) LCM of x & $(x + 1) = x(x + 1)$

$\therefore x$ be a prime no.

159. (B) Let the fraction be $\frac{x}{y} | x < y |$

$$\therefore \text{the reciprocal of the fraction} = \frac{y}{x}$$

$$\therefore \frac{y}{x} - \frac{x}{y} = \frac{7}{12} \therefore \frac{y^2 - x^2}{yx} = \frac{7}{12} \therefore \frac{x}{y} = \frac{3}{4}$$

$$12y^2 - 12x^2 = 7yx$$

$$\text{Now, } 13(y^2 - x^2) = 7(yx)$$

It's possible off $x = 3$ & $y = 4$

160. (C) Mission term(s) of A.P. =

$$\underline{18}, \underline{13}, \underline{8}, 3$$

161. (D)

162. (B) $x + 120y = 2000$

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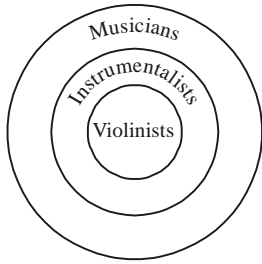
$$x + 100y = 1700$$

$$\therefore x = 200, y = 15$$

$$\text{Ans} = \frac{1880 - 200}{15} = 112$$

163. (B) $70 + 73 - 64 + 63 = 142$

164. (A)



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$$\begin{aligned} 165. (B) \quad & \sqrt{248 + \sqrt{52 + \sqrt{144}}} \\ & = \sqrt{248 + \sqrt{52 + \sqrt{12}}} \\ & = \sqrt{248 + 8} \\ & = \sqrt{256} = 16 \end{aligned}$$

$$166. (D) \quad 2000 \times \frac{4}{100} = 80$$

$$2080 \times \frac{3}{100} = 62.4$$

$$\text{Total interest} = 80 + 62.4 = 142.4$$

$$167. (B) \quad 5\text{yr} \rightarrow 1800$$

$$3\text{yr} \rightarrow 1680$$

$$2\text{yr} \rightarrow 120$$

$$1\text{yr} \rightarrow 60$$

$$5\text{yr} \rightarrow 60 \times 5 = 300$$

$$\therefore P = 1800 - 300 = 1500$$

$$r = \frac{60}{1500} \times 100\% = 4\%$$

168. (B) Parallelogram.

169. (C) HCF of 21, 42, 63

$$= 21$$

$$\text{No. of can} = \frac{21}{21} + \frac{42}{21} + \frac{63}{21}$$

$$= 1 + 2 + 3 = 6$$

$$170. (A) \quad a^3 + b^3 + c^3 - 3abc$$

$$= \frac{1}{2}(a+b+c)\{(a-b)^2 + (b-c)^2 + (c-a)^2\}$$

$$= \frac{1}{2}(2994)\{1+1+4\} = 8982$$

171. (D)

$$172. (C) \quad 2187 \left(1 - \frac{10}{100}\right)^{-3}$$

$$= 2187 \left(\frac{9}{10}\right)^{-3}$$

$$= 2187 \frac{1000}{729} = 3000$$

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$$173. (B) \quad \pi r^2 = x$$

$$2\pi r = y$$

$$2r = z$$

$$\therefore \frac{x}{yz} = \frac{1}{4}$$

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174. (C) 8.FW\$Y56G?71EN#P3@JBΔ4MR92+K

$$175. (D) \quad 78 = 3 + (n - 1) 5$$

$$\Rightarrow n = 16$$

176. (B) Option Test

$$18 \div 6 \times 7 - 5 + 2$$

$$= 3 \times 7 - 5 + 2 = 18$$

$$177. (C) \quad 4\pi(7)^2 : 4\pi(21)^2 = 1 : 9$$

178. (D) Input - 59 36 12 84 98 31 06 72 63

Step-1 - 59 36 06 84 98 31 12 72 63

Step-2 - 63 36 06 84 98 31 12 72 59

Step-3 - 63 36 06 98 84 31 12 72 59

Step-4 - 63 36 72 98 84 31 12 06 59

$$179. (B) \quad a(2n_1)^2 - (2n_2)^2$$

$$= 4(n_1^2 - n_2^2)$$

divisible by 4

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$$180. (D) \quad x + y + \frac{xy}{100} \%$$

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$$= 25 + 25 + \frac{25 \times 25}{100} \% = 56.25\%$$

$$181. (D) \quad (7 + 3 + 8) \times 2 - 2 = 34$$

$$(13 + 9 + 2) \times 2 - 2 = 46$$

$$(11 + 6 + 4) \times 2 - 2 = 40$$

$$(8 + 6 + 1) \times 2 - 2 = 28$$

182. (A) All are synonyms

$$183. (B) \quad 4600 \times 640 \times \frac{30}{100} = 883200$$

184. (C) The relationship is - $x : (x^3 - x^2)$

185. (B) Option Test

$$6$$

$$26$$

$$66$$

$$166$$

$$264$$

$$\therefore \& = 6$$

185. (B) The last digit of the summation of four 'd' is 4

It is possible when & is 1 or 6.

1 is not given in the option. So correct answer is 6.

$$186. (B) \quad \frac{x}{2} + \frac{y}{3} = 4$$

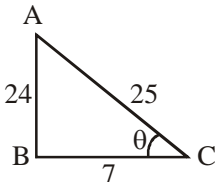
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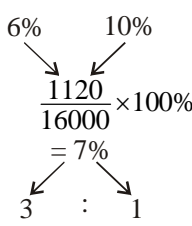
$$\frac{2}{x} + \frac{3}{y} = 1$$

$$\therefore x = 4$$

$$y = 4$$

$$x + y = 10$$

187. (B) Rashmi's age = $\frac{6}{2} \times 8 = 24$
188. (A) Input - 06 12 31 36 59 63 72 84 98
 Step-1 - 06 12 72 36 59 63 31 84 98
 Step-2 - 98 12 72 36 59 63 31 84 06
 Step-3 - 98 12 72 59 36 63 31 84 06
 Step-4 - 98 12 84 59 36 63 31 72 06
189. (D) Original Word : অ্যাচিভার্স
 1 2 3 4 5 6 7 8 9 10 11 12 13 14
 G L O R I F I C A T I O N S
 Word after rearrangement :
 N I T S O F I C A O L I G R
 $\frac{1}{12}$ 12th letter from the right end
190. (C) 2330 2330 2330
 8 passengers → 4 floors
 48 passengers → 24 floors
 2 passengers → 25th floors
191. (C)  অ্যাচিভার্স
- $\sin \theta = \frac{24}{25}$
192. (A) Glucose is rich in Carbohydrates and soyabean is rich in Proteins.
193. (D) Anthropology deals with the study of man. Similarly, anthology deals with collection of poems.
194. (C) Arrangement of the words according to dictionary.
 5. Sprawl — 3. Spree — 1. Spruce — 2.
 Spume — 4. Spurt
195. (B) $a + \frac{1}{b} = 1$ $b + \frac{1}{c} = 1$ অ্যাচিভার্স
 $\Rightarrow a = 1 - \frac{1}{b}$ $\Rightarrow \frac{1}{c} = 1 - b$

- $\Rightarrow a = \frac{b-1}{b}$ $\Rightarrow c = \frac{1}{1-b}$
- $\Rightarrow \frac{1}{a} = \frac{b}{b-1}$
- $\therefore c + \frac{1}{a}$
- $= \frac{1}{1-b} + \frac{b}{b-1}$ অ্যাচিভার্স
- $= \frac{1}{1-b} - \frac{b}{1-b}$
- $= \frac{1-b}{1-b} = 1$
196. (C) $10^2 + \frac{1}{100} + 0.0001$
 $= 100 + 0.01 + 0.0001$
 $= 100.0101$
197. (A) $A > D > B > C$
198. (B) The speaker's brother is Promod's maternal uncle. So the speaker is Promod's mother or his father's wife. অ্যাচিভার্স
199. (*) A^+
 \downarrow
 $B^- + D^+ \rightarrow E^-$
 \downarrow
 $C^- \rightarrow F^+$
200. (C)  অ্যাচিভার্স
- $1st = \frac{3}{4} \times 16000 = 12000$

