ALLEN™ CAREER INSTITUTE KOTA (RAJASTHAN) *Path to success*

Date: 05/11/2017

Max. Marks: 50   **SOLUTIONS**   **Time allowed: 45 mins**

1. Find the 10th term in the series 2, 4, 8, 16, ...

(1) 540   (2) 1024   (3) 980   (4) 924

Ans. (2)

Sol. 2^{x2}, 4^{x2} 8^{x2} 16^{x2}, 32^{x2}, 64^{x2}, 128^{x2}, 256^{x2}, 512^{x2}, = 1024

2. 17 + 16 × 1.6 + 14 × 1.3 = ?

(1) 60.8   (2) 68.8   (3) 60.6   (4) 59.6

Ans. (1)

Sol. 17 + 16 × 1.6 + 14 × 1.3

17 + 25.6 + + 18.2

60.8

3. 6, 24, 60, 120 ....

(1) 140   (2) 210   (3) 240   (4) 180

Ans. (2)

Sol. 6, 24, 60, 120, ...

1 × 2 × 3 = 6

2 × 3 × 4 = 24

3 × 4 × 5 = 60

4 × 5 × 6 = 120

5 × 6 × 7 = 120

4. 2, 10, 26,....., 242

(1) 80   (2) 81   (3) 82   (4) 83

Ans. (3)

Sol. 2, 10, 26, ... 242

$3^1 - 1 = 3 - 1 = 2$

$3^2 + 1 = 9 + 1 = 10$

$3^3 - 1 = 27 - 1 = 26$

$3^4 + 1 = 81 + 1 = 82$

$3^5 - 1 = 243 - 1 = 242$

5. 3, 6, 24, 30, 63, 72, ? 132

(1) 120   (2) 110   (3) 105   (4) 115

Ans. (1)

Sol. 3, 6, 24, 30, 63, 72, ? , 132

$2^2 - 1 = 4 - 1 = 3$

$3^2 - 3 = 9 - 3 = 6$

$5^2 - 1 = 25 - 1 = 24$

$6^2 - 6 = 36 - 6 = 30$

$8^2 - 1 = 64 - 1 = 63$

$9^2 - 9 = 81 - 9 = 72$

So $11^2 - 1 = 121 - 1 = 120$

$12^2 - 12 = 144 - 12 = 132$

6. 40% of 2/3 of a number is 32. What is the number ?

(1) 160   (2) 240   (3) 80   (4) 120

Ans. (4)

Sol. $x \times 40\% \times \dfrac{2}{3} = 32$

$x \times \dfrac{40}{100} \times \dfrac{2}{3} = 32$

$x \times \dfrac{2}{5} \times \dfrac{2}{3} = 32$

$x = 120$

7. If 7 spiders make 7 webs in 7 days, then how many days are needed for 1 spider to make 1 web ?

(1) 1   (2) 7   (3) 3   (4) 14

Ans. (2)

Sol. Let the required number days be x.

Less spiders, More days

Less webs, Less days.

$\left. \begin{array}{ll} \text{Spiders} & 1:7 \\ \text{Webs} & 7:1 \end{array} \right\} :: 7 : x$
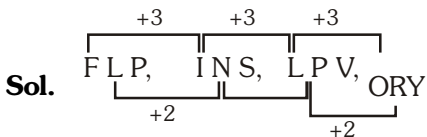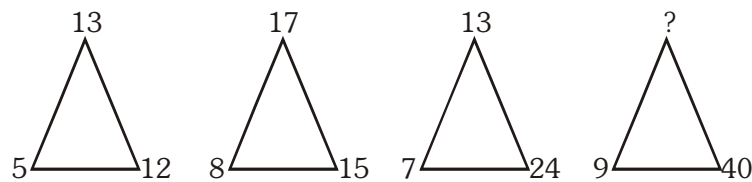
So, $1 \times 7 \times x = 7 \times 1 \times 7$

$x = 7$

8. FLP, INS, LPV, ?

(1) ORY   (2) QPS   (3) QRS   (4) PGC

Ans. (1)

Sol.

9. Find the number in the position of '?'

(1) 40   (2) 45   (3) 41   (4) 54

Ans. (3)

Sol. $\sqrt{5^2 + 12^2} = 169 = 13^2$

Same as $\sqrt{9^2 + 40^2} = 169 = 41^2$

10. If a quarter kg of potato costs 60 paise, how many paise does 200 gm cost ?

(1) 65   (2) 60   (3) 48   (4) 52

Ans. (3)

Sol. Quarter of kg means 250 gm

Less weight, less price

(direct proportion)

So, 250 : 200 : 60 : x

$$x = \frac{200 \times 60}{250}$$

x = 48

Direction (Q.11 & Q.12) : Certain rules are followed in the given series of alphabets where some alphbets are missing. Find out the missing alphabet series from the given four alternatives and mark it on your Answer sheet.

11. ab _ acc _ _ da _ bba _

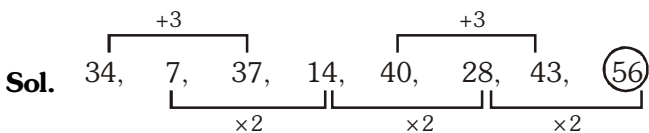(1) cdabc   (2) badda   (3) cdbcd   (4) dbacd

Ans. (NA)

12. c _ bb _ _ abbbb _ abbb

(1) aabcd   (2) abccb   (3) abacb   (4) bacbb
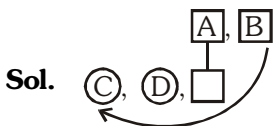
Ans. (2)

Sol. c<u>a</u>bbb<u>bc</u>abbbb<u>c</u>abbb <u>b</u>

13. Choose the missing number- 34, 7, 37, 14, 40, 28, 43, ...

(1) 56   (2) 63   (3) 42   (4) 49

Ans. (1)

Sol.

14. A and B are brothers C and D are sisters. A's son is D's brother. How is B related to C ?

(1) Brother   (2) Father   (3) Uncle   (4) Son

Ans. (3)

Sol.

15. If x means ÷, −means x, ÷ means + and + means −, then (3 − 15 ÷ 19) × 8 + 6 = ?

(1) 8   (2) 4   (3) 2   (4) 1

Ans. (3)

Sol. $\times \longrightarrow \div, - \longrightarrow \times, \div \longrightarrow +, + \longrightarrow -$

$(3 - 15 \div 19) \times 8 + 6$

$(3 \times 15 + 19) \div 8 - 6$

$(45 + 19) \div 8 - 6$

$64 \div 8 - 6 \Rightarrow 8 - 6 = 2$

Direction : (Q.16 to Q.20) : are based on the following information : A, B, C, D, E, F, G and H are sitting on a merry-go round facing at the centre. D is second to the left of H who is third to the left of A. B is fourth to the right of C who is immediate neighbour of H. G is not a neighbour of B nor C. F is not a neighbour of B.
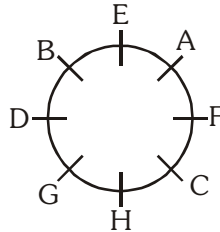
16. Who is third to the left of B ?

    (1) A   (2) C   (3) F   (4) H

Ans. (3)

17. In which of the following pairs is the first person sitting to the immediate right of the second person ?

    (1) G and D   (2) B and E   (3) H and B   (4) G and H

Ans. (1 or 2)

18. What is F's position with respect to G ?

    (1) Third towards right   (2) Third towards left

    (3) Second towards right   (4) Second towards left

Ans. (1)

19. Who is sitting between A and B ?

    (1) Both E and H   (2) Both F and C   (3) Only E   (4) Only F

Ans. (3)

20. How many of them are sitting between C and B ?

    (1) 0 or 6   (2) 1 or 5   (3) 2 or 4   (4) 3

Ans. (4)

21. If in any code language NATIONAL is written as MZGRLMZO then how is JAIPUR written in that language.

    (1) QZRKFI   (2) PZRKFI   (3) QZRIFK   (4) QARKFI

Ans. (1)

Sol.

$$\begin{array}{c} \boxed{N}\,\boxed{A}\,\boxed{T}\, I\, O\, N\, A\, L \\ \boxed{M}\,\boxed{Z}\,\boxed{G}\, R\, L\, M\, Z\, O \\ \scriptstyle 27\ \ 27\ 27 \end{array}\right\}$$ Total in both alphabets N and M, Coded and uncoded is equal to 27.

So, $\begin{array}{c} \boxed{J}\,\boxed{A}\, I\, P\, U\, R \\ \boxed{Q}\,\boxed{Z}\, R\, K\, F\, I \\ \scriptstyle 27\ 27 \end{array}$

22. If RAT = 42 and CAT = 57, then LATE = ?

    (1) 60   (2) 70   (3) 64   (4) 74

Ans. (2)
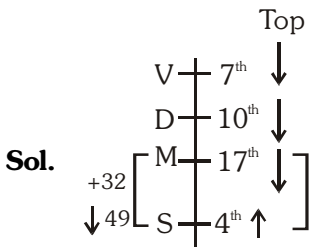
Sol. RAT = (Addition of Reverse values of Alphabets)

    9 + 26 + 7 = 42

    Like wise, LATE = 15 + 26 + 7 + 22 = 70

23. In a Class Vidhya ranks 7th from the top, Divya is 7 ranks ahead of Medha and 3 ranks behind Vidhya. Sushma who is 4th from the bottom, is 32 ranks behind Medha. How many students are there in the class ?

    (1) 52   (2) 49   (3) 50   (4) 54

Ans. (1)

Sol.

    So the total No. of students are

    49 + 4 = 53 − 1 = 52

24. A person corsses a 600 metre long street in 5 minutes. What is his speed in km per hour ?

    (1) 4.2   (2) 7.2   (3) 8.2   (4) 9

Ans. (2)

Sol. $\text{Speed} = \dfrac{\text{Distance}}{\text{Time}}$

    =   Distance = 600 meter

       Time = 5 min = 300 sec.

    $\text{Speed} = \dfrac{600}{300} = 2$ m/sec

    $\Rightarrow 2 \times \dfrac{18}{5}$ km/hr = 7.2 km/hr.

25. A man buys a scooter for Rs.1400 and sells it at a loss of 15%. What is the selling price of the scooter ?

    (1) 1190   (2) 1050   (3) 1090   (4) 1200

Ans. (1)

Sol. Cost price = 1400

    15% of 1400 (loss of 15%) = (1400 * 15) / 100 = 210

    Selling Price = 1400 − 210 = 1190

26. A train, 130 metres long travels at a speed of 45 km/hr crosses a bridge in 30 seconds. The length of the bridge is

(1) 270   (2) 235   (3) 245   (4) 220

Ans. (3)

Sol. Speed = $\left(45 \times \dfrac{5}{18}\right)$ m/sec = $\left(\dfrac{25}{2}\right)$ m/sec

Time = 30 sec

Let the length of bridge be x meter.

Then $\dfrac{130 + x}{30} = \dfrac{25}{2}$

$\Rightarrow 2\,(130 + x) = 750$

$\Rightarrow x = 245$ m

27. How much time wil it take for an amount of Rs. 900 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

(1) 2 years   (2) 4 years   (3) 3 years   (4) 5 years

Ans. (1)

Sol. P = 900rs , SI = 81, T = ? R = 4.5 %

T   = 100 × SI ×P ×R

    = 100 × 81 × 900 ×4.5 = 2 years

28. A sum of money placed at compound interest doubles itself in 4 years. In how many years will it amount to 8 times?

(1) 4 years   (2) 6 years   (3) 5 years   (4) 8 years

Ans. (NA)

Sol. Let,

Principal = Rs. 100

Amount = Rs. 200.

Rate = r%

Time = 4 years.

Now,

A = P ×[1+ (r/100)]^n,

200 = 100 × [1+ (r/100)]^4,

2 = [1+ (r/100)]^4,............(i)

If sum become 8 times in the time n years,

then

8 = [1+ (r/100)]^n,

2^3 = [1+ (r/100)]^n, ...(ii)

Using eqn (i) in (ii), we get;

[1+ (r/100)^4]^3 = [1+ (r/100)]^n,

[1+ (r/100)]^{12} = [1+ (r/100)]^n

Thus , n = 12 years.

29. Vikas can cover a distance in 1 hr 24 min by covering 2/3 of the distance at 4 kmph and the rest at 5 kmph. The total distance is ?

(1) 6 km   (2) 7 km   (3) 8 km   (4) 5 km

Ans. **(1)**

Sol. Vikas covered $\dfrac{2}{3}$ of x at 4 km/hr.

Covered $\dfrac{1}{3}$ of x at 5km/hr

then t = 1hr 24 min = $\dfrac{7}{5}$ hr

$$\dfrac{\left(\dfrac{2x}{3}\right)}{4}+\dfrac{\left(\dfrac{x}{3}\right)}{5}=\dfrac{7}{5}$$

x = 6 km

30. 2 trains starting at the same time from 2 stations 200 km apart and going in opposite direction cross each other at a distance of 110 km from one of the stations. What is the ratio of their speeds?

(1) 11:15   (2) 11:12   (3) 11:7   (4) 11:9

Ans. **(4)**

Sol. We know total distance of 200 km. If both trains crossed each other at a distance of 110 km then one train covered 110 km and other 90 km [110 + 90 = 200 km]

So ratio of their speed = 110 : 90

= 11 : 9

31. In the following figure triangle represents 'girls', square players and circle coach. Which part of the diagram represents the girls who are player but not coach?
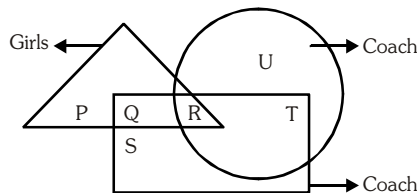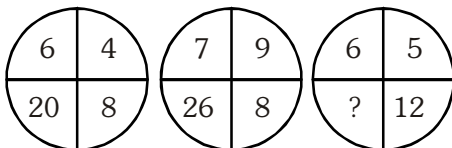

(1) P   (2) Q   (3) R   (4) S

Ans. **(2)**

Sol. By observation

32. Which number will replace the qustion mark?

(1) 15   (2) 25   (3) 35   (4) 22

Ans. **(2)**

Sol. (6 + 4 + 8) + 2 = 20

Like wise, (6 + 5 + 12) + 2 = 25

33. The average of 50 numbers is 38. If two numbers namely 45 and 55 are discarded, the average of remaining numbers will be ?

(1) 36.5   (2) 38   (3) 37.5   (4) 38.5
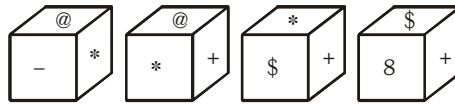
Ans. (3)

Sol. Total of 50 numbers = $50 \times 38 = 1900$

Avg of 48 numbers = $1900 - (45 + 55)/48$

$$= \frac{1800}{48} = 37.5$$

34. Which symbol will be on the face opposite to the face with symbol * ?

(1) @

(2) #

(3) 8

(4) +

Ans. (3)

Sol.

	8	
@	+	$
	*	
	–	

So, opposite to * is 8.

35. In a boat 25 persons were sitting. Their average weight increased one kilogram when one man goes and a new man comes in. The weight of the new man is 70 kgs. Find the weight of the man who is going.

(1) 45   (2) 52   (3) 48   (4) 47

Ans. (1)

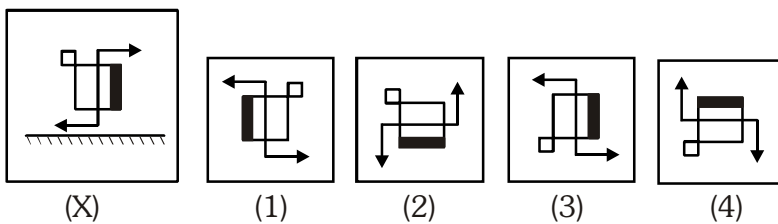**Sol.** Weight increased per person is 1 kg

Total increase in weight = 25 kgs

Weight of new man is 70 kgs

(which means his weight is 25 kgs heavier)

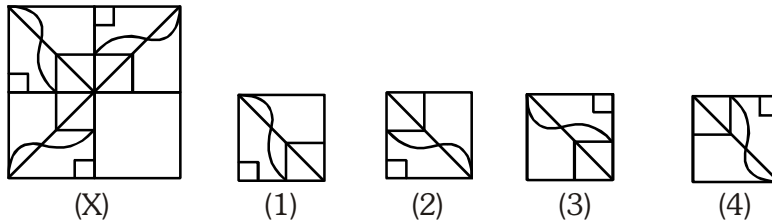The weight of the old man was $70 - 25 = 45$ kgs.

36. Choose the alternative from the answer set (*i.e.*, 1, 2, 3, 4) which closely resembles the mirror image of the given figure 'X'.

Ans. (3)

Sol. By observation

37. Complete the diagram from the given options.

(X)   (1)   (2)   (3)   (4)

Ans. (4)

Sol. By observation

38. If BOX is coded as CDPQYZ what will be the last two letters of word in the same code for HERO?

(1) M, N   (2) P, Q   (3) N, M   (4) Q, P

Ans. (2)

Sol.

$$\begin{array}{ccc} B & O & X \\ \downarrow & \downarrow & \downarrow \\ CD & PQ & YZ \end{array} \Bigg| \begin{array}{cccc} H & E & R & O \\ & & & \downarrow \\ & & & PQ \end{array}$$

39. If air is called water, water is called green, green is called dust, dust is called yellow and yellow is called cloud, which of the following does fish live in ?

(1) Air   (2) Water   (3) Green   (4) Dust

Ans. (3)

Sol. Air $\longrightarrow$ Water

Water $\longrightarrow$ **Green**

Green $\longrightarrow$ Dust

Dust $\longrightarrow$ Yellow

Yellow $\longrightarrow$ Cloud

40. The total of present age of P, Q and R is 90 years. Ten yeark back their age ratio was 1 : 2 : 3. What is the present age of Q?

(1) 36   (2) 30   (3) 18   (4) 20

Ans. (2)

Sol. Let their ages 10 years ago is x, 2x and 3x years
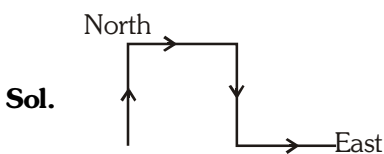
$10 + 2x + 10 + 3x + 10 + x = 90$

$\therefore x = 10$

Q's present age = $2x + 10 = 30$ years.

41. A person moves North, then turns to his right and then again right and then finally goes to his left. In which direction is he moving now?
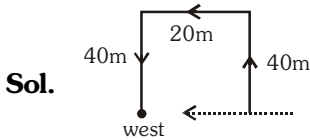
(1) East   (2) West   (3) North   (4) South

Ans. (1)

Sol.

42. Murari walked 40 m towards North, took a left turn and walked 20 m. He again took a left turn and walked for 40 m. How far and in which direction is he from the starting point?

(1) 20 m East   (2) 20 m West   (3) 60 m North   (4) 30 m South

Ans. (2)

Sol.

20 m west

43. Introducing a woman, shashank said, "She is the mother of the only daughter of my son". how that woman is related to Shashank?

(1) Sister   (2) Daughter   (3) Sister in law   (4) Daughter in law

Ans. (4)

Sol. Woman is the mother of Shashank's Grand daughter. Hence the women is the daughter-in-law of shashank.

Direction (Q.44-45) : In these questions pair of words on the left of : : have certain relationship with each other. On the same analogy you are required to answer the appropriate pair of words out of the given options to be placed on the right of : :

44. Malaria : Mosquito : : ? : ?

(1) Poison : Death   (2) Cholera : Water   (3) Rat : Plague   (4) Medicine : Disease

Ans. (2)

Sol. Malaria : Mosquito

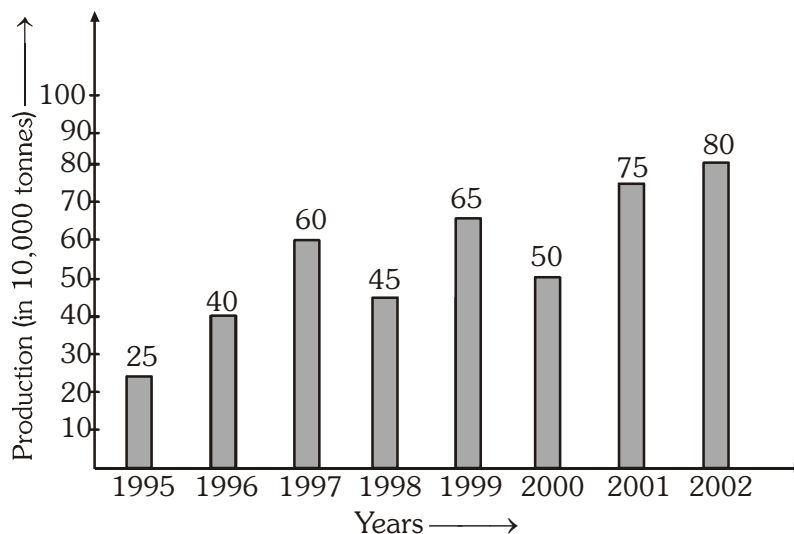Like wise, Cholera : Water

45. Computer : fqprxvht : : Language : ?

(1) oxpixdig   (2) ocqicyig   (3) ocqixcjg   (4) ocqixcig

Ans. (3)

Sol.

+3	C → f		+3	L → O
+2	O → q		+2	A → C
+3	M → p		+3	N → q
+2	P → r		+2	G → i
+3	U → x		+3	U → x
+2	T → v		+2	A → c
+3	E → h		+3	G → j
+2	R → t		+2	E → g

Direction (Q.46-50) : Study the bar chart and answer the question based on it

46. What was the percentage decline in the production of fertilizers from 1997 to 1998?

   (1) 25%   (2) 30%   (3) 50%   (4) 35%

Ans. (1)

Sol. Required percentage $= \left[\dfrac{(45-60)}{60}\right]\% = -25\%$

   $\therefore$ There is a decline of 25% in production

   Form 1997 to 1998.

47. The average productionof 1996 and 1997 was exactly equal to the average production of which of the following pairs of years?

   (1) 1998 & 2000   (2) 1999 & 2000   (3) 1995 & 2001   (4) 2000 & 2001

Ans. (3)

Sol. Avg production (in 10000 tonnes) of 1996 and

   1997 is $\dfrac{40+60}{2} = 50$

   We shall find the avg. production (in 10,000 tonnes) for each of the given alternative pairs.

   2000 and 2001 $= \dfrac{50+75}{2} = 62.5$

   1999 and 2000 $= \dfrac{65+50}{2} = 57.5$

   1998 and 2000 $= \dfrac{45+50}{2} = 47.5$

   1995 and 1999 $= \dfrac{25+65}{2} = 45$

1995 and 2001 = $\dfrac{25+75}{2} = 50$

∴ The avg. production of 1996 and 1997 is equal to the avg. production of 1995 and 2001.

48. What was the percentage increase in production of fertilizars in 2002 compared to that in 1995?

(1) 320%   (2) 300%   (3) 200%   (4) 220%

Ans. (4)

Sol. Required percentage = $\left[\dfrac{(80-25)}{25} \times 100\right]\%$

= 220%

49. In which year was the percentage increase in production as compared to the previous year the maximum?

(1) 2001   (2) 1996   (3) 1997   (4) 1999

Ans. (2)

Sol. The percentage increase in production compared to previous year for different years are

In 1996 = $\left[\dfrac{(40-25)}{25} \times 100\right]\% = 60\%$

In 1997 = $\left[\dfrac{(60-40)}{40} \times 100\right]\% = 50\%$

In 1998 there is a decrease in production.

In 1999 = $\left[\dfrac{(65-45)}{45} \times 100\right]\% = 44.44\%$

In 2000 there is a decrease in production.

In 2001 = $\left[\dfrac{(75-50)}{50} \times 100\right]\% = 50\%$

In 2002 = $\left[\dfrac{(80-75)}{75} \times 100\right]\% = 6.67\%$

Clearly, there is maximum percentage increase in production in 1996.

50. In how many of the given years was the production of fertilizers more than the average production of the given years?

(1) 1   (2) 2   (3) 3   (4) 4

Ans. (4)

Sol. Avg. production (in 10000 tonnes) over the given years

= $\dfrac{1}{8}$ (25 + 40 + 60 + 45 + 65 + 50 + 75 + 80)

= 55

∴ The productions during the years 1997, 1999, 2001 and 2002 are more than the avg production.