



## REASONING

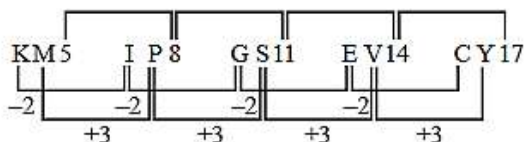
Sol. 1. (4) Each number is a whole square.

Sol. 2. (3)  $8 - 3 = 5$ ,  $15 - 8 = 7$ ,  $24 - 15 = 9$   
 $34 - 24 = 10$ ,  $48 - 34 = 14$ ,  $63 - 48 = 15$

Obviously difference should be 11 & 13 instead of 10 & 14. Therefore, 34 is the wrong term.

SOL. 3.

(4) Logic for the letters is -2, +3 steps, numbers added is 3.



SOL.4.

(2)

1st letter : U  $\xrightarrow{-2}$  (S)  $\xrightarrow{-4}$  O  $\xrightarrow{-2}$  M  $\xrightarrow{-4}$  I

2nd letter : P  $\xrightarrow{-8}$  (H)  $\xrightarrow{-4}$  D  $\xrightarrow{-2}$  B  $\xrightarrow{-1}$  A

3rd letter : I  $\xrightarrow{+1}$  (J)  $\xrightarrow{+6}$  P  $\xrightarrow{+1}$  Q  $\xrightarrow{+6}$  W

SOL.5.

(1) The given series is a mixture of two series :

I. 1, 3, 6, 10, ....

II. 1, 9, 36, 100, 125

The logic of I is +2, +3, +4, +5, and the logic of II is the squares of the corresponding numbers of I. So the missing number is  $10 + 5$  i.e. 15.

SOL.6

(1) The letters in the series are arranged in following order (Four letters are mixed)

A B C D is written as BDAC; and

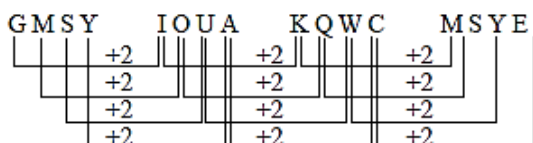
E F G H as FHEG. Similarly,

I J K L will be JLIK.

The answer option is JL i.e., A.

SOL.7

(1) The series is formed by moving each letter two steps forward from one group to the next.



(The series restarts from A on reaching Z)

SOL.8

(3) Clearly, C and H are respectively the third and eighth letters in the word BACKLASH as well as in the English alphabet. Thus, there are two such letters.

SOL.9

(3) Clearly, the first half of English alphabet has letters from A to M, and the second half has letters from N to Z.

The third letter of the second half is P, and the eighth letter to the right of P is X.

Sol. 10

(3) The new letter series becomes :

A b C d E f G h I j K l M n O p Q r S t U v W x Y Z

The first month of the second half of the year is July, which shall be written as jUIY.

Sol. 11

(3) It's the combination of two series,

1, 2, 3, 4, 5, ..... and  $1^2, 2^2, 3^2, 4^2, \dots$  etc., the numbers of the two series are placed alternatively.

Sol.12

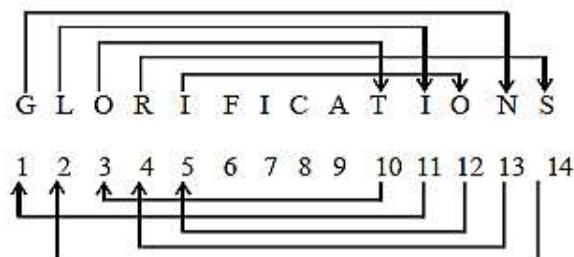
(4) The new series is

A 3 C 5 E 7 G 9 I 11 K 13 M 15 O 17 Q 19 S 21 U 23 W 25 Y 27

Counting from the right, the tenth character is Q, and the third character to the right of Q is 21.

Sol. 13

(4)



The new letter sequence is NITSOFICAOLIGR.

The twelfth letter from the right is T.

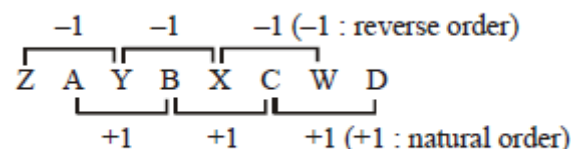
Sol. 14

(3) C O R P O R A T E

Three pairs — (P, R), (R, T) and (P, O) have as many letters between them in the word as in the English alphabet. But since the letters must be in the same sequence in the word as in English alphabet, so that desired pairs are (P, R) and (R, T) only.

Sol. 15

(4) There are two alternate series :



Letter 'W' should be in place of letter 'V'.

## SCIENCE

SOL. 16 (2)

SOL. 17 (1)



Sol. 18

(1) Here,  $u = 36 \text{ km/hr} = 36 \times \frac{5}{18} \text{ m/s} = 10 \text{ m/s}$

$v = 0, t = 5\text{s}$

Using  $v = u + at$ , we have

$$a = \frac{v - u}{t} = \frac{(0 - 10) \text{ ms}^{-1}}{5\text{s}} = -2 \text{ ms}^{-2}$$

Sol. 19.

(2) Using  $s = ut + \frac{1}{2}at^2$ , we have

$$s = 10 \text{ ms}^{-1} \times 5\text{s} + \frac{1}{2}(-2 \text{ ms}^{-2})(25 \text{ s}^2) \\ = 50\text{m} - 25\text{m} = 25\text{m}$$

Sol. 20 (3)

Sol. 21 (3)

Sol. 22 (2)

Sol. 23 (1)

Sol. 24(3)

Sol. 25 (4)

Sol. 26

(2) By work-energy theorem,

Work done by all the forces = Change in K.E

or  $-\mu mg x - \frac{1}{2}kx^2 = -\frac{1}{2}mu^2$  ( $x = \text{non. compression}$ )

or  $\frac{1}{2}kx^2 + \mu mgx - \frac{1}{2}mu^2 = 0$

or  $50x^2 + 4x - 0.9 = 0$  or  $x = 0.1 \text{ m} = 10 \text{ cm}$

Sol 27

(1)  $\frac{1}{2}mv^2 = \frac{1}{2}mu^2 - 2\mu mgx$  or  $v = 10 \text{ cms}^{-1}$

Sol.28

(2) Work done by friction in round trip,

$$W = -2 \mu mgx = -2 \times 0.2 \times 2 \times 10 \times 0.1 = 0.8 \text{ J}$$

Sol 29 (3)

Sol. 30 (4) Sound needs a medium to travel. It cannot travel through vacuum.

### MATHEMATICES

SOL. 31(1)

Sol. 32

(2)  $\frac{21}{45} = \frac{21}{9 \times 5} = \frac{21}{3^2 \times 5}$ . Clearly, 45 is not of the form

$2^m \times 5^n$ . So the decimal expansion of  $\frac{21}{45}$  is non-terminating and repeating.

Sol 33

(4) L.C.M. of  $\frac{5}{16}, \frac{15}{24}$  and  $\frac{25}{8} = \frac{\text{L.C.M. of numerators}}{\text{H.C.F. of denominators}}$

L.C.M. of 5, 15 and 25 is 75.

H.C.F. of 16, 24 and 8 is 8.

The HCF of the given fractions =  $\frac{75}{8}$

Sol 34

(3) H.C.F. of the fractions =  $\frac{\text{H.C.F. of numerators}}{\text{L.C.M. of denominators}}$

H.C.F. of 2, 6 and 8 is 2.

L.C.M. of 5, 25 and 35 is 175.

Thus, the H.C.F. of the given fractions =  $\frac{2}{175}$

Sol.35

(1) H.C.F. of given fraction is

$$= \frac{\text{H.C.F. of } 8, 12, 32}{\text{L.C.M. of } 21, 35, 7} = \frac{4}{105}$$

Sol. 36

(3)  $1200 - 900 = 300$  (non -selected)

$300 : 1200$

$1 : 4$

Sol. 37

(4)  $CI - SI = \frac{R \times SI}{2 \times 100}$

$$144 = \frac{15 \times SI}{200}$$

$$SI = ₹1920$$

$$\frac{PTR}{100} = ₹1920$$

$$\frac{P \times 2 \times 15}{100} = 1920$$

$$P = ₹6400.$$



Sol. 38

- (3) Reasoning: 2 men and 1 boy can do job in 5 days means.  
10 men and 5 boys can do a job in 1 day.  
Again, 1 man and 2 boys can do the same job in 6 days  
means 6 men and 12 boys can do the same job in 1 day.  
∴ 10 men and 5 boys = 6 men and 12 boys  
i.e. ₹16 per week.  
i.e., 4 men = 7 boys  
Now, 7 boys get ₹4 × 28 per week

$$\therefore 1 \text{ boy gets } ₹ \frac{4 \times 28}{7}$$

Sol. 39

(2) Population of Chhapra district

$$= 200000 \left(1 + \frac{5}{100}\right) \left(1 - \frac{2}{100}\right)$$

$$= 200000 \times \frac{21}{20} \times \frac{49}{50} = 205800$$

Sol. 40 (1)

Sol. 41 (4)

Sol. 42 (4) The two lines will either intersect or parallel.

Sol. 43 (3)

Sol. 44 (2)

Sol. 45 (1)

### ENGLISH

SOL.46 (4)

Option 1, 2 and 3 are partially correct. Option 4 provides the complete solution

Sol. 47 (3)

Her own courage and determination were the major factors in her success. The other options are only partially true.

Sol. 48 (3)

Approached a large number of people

Sol. 49 (1)

Deeply believed in traditions and found it difficult to change themselves

Sol. 50 (2)

Created a dent in society and made people change their thinking

Sol. 51 (1)

'Scan' is the right word which means look through quickly to spot errors.

Sol. 52 (3)

'Stare' is the right word that goes with 'blank

Sol. 53 (2)

'Sight' is suitable for 'fixed on the horizon'.

Sol.54 (1)

'Notice' is the right word to go with 'something amiss'.

Sol.55 (3)

'Glimpse' is a fleeting look-so this is the right choice

Sol.56 (2)

A shipwrecked person is said to be 'marooned', so this is the right word.

Sol.57 (1)

'Evicted' is the right word which means 'forced' to leave a place

Sol.58 (2)

'Scene' is the right word that goes with 'terrifying' and 'devastation

Sol.59 (2)

'Resentment' is the right choice, it goes with 'angrily voiced'

Sol.60 (1)

'Mediate' means go between two angry persons