1. Both $a$ and $b$ vary directly such that when $a = 12$ $b$ is 4. Which of the following can not be a possible pair of corresponding values of $a$ and $b$ respectively?

   (a) 5 and 15      (b) 6 and 2      (c) 27 and 9      (d) 144 and 48

2. $x$ varies directly with $y$ such that $x = 15$ when $y = 36$. In which of the following options, the corresponding values of $x$ and $y$ are incorrect?

   (a) $x = 7, y = 16.8$      (b) $x = 16, y = 38.4$      (c) $x = 30, y = 75$      (d) $x = 25, y = 60$

3. A machine takes 6 hours in filling 54 containers. Find the number of containers filled by it in 48 hours.

   (a) 404      (b) 388      (c) 432      (d) 424

4. A recipe of muffins requires 1.5 cups of milk and 1 cup of chocolate. If Priya has 4 cups of chocolate, then she needs____ cups of milk to make muffins.

   (a) 4.5      (b) 6      (c) 4.8      (d) 5.5

5. A car is travelling at the average speed of $50 \, \text{km/hr}$. How much distance would it travel in 12 minutes?

   (a) $10 \, \text{km}$      (b) $8 \, \text{km}$      (c) $12 \, \text{km}$      (d) $15 \, \text{km}$

6. A man completes $\frac{1}{4}$ of a job in 5 days. At the same rate, number of more days needed for him to finish $\frac{3}{4}$ of the job is

   (a) 5      (b) 15      (c) 10      (d) 20

7. A worker is paid ₹ 200 for 8 days work. If he works for 20 days, how much amount will he get?

   (a) ₹ 600      (b) ₹ 450      (c) ₹ 500      (d) ₹ 400

8. A train travelling at a speed of $72 \, \text{km/hr}$ crosses two tunnels in $15 \, \text{sec}$ and $24 \, \text{sec}$ respectively. If the length of second tunnel is $180 \, \text{m}$ more than that of the first, then the length of second tunnel is

   (a) $300 \, \text{m}$      (b) $480 \, \text{m}$      (c) $180 \, \text{m}$      (d) $120 \, \text{m}$

9. If 17 stamps costs ₹ 23.80, then number of stamps that can be bought for ₹ 49 is

   (a) 50      (b) 51      (c) 34      (d) 35

10. Shyamala types 480 words in half an hour. The number of words she could type in 6 minutes is

    (a) 192      (b) 96      (c) 48      (d) 120.

11. In a library, 192 copies of a certain book require a shelf–length of 3.8 metres. How many copies of the same book would occupy a shelf–length of 5.7 metres?

    (a) 144      (b) 288      (c) 432      (d) 216

12. An iron rod of length $16 \, \text{m}$ weighs $36 \, \text{kg}$. The weight of similar rod of length $21 \, \text{m}$ is

    (a) $47.25 \, \text{kg}$      (c) $42.75 \, \text{kg}$      (b) $42.5 \, \text{kg}$      (d) $45.75 \, \text{kg}$

13. A travel agency can cater the need of 180 tourists, if it plies 10 buses per week. How many tourists can it cater, if it plies 18 buses per week?

   (a) 100          (b) 324          (c) 360          (d) 162

14. If x and y vary inversely, then find the value of k.

| x | 18 | 45 | 22.5 | 6 |
|---|----|----|------|---|
| y | 5  | 2  | 4    | k |

   (a) 12          (b) 15          (c) 18          (d) None of these

15. If $p \propto \dfrac{1}{q}, p = 30$ when $q = 10$, then $p =$ _____ when $q = 600$.

    (a) 1         (b) $\dfrac{1}{2}$         (c) $\dfrac{1}{4}$         (d) 2

16. If $x$ and $y$ vary inversely such that when $y = 8$ and $x = 24$, then which of the following is not a possible pair of corresponding values of $x$ and $y$ respectively?

    (a) 16 and 12     (b) 48 and 4     (c) 86 and 2     (d) 32 and 6

17. Which of the following quantities vary inversely with each other?

    (a) Weight of apples and its cost         (b) Distance and time, if speed is uniform

    (c) Heat and temperature         (d) Saving and expenditure

18. A rope makes 180 rounds of a cylinder with base radius $45\,cm$. Number of times it can round a cylinder with base radius $30\,cm$ is

    (a) 270     (b) 120     (c) 150     (d) 300

19. 18 men can repair a machine in 35 days. For repairing the same machine in 15 days, how many men would be required?

    (a) 32     (b) 46     (c) 42     (d) 38

20. 5 similar taps can fill a cistern in 6 hours. If only 3 taps are kept open, how long will it take to fill the cistern?

    (a) 10 hours     (b) 15 hours     (c) 9 hours     (d) None of these

21. A batch of bottles was packed in 27 boxes with 10 bottles in each box. If the same batch is packed using 15 bottles in each box, then how many boxes are required to pack the all bottles?

    (a) 14     (b) 18     (c) 24     (d) None of these

22. Subha reads 30 pages of a book per day and can finish it in 50 days. How many days will she take to finish the book, if she reads 75 pages per day?

    (a) 24     (b) 15     (c) 20     (d) 16

23. 8 horses can consume a certain quantity of corn in 50 days. In how many days, would the same quantity be consumed by 20 horses?

    (a) 24     (b) 20     (c) 16     (d) 25

24. A certain number of squares are arranged to form a rectangle of dimensions $24\,cm$ by $8\,cm$. If we want to have a rectangle of length $16\,cm$, what will be its breadth?

    (a) $12\,cm$     (b) $24\,cm$     (c) $18\,cm$     (d) None of these

25. I have enough money to buy $9\,kg$ of onions at ₹ 5 per kg. How much onions can I buy, if the price is increased to ₹ 12 per $kg$ ?

    (a) $2\dfrac{1}{4}\,kg$     (b) $4\dfrac{1}{2}\,kg$     (c) $3\dfrac{3}{4}\,kg$     (d) $3\dfrac{1}{4}\,kg$

26. Both $u$ and $v$ vary directly with each other. When $u$ is 10, v is 15, which of the following is not a possible pair of corresponding values of $u$ and $v$ ?

    (a) 2 and 3        (b) 8 and 12        (c) 15 and 20        (d) 25 and 37.5

27. Assuming land to be uniformly fertile, the area of land and the yield on it vary

    (a) directly with each other.

    (b) inversely with each other.

    (c) neither directly nor inversely with each other.

    (d) sometimes directly and sometimes inversely with each other.

28. A truck needs 54 litres of diesel for covering a distance of $297\,km$ . The diesel required by the truck to cover a distance of $550\,km$ is

    (a) 100 litres        (b) 50 litres        (c) 25.16 litres        (d) 25 litres

29. In which of the following case, do the quantities vary directly with each other?

    (a)

    | x | 0.5 | 2 | 8 | 32 |
    |---|-----|---|---|-----|
    | y | 2 | 8 | 32 | 128 |

    (b)

    | p | $1^2$ | $2^2$ | $3^2$ | $4^2$ |
    |---|-------|-------|-------|-------|
    | q | $1^3$ | $2^3$ | $3^3$ | $4^3$ |

    (c)

    | r | 2 | 5 | 10 | 25 | 50 |
    |---|----|----|----|----|-----|
    | s | 25 | 10 | 5 | 2 | 0.5 |

    (d)

    | u | 2 | 4 | 6 | 9 | 12 |
    |---|----|---|---|---|----|
    | v | 18 | 9 | 6 | 4 | 3 |

30. Which quantities in the previous question vary inversely with each other?

    (a) $x$ and $y$        (b) $p$ and $q$        (c) $r$ and $s$        (d) $u$ and $v$

31. Both $x$ and $y$ are in direct proportion, then $\dfrac{1}{x}$ and $\dfrac{1}{y}$ are

    (a) in direct proportion.

    (b) in inverse proportion.

    (c) neither in direct nor in inverse proportion.

    (d) sometimes in direct and sometimes in inverse proportion.

32. 100 persons had food provision for 24 days. If 20 persons left the place, the provision will last for

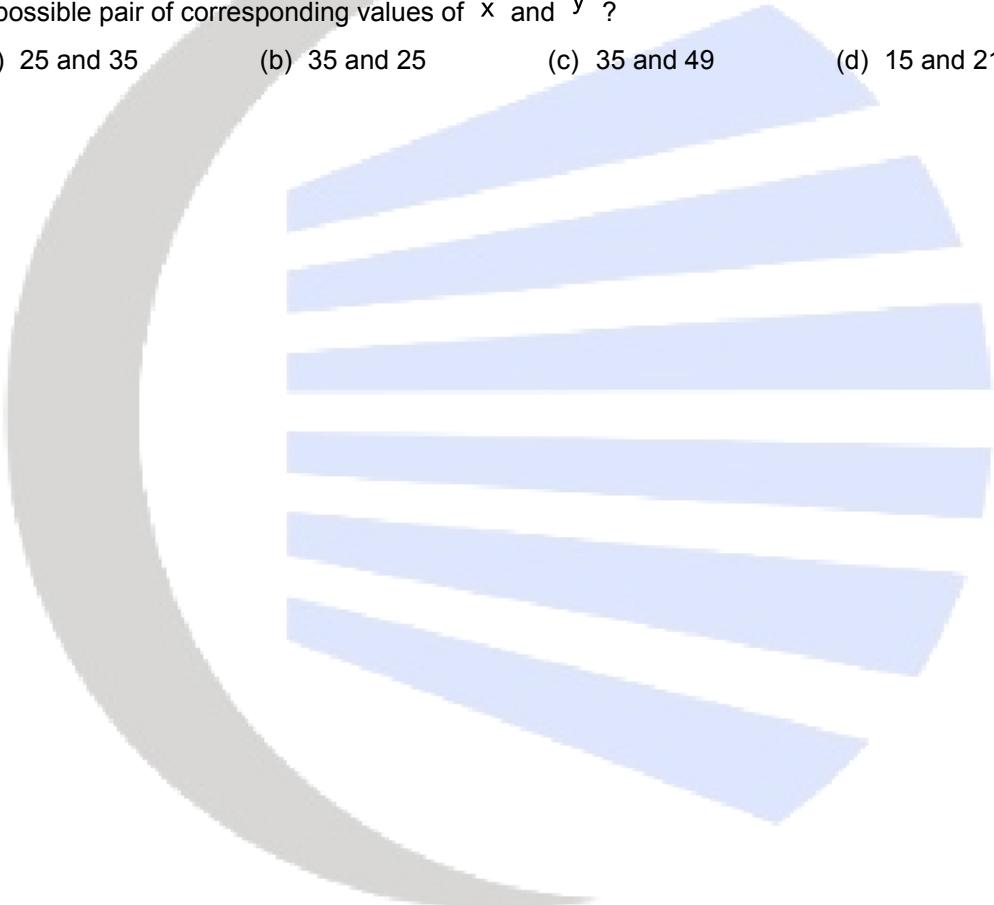(a) 30 days      (b) $\dfrac{96}{5}$ days      (c) 120 days      (d) 40 days

33. If two quantities $p$ and $q$ vary inversely with each other, then

     (a) $\dfrac{p}{q}$ remains constant.          (b) $p+q$ remains constant.

     (c) $p \times q$ remains constant.          (d) $p-q$ remains constant.

34. Both $x$ and $y$ vary directly with each other and when $x$ is 10, y is 14, which of the following is not a possible pair of corresponding values of $x$ and $y$ ?

     (a) 25 and 35      (b) 35 and 25      (c) 35 and 49      (d) 15 and 21

**ANSWERS**

| | | | |
|---|---|---|---|
| 1.  A | 2.  C | 3.  C | 4.  B |
| 5.  A | 6.  C | 7.  C | 8.  B |
| 9.  D | 10. B | 11. B | 12. A |
| 13. B | 14. B | 15. B | 16. C |
| 17. D | 18. A | 19. C | 20. A |
| 21. B | 22. C | 23. B | 24. A |
| 25. C | 26. C | 27. A | 28. A |
| 29. A | 30. D | 31. A | 32. A |
| 33. C | 34. B | | |

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