

1. In the following question, one part of the sentence has an incorrectly spelled word. Find out which part of the sentence has incorrectly spelled word and mark that option as the answer.

The work is highly imaginative/ (a) and often grotesqe/ (b) but it is pervaded/ (c) by an unusually high ethical enthusiasm./ (d)

- A. **and often grotesqe**
- B. but it is pervaded
- C. The work is highly imaginative
- D. by an unusually high ethical enthusiasm

2. In each of the questions given below, a sentence is given with a part highlighted in bold. From the answer choices, select the option that replaces the phrase in bold. In the case that the sentence is correct as it is, choose the 'No Improvement' option.

By 2050, the US and UK will have evolved into two-class societies where a small elite lives a good life and there is declining well-being **for the major**.

- A. No Improvement
- B. **of the majority**
- C. for the majority
- D. for a majority

3. Select the most appropriate antonym of the given word. Apprehensive

- A. Demanding
- B. **Confident**
- C. Obscure
- D. Complex

4. For the following word below, a context is provided. From the alternatives given, pick the word or phrase that is closest in meaning in the given context.

Resolve:

His inflexible resolve and remarkable dedication even during the most trying of circumstances is worthy of emulation.

- A. Obstinacy
- B. **Resoluteness**
- C. Haughtiness
- D. Perseverance

5. Select the most appropriate synonym of the given word.

"Penchant"

- A. Inclination
- B. **Likeness**
- C. Procrastination
- D. Illness

6. Anita was watching the horserace when she _____ into the swamp.

- A. slipped and falled
- B. **slipped and fell**
- C. slipped and had fell
- D. slips and falls

7. Select the alternative that will improve the underlined part of the sentence. In case there is no improvement required, select "No improvement".

Top performers evaluate their own performance more critically and harshly,

- A. By their own methods
- B. In a relaxed but fugitive way
- C. Critically but more harshly
- D. **No improvement**

8. What does the root word **Lum** mean in the word **Luminous**?

- A. hard
- B. dark
- C. **light**
- D. cold

9. Most companies ___ fifty million dollars by the time they quit this business.

- A. will have made
- B. **will make**
- C. would made
- D. would had made

10. Which of the following best expresses the meaning to the given word "Tedious"?

- A. Abruption
- B. **wearisome**
- C. divulsion
- D. abscission

11. What does the root word Sect mean in the word Dissect?

- A. carry on
- B. **cut apart**
- C. move on
- D. put on

12. Which of the following best expresses the meaning to the given word "Solidarity" as used in the given passage?

- A. Ravening
- B. **Unanimity**
- C. Gumption
- D. Longevity

13. In the following question given below, a sentence is given with two blanks. Choose the correct combination of words that fit into the corresponding blanks

But it seems to me it was _____ error, though historically probably inevitable, to entrust these two distinct tasks to _____ same representative assembly.

(a) an (b) a (c) the

- A. c, a
- B. **a, c**
- C. c, b
- D. b, c

14. What does the root word **Bene** mean in the word **Benevolent**?

- A. Cunning **B. Good**
C. Clever D. worse

15. Select the most appropriate synonym of the given word.

Bait

- A. Torment** B. Urge
C. Squeeze D. Force

16. For the past few decades, meat alternatives _____ from simple soy based patties that little resemble meat, to plant based burger

- A. having grown B. have grew
C. have grow **D. have grown**

17. A part of the sentence is bracketed. Below are given alternatives to the bracketed part which may improve the sentence. Choose the correct alternative c improvement is required, choose the "No Improvement" option.

(Kiran was) the Chairperson of the selection committee since its golden jubilee seven years ago.

- A. **Kiran has been** C. Kiran was been
B. Kiran is D. No Improvement

18. In the following question, a sentence is given with two blanks. Choose the correct combination of words that fit into the corresponding blanks.

The idea was elaborated by Ptolemy in _____ first century A.D. into _____ complete cosmological model.

- a) an b) a c) The
A. c, a C. a, b
B. c, b D. b, c

19. In the following question, a sentence is given with two blanks. Choose the correct combination of prepositions that fit into the blanks

A special committee is being setup to enquire _____ the rioting _____ the prison

- A. about, upon C. between, out
B. into, at D. from, over

20. What does the root word Norm mean in the word Normality?

- A. senility C. against
B. standard D. equality

21. Find the correctly spelt word.

- A. transparant C. scarsity
B. speciman **D. sabotage**

22. Statements: All books are pens. All pens are pencils.

Conclusion:

- I. Some pencils are books.

II. Some book are pens.

A. Only I conclusion follows

B. Either I or II follows

C. Only II conclusion follows

D. Both I and II follow

23. Directions: A statement is given followed by three assumptions numbered I, II, and III. An assumption is something supposed or taken for granted. Consider the statement and the following assumptions and decide which of the assumptions is/are implicit in the statement.

Statement: With the severe flood situation plaguing the eastern part of the country, the government and NGOs have appealed to the citizens of the country to render as much help as they can.

Assumptions:

I. People travelling to the eastern parts of the country will have to cancel their plans.

II. The government and various NGOs have collaborated their efforts to tackle the situation.

III. The people will extend their support and reciprocate to the appeal.

A. Only Assumption I is implicit.

C. Only Assumption II is implicit.

B. Only Assumption III is implicit

D. Both Assumptions I and II are implicit.

24. Directions: In each question below, a statement is followed by three conclusions numbered I, II, and III. You have to assume everything in the statement then consider the three conclusions together and decide which of them logically follows beyond a reasonable doubt from the information given in the statement

Statement: Literature, in all its enormity of influence, has a heart as fickle as the flickering flame of a candle.

Conclusions:

I. Literature, as a discipline is capable of exerting considerable amount of influence.

II. Literature and its very nature is wavering and unsteady.

III. Literature as a domain is as complex as any other realm of study.

A. If only conclusion I follows

C. If only conclusion II follows

B. If only conclusion III follows

D. Both I and II follow

25. Statements:

No air is storm. No water is air.

Conclusions:

I. No storm is water.

II. All water is storm.

A. if only conclusion I follow.

B. if only conclusion II follows.

C. if either conclusion I or conclusion II follows.

D. if neither conclusion I nor conclusion II follows.

26. Statements: No day is a week. Some weeks are month.

Conclusions:

I. No month is a week.

II. Some months are weeks.

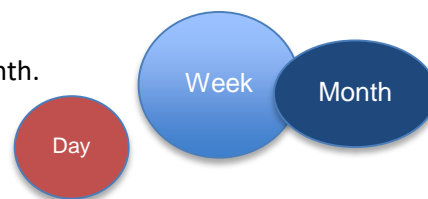
A. if only conclusion I follow.

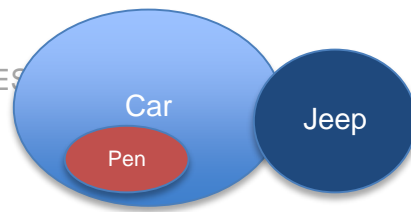
B. if only conclusion II follows.

C. if either conclusion I or conclusion II follows.

D. if neither conclusion I nor conclusion II follows.

27. Statements: Some cars are jeeps. All pens are cars.



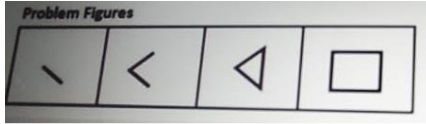


Conclusion:

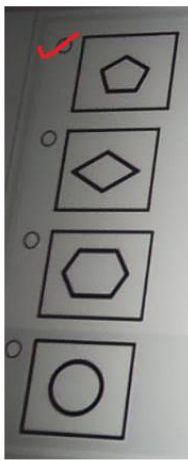
- I. No pen is jeep
- II. Some jeeps are cars
- A. Only I conclusion follows
- B. Either I or II follows

- C. Only II conclusion follows**
- D. Both I and II follows

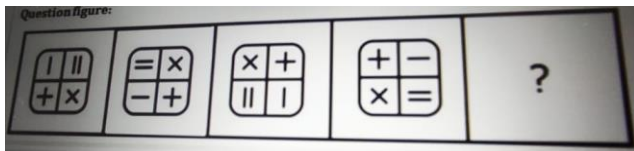
28. Question figure



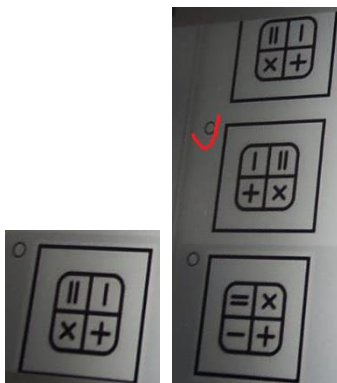
Options:



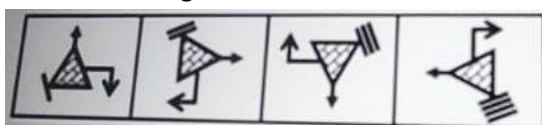
29. Question figure



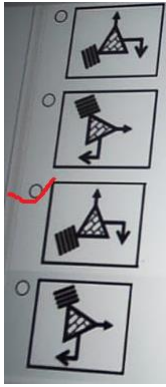
Options:



30. Question figure



Options:



31. A, B, C, D and E are sitting on a bench. A is sitting next to C, C is sitting next to B, D is not sitting with E but is on the left end of the bench. B is on the second position from the right. A is to the left of C and B. In which position is B sitting?

- A. Between A and D
B. Between A and C
C. Between C and D
D. Between C and E



32. A certain amount was to be distributed among Jayesh, Rama & Sunil in the ratio of 7:5:8 but was erroneously distributed in the ratio of 6:8:9. As a result Sunil got Rs. 20 less. What was the amount distributed?

- A. Rs.2740
B. Rs.2980
C. Rs.2520
D. Rs.2300

Actual ratio for Jayesh, Rama and Sunil= 7:5:8

Erroneous ratio= 6:8:9

If 'X' is the amount distributed, The portion sunil should get = $(8/20)*X$

What sunil got= $(9/23)*X$

Given,

$$(8/20)X - (9/23)X = 20$$

$$\Rightarrow (4/460)*X = 20$$

$$\Rightarrow X = 20*(460/4) = \mathbf{2300}$$

33. Six years ago the ages of Umesh & Vikas were in the ratio of 4:5. The ratio of the present ages of Umesh & Akram is 3:4 and the sum of the present ages of Vikas & Akram is 45 years. What is the present age of Umesh?

- A. 14 years
B. 16 years
C. 20 years
D. 18 years

Given,

$$(U-6)/(V-6)=(4/5) \Rightarrow 5U-30=4V-24 \Rightarrow 5U-4V=6$$

$$U/A=3/4, \Rightarrow 4U=3A$$

$$V+A=45, \Rightarrow A=45-V$$

$$4U=135-3V$$

$$5U-4*(135-4U)/3 = 6$$

$$5U-180+(16/3)U=6$$

$$(31/3)U=186$$

$$U = 186 \cdot 3 / 31 = \mathbf{18}$$

34. The ratio of the present age of Smitu and her son is 7:3. 't' years back the sum of their ages added up to be 48 while the ratio of their ages then was 3:1. What should be the ratio of their ages after another '2t' years?

- A. 5:3
B. 7:5
C. 9:5
D. 2:1

Given,

$$\begin{array}{llll} \text{Sm}/\text{So} = 7/3 & \Rightarrow & 3\text{Sm}=7\text{So} & \\ \text{Sm}-t+\text{So}-t= 48, & \Rightarrow & \text{Sm}+\text{So}=48+2t & \\ \text{Sm}-t/ \text{So}-t= 3/1 & \Rightarrow & \text{Sm}-t=3\text{So}-3t & \Rightarrow 2t =3\text{So}- 3\text{Sm} \end{array}$$

Let after $2t$ years, ratio $X = (S_{m+2t})/(S_{o+2t})$

$$X = (S_m + 3S_o - S_m) / (S_o + 3S_o - S_m) = 3S_o / (4S_o - (7S_o/3))$$

Therefore, $X = 9/5$

35. A person scored 91 percent, 84 percent, 75 percent and 76 percent of their respective maximum marks in Hindi, Mathematics, Physics and Botany. The ratio of the maximum marks of Hindi, Maths, Physics and Botany is 10:15:6:5. What is the average score obtained by the person if he scored 38 marks in Botany?

- A. 82 B. 75 C. 72 D. 86

If Maximum mark of Botany is X, Then

$$(76/100)*X=38$$

So If total of Maximum marks = G, Then

$$(5/36)*G=X \text{ or } (76/100)*(5/36)G=38$$

$G = 360$

Maximum mark of Hindi= $(10/36)*360= 100$, so Mark scored in Hindi= $(91/100)*100=91$ Marks

Maximum mark of Maths= $(15/36)*360= 150$, so Mark scored in Maths= $(84/100)*150=126$ Marks

Maximum mark of Physics= $(6/36)*360= 60$, so Mark scored in Physics= $(75/100)*60=45$ Marks

Therefore, Average Mark= $(91+126+45+38)/4 = 75$

36. Seventy eight is divided into two parts such that five times the first part and four times the second part are in the ratio 15: 14. Find the first part.

- A. 32 B. 36 C. 42 D. 46

Let 78 divided into A and B, such that $A+B=78$,

Given, $5A/4B=15/14$, $\Rightarrow A/B= 6/7$

$$A + (7A/6) = 78$$

13A=468, Therefore A= **36**

37. A person gets Rs. 3000 if he sells either article A at 10 percent profit and article B at 20 percent loss or article A at 10 percent loss and article B at 20 percent profit. The cost of A is-

A. Rs. 2000

C. Rs. 1500

B. Rs. 1250

D. Rs. 1000

$$1.1A + .8B = .9A + 1.2B = 3000,$$

$$1.32A + 0.96B = 3600 \text{-----}(1)$$

$$0.72A + 0.96B = 2400 \text{-----}(2)$$

(1)-(2) gives

A= 2000

38. A cloth merchant bought ten shirts for Rs.240 per each shirt. He marked the price of each shirt at 25 percent above the cost price. He offered a discount of 10 percent on each of the five shirts and a discount of 15 percent on each of the remaining shirts. What will be the profit earned by the merchant on selling all the shirts?

A. Rs. 200

C. Rs. 175

B. Rs. 250

D. Rs. 225

Cost Price = 240

Labelled Price = 300

Profit by selling first five shirts= $(270-240)*5= 150$

Profit by selling second five shirts= $(255-240)*5= 75$

Total profit= 150+75= **225**

39. A grocer purchased 3 kg of wheat at the rate of Rs. 45 per kg and 5 kg of wheat at the rate of Rs. 39 per kg. At what price per kg should he sell the mixture to earn 20 percent profit on the cost price?

A. Rs. 51.25

C. Rs. 59.50

B. Rs. 49.50

D. Rs. 41.25

$$\text{Cost Price} = 3 \times 45 + 5 \times 39 = 330$$

Selling price to get 20% profit= $330 + 20\% \times 330 = 396$

Rate per Kg = $396/8 = \text{Rs. } 49.50$

40. A shopkeeper labeled the price of an article so as to earn a profit of 40 percent on the cost price. He then sold the article by offering a discount of 15 percent on the labeled price. What is the actual profit percentage earned in the deal?

A. 19 percent

B. 17 percent

C. 15 percent

D. 11 percent

Let Cost price = X,

Labelled price= 1.4 X

$$\text{Selling Price} = 1.4X - (15/100) * 1.4X = 1.19X$$

Therefore, Profit percentage= $(1.19X - X) * 100 / X = \mathbf{19\%}$

41. A watch is sold at a profit of Rs. 500. If a DVD player, whose cost price is thrice that of the watch is sold for Rs. 5400, a profit of 20 percent is made. Find the profit percentage made on selling the watch. (in Rs.)

A. 25 percent

B. 50 percent

C. 33 percent

D. 20 percent

Let Cost price= X

Then Selling price= X+500

Given, $3X + 20\% \text{ of } 3X = 5400$,

$$3X + 0.6X = 5400, X = 1500$$

$$\begin{aligned} \text{Profit Percentage} &= (\text{Selling Price} - \text{Cost Price}) \times 100 / \text{Cost Price} = (2000 - 1500) \times 100 / 1500 = \\ \text{Profit Percentage} &= \mathbf{33.33\%} \end{aligned}$$

42. An article was sold at a profit of 20 percent. If both the cost price and selling price are decreased by Rs. 3000, then the profit would be 25 percent. Find the original cost price.

- A. Rs. 30000 B. Rs. 60000 C. **Rs. 15000** D. Rs. 45000

Let Cost Price= X,

Selling price= 1.2 X

$$\text{Given, } 1.2X - 3000 = 1.25 * (X - 3000)$$

Therefore, X= **15000**

43. Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

- A. $4 \frac{4}{7} \%$ B. **$5 \frac{5}{11} \%$** C. 10% D. 12%

Cost Price (C.P.) = Rs. (4700 + 800) = Rs. 5500.

Selling Price (S.P.) = Rs. 5800.

Gain = (S.P.) - (C.P.) = Rs. (5800 - 5500) = Rs. 300.

$$\text{Gain \%} = \left(\frac{300}{5500} \times 100 \right) \% = \mathbf{5 \frac{5}{11} \%}$$

44. The cost price of 20 articles is the same as the selling price of x articles. If the profit is 25%, then the value of x is:

- A. 15 B. **16** C. 18 D. 25

Let C.P. of each article be Re. 1 C.P. of x articles = Rs. x.

S.P. of x articles = Rs. 20.

Profit = Rs. (20 - x).

$$\therefore \left(\frac{20 - x}{x} \times 100 = 25 \right)$$

$$\Rightarrow 2000 - 100x = 25x$$

$$125x = 2000$$

$$\Rightarrow x = \mathbf{16}.$$

45. If selling price is doubled, the profit triples. Find the profit percent.

- A. $66(2/3)$ B. **100** C. $105(1/3)$ D. 120

Let C.P. be Rs. x and S.P. be Rs. y .

Then, $3(y - x) = (2y - x) \Rightarrow y = 2x$.

Profit = Rs. $(y - x) = \text{Rs. } (2x - x) = \text{Rs. } x$.

$$\therefore \text{Profit \%} = \left(\frac{x}{x} \times 100 \right) \% = \mathbf{100\%}$$

46. In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit?

- A. 30% B. **70%** C. 100% D. 250%

Let C.P. = Rs. 100. Then, Profit = Rs. 320, S.P. = Rs. 420.

New C.P. = 125% of Rs. 100 = Rs. 125

New S.P. = Rs. 420.

Profit = Rs. $(420 - 125) = \text{Rs. } 295$.

$$\therefore \text{Required percentage} = \left(\frac{295}{420} \times 100 \right) \% = \frac{1475}{21} \% = \mathbf{70\%} \text{ (approximately).}$$

47. A vendor bought toffees at 6 for a rupee. How many for a rupee must he sell to gain 20%?

- A. 3 B. 4 C. **5** D. 6

C.P. of 6 toffees = Re. 1

S.P. of 6 toffees = 120% of Re. 1 = Rs. $\frac{6}{5}$

For Rs. $\frac{6}{5}$, toffees sold = 6.

For Re. 1, toffees sold = $\left(6 \times \frac{5}{6} \right) = \mathbf{5}$.

48. A sum of money doubles in 3 years at compound interest. In how many years does it amount to 16 times itself?

- A. 25 C. 30
B. 15 **D. 12**

Amount doubles in 3 years, so become 4 times in 6 years, 8 times in 9 years and 16 times in **12 years**.

49. What will be the compound interest accrued on an amount of Rs. 1,20,000 at the rate of 20 percent per annum in two years if the interest is compounded half yearly?

- A. Rs. 22692 C. Rs. 33692
B. Rs. 11692 **D. Rs. 55692**

Compound interest = $P(1 + (R/2)/100)^{2n}$

Therefore, CI = $120000 * (1 + 10/100)^4 - 120000$

CI=55692

50. Alkesh borrowed an amount of Rs.15, 000 from Kavish on simple interest at the rate of 12 percent p.a. and Rs.15,000 from Manish at compound interest at the rate of 10 percent p.a. compounded annually. What would be the interest to be paid by Alkesh at the end of two years on the total amount he borrowed?

- A. Rs. 6000
 B. **Rs. 6750**
 C. Rs. 6250
 D. Rs. 6500

Amount to be returned to Kavish by Alkesh = $15000 + (15000 \times 12 \times 2) / 100 = 18600$

Amount to be returned to Manish by Alkesh = $15000(1 + 10/100)^2 = 18150$

Total Interest to be paid = $18600 + 18150 - 30000 = 6750$

51. The simple interest accrued on Rs.18,000 after four years is Rs.7,920. What will be the difference between the compound interest and the simple interest on the same sum at the same rate of interest after two years provided the interest is compounded annually?

- A. **Rs.217.80** B. Rs.215.60 C. Rs.255.20 D. Rs. 298.10

Given, $18000 \times R \times 4 / 100 = 7920$, $R = 11\%$

Simple interest after 2 years = $18000 \times 11 \times 2 / 100 = 3960$

Compound interest after 2 years = $18000(1 + 11/100)^2 - 18000 = 22177.8 - 18000 = 4177.8$

Difference in interest = **217.80**

52. The compound interest, interest being compounded annually, on a certain sum for the second and the third years are Rs. 2880 and Rs. 3396 Al respectively. Find the rate of interest.

- A. 14 percent pa. B. 16 percent pa C. 20 percent p.a. D. **18 percent p.a.**

$P(1 + R/100)^2 = 2880$, $P(1 + R/100)^3 = 3396$

$(1 + R/100) = 3396/2880 \Rightarrow R = 18\%$

53. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. The sum is:

- A. Rs. 650 B. Rs. 690 C. **Rs. 698** D. Rs. 700

Let sum be X, then $X \times R / 100 = 854 - 815 = 39$,

Given, $X + X \times 3 \times R / 100 = 815 \Rightarrow X + 117 = 815 \Rightarrow X = 698$

54. How many composite numbers are there in the given series which are immediately preceded and immediately followed by an even number?

67459369625147964843735824

- A. 5
 B. 4
 C. **3**
 D. 2

55. What will be the number that will occur in the 9th place in the below sequence,

1, 11, 21, 1211, 111221, 312211,

A. **31131211131221**

C. 312211

B. 13211311123113112211

D. 1113213211

56. In the following order, which number will replace the question mark "?" to form the correct sequence:

8, 12, 16, ?, 24, 28, 32

A. 23

B. 18

C. 22

D. 20

57. If 20 men worked for 5 hours a day, they can build a 190 feet long wall in 10 days. If after working for 6 days, 4 men leave the job, then how many days will be required to complete rest of the job if the number of working hours per day is the same?

A. **5**

C. 12

B. 15

D. 8

If 20 men worked they complete the work in 10 days, so total 200 days needed for 1 man.

By 6 days, 20 men completes 120 works. Then remaining 80 works can be completed by 16 men by 80/16 days. I.e, **5 days**.

58. 12 Males complete a piece of work in 4 days. 15 females complete same work in 4 days. 6 male start the work, after 2 days all males left the work. How many females are required to finish the remaining work in 3 days?

A. 16

C. **15**

B. 20

D. 12

For males, days needed is 48. So work in one day is $1/48$.

For female days needed is 60 days. So work in one day is $1/60$.

By 2 days, 6 male completes $2 \times 1/48 \times 6 = \frac{1}{4}$ works.

Female completes in 4 days, so they complete $\frac{1}{4}$ work in one day, so to complete $\frac{3}{4}$ work in 3 days, 15 females needed.

59. Kirti & Roshan together can complete an assignment of data entry in five days. Roshan's speed is 80 percent of Kirti's speed and the total key depressions in the assignment are 1,44,000. What is Kirti's speed in key depressions per hour, if they work for 8 hours per day?

A. 1500

B. **2000**

C. 2500

D. 3000

Speed of Kriti be X, speed of roshan be 0.8X,

Total work in one day is 1.8X, => key depressions in one hour is $144000/40 = 3600$.

Speed of Kriti, is $3600/1.8 = \mathbf{2000}$

60. 2 men and 7 boys together can complete a piece of work in 14 days, while 3 men and 8 boys together can do it in 11 days. Then in how many days will 8 men and 6 boys do thrice that work?

A. 11

B. 41

C. **21**

D. 31

This question can be solved in two steps:

Equate the work done by both groups in one day to find out the relation between work done by man and boy.

Once we have the relation from step 1, use that to convert everything into one group to make the comparison easy.

2 men and 7 boys are required to complete the work in 14 days. So 28 men (2×14) and 98 boys (7×14) are required to complete the work in one day. 3 men and 8 boys are required to complete the work in 11 days. So 33 men (3×11) and 88 boys (8×11) are required to complete the work in one day. Now, equate the two cases as $28m + 98b = 33m + 88b \Rightarrow 1m = 2b \Rightarrow 1 \text{ men} = 2 \text{ boys}$. So now we can convert both the groups into one group (group of men or group of boys)

Converting both the groups as group of only men:

3 men and 8 boys = 3 men and 4 men = 7 men. So 7 men can finish the work in 11 days \Rightarrow 11 men can finish the work in 7 days.

8 men and 6 boys = 8 men and 3 men = 11 men . So 11 men can finish the work in 7 days.

To complete the work of 3 times the actual work, $7 \times 3 = 21$ days are required

61. 16 men and 12 children can complete a work in 26 days. 13 men can complete that work in 48 days. In how many days will 12 men and children complete that work?

- A. 52 B. 36 C. 42 D. 39

16 men and 12 children can do the work in 26 days=> in one day

16*26 = 416 men and 12*26 = 312 children can complete the same work. Also 13 men can do same work in 48 days => 13*48 = 624 men, thus 624 men = 416 men + 312 children means, 2 men = 3 children. 24 men can do a work in 26 days, 16 men can do the same work in $26 * 24 / 16 = \mathbf{39 \text{ days}}$.

62. When a filling pipe and emptying pipe were opened simultaneously, a tank was filled to 50 percent of its capacity in nine hours. When the emptying pipe was closed, the remaining half was filled in three hours. In how many hours can the emptying pipe empty the full tank?

- A. 8
B. 6
C. 12
D. 9

When both pipes opened it takes 9 hours to fill 50%. When one pipe closed, 50% filled in 3 hours. So 6 hours take to fill 100% of tank. In 9 hours tank fills to 150%, but given the tank became 50% in 9 hours, so emptying pipe empties in **9 hours**.

63. A tank is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the tank in the same time during which the tank is filled by the third pipe alone. The second pipe fills the tank 5 hours faster than the first pipe and 4 hours slower than the third pipe. The time required by the first pipe is:

- A. 6 hours B. 10 hours **C. 15 hours** D. 30 hours

Suppose, first pipe alone takes x hours to fill the tank.

Then, second and third pipes will take $(x - 5)$ and $(x - 9)$ hours respectively to fill the tank.

$$\therefore \frac{1}{x} + \frac{1}{(x-5)} = \frac{1}{(x-9)}$$

$$\Rightarrow \frac{x-5+x}{x(x-5)} = \frac{1}{(x-9)}$$

$$\Rightarrow (2x-5)(x-9) = x(x-5)$$

$$\Rightarrow x^2 - 18x + 45 = 0$$

$$(x-15)(x-3) = 0$$

$$\Rightarrow x = 15. \quad [\text{Neglecting } x = 3]$$

64. How much is 18kmph in meters per second?

- A. 3 m/s **C. 5 m/s**
B. 4 m/s D. 2 m/s

Speed = $18 \times (5/18) = 5 \text{ m/s}$.

65. The speed of a train is 150kmph. How many meters does it travel in 12 minutes?

- A. 30 meters **C. 30000 meters**
B. 3000 meters D. 300 meters

Distance = $150 \times (5/18) \times 12 \times 60 = 30000 \text{ meters}$.

66. X travels the first part of a journey at 65kmph and the second part at 40kmph. The total distance covered is 240 km and time taken is 4 hours. How much time did X take to complete the first part of the journey?

- A. 3 hours 2 minutes C. 3 hours 20 minutes
B. 3 hours **D. 3 hours 12 minute**

You covered 240km in 4 hours.

From this data we get,

Total distance covered = 240 km

Total time taken = 4 h

Let the distance covered in first part be x km and in second part be $(240 - x)$ km.

Speed during first part = 65 kmph

Time taken to cover first part = $x / 65$ h

Speed during second part = 40 kmph

Time taken to cover second part = $(240 - x) / 40$ h

Total time taken = 4

$$x/65 + (240-x)/40 = 4$$

$$40x + 15600 - 65x = 10400$$

$$x = 208 \text{ km}$$

First part distance = 208 km

Time taken for first part = $208/65 = 3.2 \text{ hours} = 3 \text{ hours and } 12 \text{ minutes}$.

67. A bus is travelling at a speed of 60km/hr. How much time will it take to cover 70 kms?

- A. 1 hr 20 min B. 2 hrs 30 min **C. 1 hr 10 min** D. 2 hrs 10 min

68. Aman travels from office to home at 45 km/hr and come back at 12 km/hr. What is his average speed?

- A. 15.947 km/hr B. 18.256 km/hr C. 17.547 km/hr **D. 18.947 km/hr**

$$\text{Average speed} = 2xy/(x+y) = 2 \times 45 \times 12/(45+12) = \mathbf{18.947 \text{ km/hr}}$$

69. A train running at the speed of 60 km/hr crosses a pole in 9 seconds. What is the length of the train?

- A. 120 metres B. 180 metres C. 324 metres **D. 150 metres**

$$\text{Speed} = \left(60 \times \frac{5}{18} \right) \text{m/sec} = \left(\frac{50}{3} \right) \text{m/sec.}$$

Length of the train = (Speed x Time).

$$\therefore \text{Length of the train} = \left(\frac{50}{3} \times 9 \right) \text{m} = 150 \text{ m.}$$

70. A train 125 m long passes a man, running at 5 km/hr in the same direction in which the train is going, in 10 seconds. The speed of the train is:

- A. 45 km/hr **B. 50 km/hr** C. 54 km/hr D. 55 km/hr

$$\begin{aligned} \text{Speed of the train relative to man} &= \left(\frac{125}{10} \right) \text{m/sec} \\ &= \left(\frac{25}{2} \right) \text{m/sec.} \\ &= \left(\frac{25}{2} \times \frac{18}{5} \right) \text{km/hr} \\ &= 45 \text{ km/hr.} \end{aligned}$$

Let the speed of the train be x km/hr. Then, relative speed = (x - 5) km/hr.

$$\therefore x - 5 = 45 \Rightarrow x = 50 \text{ km/hr.}$$

71. The length of the bridge, which a train 130 metres long and travelling at 45 km/hr can cross in 30 seconds, is:

- A. 200 m B. 225 m **C. 245 m** D. 250 m

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

Time = 30 sec.

Let the length of bridge be x metres.

$$\text{Then, } \frac{130 + x}{30} = \frac{25}{2}$$

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

$$\Rightarrow x = 245 \text{ m.}$$

72. Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively and they cross each other in 23 seconds. The ratio of their speeds is:

- A. 1 : 3 B. **3 : 2** C. 3 : 4 D. None of these

Let the speeds of the two trains be x m/sec and y m/sec respectively.
Then, length of the first train = $27x$ metres,
and length of the second train = $17y$ metres.

$$\begin{aligned}\therefore \frac{27x + 17y}{x + y} &= 23 \\ \Rightarrow 27x + 17y &= 23x + 23y \\ \Rightarrow 4x &= 6y \\ \Rightarrow \frac{x}{y} &= \frac{3}{2}\end{aligned}$$

73. A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr, what is the length of the platform?

- A. 120 m B. **240 m** C. 300 m D. None of these

$$\text{Speed} = \left(54 \times \frac{5}{18} \right) \text{m/sec} = 15 \text{ m/sec.}$$

Length of the train = $(15 \times 20)\text{m} = 300 \text{ m.}$

Let the length of the platform be x metres.

$$\begin{aligned}\text{Then, } \frac{x + 300}{36} &= 15 \\ \Rightarrow x + 300 &= 540 \\ \Rightarrow x &= 240 \text{ m.}\end{aligned}$$

74. A goods train runs at the speed of 72 kmph and crosses a 250 m long platform in 26 seconds. What is the length of the goods train?

- A. 230 m B. 240 m C. 260 m D. **270 m**

$$\text{Speed} = \left(72 \times \frac{5}{18} \right) \text{m/sec} = 20 \text{ m/sec.}$$

Time = 26 sec.

Let the length of the train be x metres.

$$\begin{aligned}\text{Then, } \frac{x + 250}{26} &= 20 \\ \Rightarrow x + 250 &= 520 \\ \Rightarrow x &= 270.\end{aligned}$$

75. Two trains, each 100 m long, moving in opposite directions, cross each other in 8 seconds. If one is moving twice as fast the other, then the speed of the faster train is:

- A. 30 km/hr B. 45 km/hr C. **60 km/hr** D. 75 km/hr

Let the speed of the slower train be x m/sec.

Then, speed of the faster train = $2x$ m/sec.

Relative speed = $(x + 2x)$ m/sec = $3x$ m/sec.

$$\therefore \frac{(100 + 100)}{8} = 3x$$

$$\Rightarrow 24x = 200$$

$$\Rightarrow x = \frac{25}{3}$$

So, speed of the faster train = $\frac{50}{3}$ m/sec

$$= \left(\frac{50}{3} \times \frac{18}{5} \right) \text{ km/hr}$$

$$= 60 \text{ km/hr.}$$

76. Two trains 140 m and 160 m long run at the speed of 60 km/hr and 40 km/hr respectively in opposite directions on parallel tracks. The time (in seconds) which they take to cross each other, is:

- A. 9 B. 9.6 C. 10 D. **10.8**

$$\text{Relative speed} = (60 + 40) \text{ km/hr} = \left(100 \times \frac{5}{18} \right) \text{ m/sec} = \left(\frac{250}{9} \right) \text{ m/sec.}$$

Distance covered in crossing each other = $(140 + 160) \text{ m} = 300 \text{ m.}$

$$\text{Required time} = \left(300 \times \frac{9}{250} \right) \text{ sec} = \frac{54}{5} \text{ sec} = 10.8 \text{ sec.}$$

77. A train 110 metres long is running with a speed of 60 kmph. In what time will it pass a man who is running at 6 kmph in the direction opposite to that in which the train is going?

- A. 5 sec B. **6 sec** C. 7 sec D. 10 sec

Speed of train relative to man = $(60 + 6) \text{ km/hr} = 66 \text{ km/hr.}$

$$= \left(66 \times \frac{5}{18} \right) \text{ m/sec}$$

$$= \left(\frac{55}{3} \right) \text{ m/sec.}$$

$$\therefore \text{Time taken to pass the man} = \left(110 \times \frac{3}{55} \right) \text{ sec} = 6 \text{ sec.}$$

78. There are two vessels A & B. Vessel A has 20 liters of pure milk and B contains 11 liters of water. From vessel A, four liters of milk is taken out and poured into vessel B. Then three liters of mixture (milk and water) is taken out from vessel B and poured into vessel A. What is the ratio of the quantity of pure milk in vessel A and the quantity of water in vessel B?

- A. 11:3 B. 7:3 C. **21:11** D. 33:7

Vessel A contains 20 L Milk and Vessel B contains 11 L Water,

When 4 liters moved, vessel A contains 16 L Milk and Vessel B contains 11 L water + 4L Milk

When 3 liters poured to vessel A, It contains $(16 + 3 * (4/15))$ L milk since the mix contains milk and water in 4:11 ratio.

Vessel B contains, $(11\text{L water} + 4\text{L Milk}) - (3 * (4/15)\text{L Milk} + 3 * (11/15)\text{L Water})$.

Then Milk to water ratio in Vessel A & B is $(16 + 3 * (4/15)) : (11 - 3 * (11/15))$

$$\Rightarrow \text{Milk: Water} = 252/132 = \mathbf{21/11}$$

79. To create a coherent sequence, arrange the words listed below in the appropriate order.

1. Poverty 2. Population 3. Death 4. Unemployment 5. Disease

A. 1, 2, 3, 4, 5 B. **2, 4, 1, 5, 3** C. 2, 3, 4, 5, 1 D. 3, 4, 2, 5, 1

80. If 6 men and 8 boys can do a piece of work in 10 days while 26 men and 48 boys can do the same in 2 days, the time taken by 15 men and 20 boys in doing the same type of work will be:

A. **4 days** B. 5 days C. 6 days D. 7 days

Let 1 man's 1 day's work = x and 1 boy's 1 day's work = y .

$$\text{Then, } 6x + 8y = \frac{1}{10} \text{ and } 26x + 48y = \frac{1}{2}.$$

$$\text{Solving these two equations, we get : } x = \frac{1}{100} \text{ and } y = \frac{1}{200}.$$

$$(15 \text{ men} + 20 \text{ boy})'s \text{ 1 day's work} = \left(\frac{15}{100} + \frac{20}{200} \right) = \frac{1}{4}.$$

\therefore 15 men and 20 boys can do the work in 4 days.

81. A can do a piece of work in 4 hours; B and C together can do it in 3 hours, while A and C together can do it in 2 hours. How long will B alone take to do it?

A. 8 hours B. 10 hours C. 12 hours D. 24 hours

$$\text{A's 1 hour's work} = \frac{1}{4};$$

$$(B + C)'s \text{ 1 hour's work} = \frac{1}{3};$$

$$(A + C)'s \text{ 1 hour's work} = \frac{1}{2}.$$

$$(A + B + C)'s \text{ 1 hour's work} = \left(\frac{1}{4} + \frac{1}{3} \right) = \frac{7}{12}.$$

$$\text{B's 1 hour's work} = \left(\frac{7}{12} - \frac{1}{2} \right) = \frac{1}{12}.$$

\therefore B alone will take 12 hours to do the work.

82. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do it in:

- A. 15 days B. 20 days C. **25 days** D. 30 days

$$(A + B)\text{'s 1 day's work} = \frac{1}{10}$$

$$C\text{'s 1 day's work} = \frac{1}{50}$$

$$(A + B + C)\text{'s 1 day's work} = \left(\frac{1}{10} + \frac{1}{50} \right) = \frac{6}{50} = \frac{3}{25} \dots (i)$$

$$A\text{'s 1 day's work} = (B + C)\text{'s 1 day's work} \dots (ii)$$

$$\text{From (i) and (ii), we get: } 2 \times (A\text{'s 1 day's work}) = \frac{3}{25}$$

$$\Rightarrow A\text{'s 1 day's work} = \frac{3}{50}$$

$$\therefore B\text{'s 1 day's work} = \left(\frac{1}{10} - \frac{3}{50} \right) = \frac{2}{50} = \frac{1}{25}$$

So, B alone could do the work in 25 days.

83. A does 80% of a work in 20 days. He then calls in B and they together finish the remaining work in 3 days. How long B alone would take to do the whole work?

- A. 23 days B. 37 days C. **37(1/2)** D. 40 days

$$\text{Whole work is done by A in } \left(20 \times \frac{5}{4} \right) = 25 \text{ days.}$$

$$\text{Now, } \left(1 - \frac{4}{5} \right) \text{ i.e., } \frac{1}{5} \text{ work is done by A and B in 3 days.}$$

$$\text{Whole work will be done by A and B in } (3 \times 5) = 15 \text{ days.}$$

$$A\text{'s 1 day's work} = \frac{1}{25}, (A + B)\text{'s 1 day's work} = \frac{1}{15}$$

$$\therefore B\text{'s 1 day's work} = \left(\frac{1}{15} - \frac{1}{25} \right) = \frac{4}{150} = \frac{2}{75}$$

$$\text{So, B alone would do the work in } \frac{75}{2} = 37\frac{1}{2} \text{ days.}$$

84. A machine P can print one lakh books in 8 hours, machine Q can print the same number of books in 10 hours while machine R can print them in 12 hours. All the machines are started at 9 A.M. while machine P is closed at 11 A.M. and the remaining two machines complete work. Approximately at what time will the work (to print one lakh books) be finished?

- A. 11:30 A.M. B. 12 noon C. 12:30 P.M. D. 1:00 P.M.

$$(P + Q + R)'s \text{ 1 hour's work} = \left(\frac{1}{8} + \frac{1}{10} + \frac{1}{12} \right) = \frac{37}{120}.$$

$$\text{Work done by P, Q and R in 2 hours} = \left(\frac{37}{120} \times 2 \right) = \frac{37}{60}.$$

$$\text{Remaining work} = \left(1 - \frac{37}{60} \right) = \frac{23}{60}.$$

$$(Q + R)'s \text{ 1 hour's work} = \left(\frac{1}{10} + \frac{1}{12} \right) = \frac{11}{60}.$$

Now, $\frac{11}{60}$ work is done by Q and R in 1 hour.

$$\text{So, } \frac{23}{60} \text{ work will be done by Q and R in } \left(\frac{60}{11} \times \frac{23}{60} \right) = \frac{23}{11} \text{ hours} \approx 2 \text{ hours.}$$

So, the work will be finished approximately 2 hours after 11 A.M., i.e., around 1 P.M.

85. A can finish a work in 18 days and B can do the same work in 15 days. B worked for 10 days and left the job. In how many days, A alone can finish the remaining work?

- A. 5 B. $5(1/2)$ C. 6 D. 8

$$B's \text{ 10 day's work} = \left(\frac{1}{15} \times 10 \right) = \frac{2}{3}.$$

$$\text{Remaining work} = \left(1 - \frac{2}{3} \right) = \frac{1}{3}.$$

Now, $\frac{1}{18}$ work is done by A in 1 day.

$$\therefore \frac{1}{3} \text{ work is done by A in } \left(18 \times \frac{1}{3} \right) = 6 \text{ days.}$$