Q46. There is a rectangular path just inside a rectangular park. Width of the path is 2 cm. If length of park is decreased by 4 cm then, it becomes a square. Area of the rectangle is $1\frac{1}{3}$ times the area of the path.

From the above given information which of the following can be found out. **(2 MARKS)**

(i) Area of path

(ii) Length of the park

(iii) Sum of perimeter of the rectangular park and perimeter of the path (both external and internal perimeter)

(a) only (ii)

(b) only (ii) and (iii)

(c) only (i) and (iii)

(d) all of the above

(e) only (iii)

Q47. A man invest 50% of the amount invested by B. B withdraw whole amount from the business after 4 months. C joins the business with the investment of X Rs in a month after B had withdrawn from the business. At the end of the year A and C share same amount of profit.

→ if investment of B is Rs 2400 then which of the following may be the investment of the C.

(i). 1800 **(2 MARKS)**

(ii). 3600

(iii). 2400

(iv). 7200

(v). 5400

(a) (i) and (iii)

(b) only (iii)

(c) (i), (ii) and (iii)

(d) (i), (ii), (iii) and (iv)

(e) (i), (ii) and (iv)

Q48. A certain number of men can complete a work in six hours less than the time taken by some women.

Work completed by one man in one hour is same as the work completed by one woman in one hour.

→ Which one of the following ratio of number of men to number of women can satisfy the above given condition **(2 MARKS)**

(i). 5:6

(ii). 10:3

(iii). 8:5

(iv). 10:7

(a) only (ii)

(b) only (ii) and (iii)

(c) only (i) and (iii)

(d) all of the above

(e) only (ii), (iii) and (iv)

Direction (49-51): Study the given graph given below and answer the following questions

The graph given below shows the percentage of literates in three different villages in three years
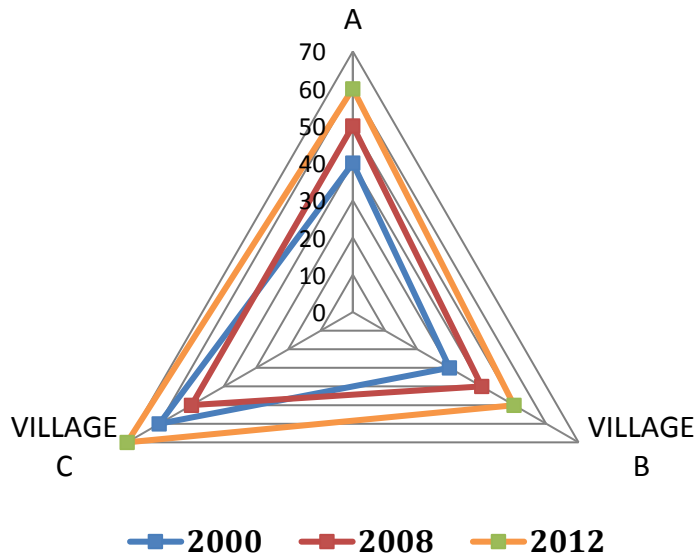
Q49. If population of A in 2000, 2008 and 2012 is in ratio 2 : 3 : 4 and average of literate in 2008, 2012 and 2000 be 1410 then find population of village A in 2000.   **(2 MARKS)**
(a) 1700
(b) 2000
(c) 2100
(d) 1800
(e) 2200

Q50. Population of village C continuously decreases from 2000 to 2012 and it decreases by the same number in 2012 from 2008 as it decreased in 2008 from 2000. If literate in C in 2008 and 2012 are same then population of C in 2012 is what percent less than population of C in 2000.   **(2 MARKS)**
(a) $44\frac{2}{7}\%$
(b) $44\frac{3}{7}\%$
(c) $41\frac{2}{7}\%$
(d) $44\frac{4}{9}\%$
(e) $45\frac{4}{9}\%$

Q51. Sum of literate from village B in 2000 and 2008 is 1530 and sum of literates in 2008 and 2012 is 2010 If sum of literates from villages B in all the given years is 2490 then find population of village B in 2008.   **(2 MARKS)**
(a) 2625
(b) 2200
(c) 2000
(d) 2150
(e) 2050

Q52. Two numbers A and B are given   **(2 MARKS)**
What is A + B ?
(i) LCM of A and B is 44 times their HCF
(ii) The sum of LCM of A & B and their HCF is 540.
(iii) $\frac{A}{10} + \frac{B}{10}$ is an integer.
(iv) A + B > 150
Which of the given statements are redundant to find the answer of the
question.
(a) statement (ii)
(b) statement (iii)
(c) statement (iv)
(d) statement (i)
(e) Answer cannot be determined even after using all the statements.

Q53. A vessel has 200 litre of milk and 40 litre of water. If _____ litres of mixture is taken from the vessel and _____ litres of water is added to the remaining mixture, then the final amount of milk in the vessel becomes 125 litre more than the amount of water in it. Which of the following integral values given in the options are possible in the blanks in same order?   **(2 MARKS)**
(A) (36, 11)
(B) (30, 15)
(C) (42, 12)
(D) (24, 19)
(E) (18, 24)
(a) only A
(b) only A, B and E
(c) only A and B
(d) only A, B and D
(e) All four are possible

Q54. A bag has 15 red, green and blue balls. Number of each balls is different in the bag. Difference between red ball and green ball is same as difference between green ball and blue ball. Probability of selecting one blue ball from the bag is greater than 0.2, then number of blue balls in the bag can be   **(2 MARKS)**
(A) 3
(B) 4
(C) 5
(D) 7
(E) 9
(a) Only B, C, D and E
(b) Only B, D, E
(c) All A, B, C, D and E
(d) Only C, D, E
(e) Only A, B, D, E

Q55. Marked price of an article is 60% more than the CP of the article. When it is solid at x% discount then _____% percent profit is obtained and when it is sold at a discount of 2x%, _____% profit is obtained. Which of the following options are possible for the blanks in same order

A. 60, 30 **(2 MARKS)**

B. 20, 8

C. 48, 24

D. 36, 12

E. 44, 28

(a) A and E

(b) B, D and E

(c) C, D and E

(d) All are possible

(e) A, D and E

Q56. A set of five two-digit integers numbers is given. Average of first and last number is middle number. Second number is half of first number. Sum of first three numbers is 127. Middle number is (A) and average of five numbers is (B). Fourth number is 62. What can be the values of (A) and (B) respectively? **(2 MARKS)**
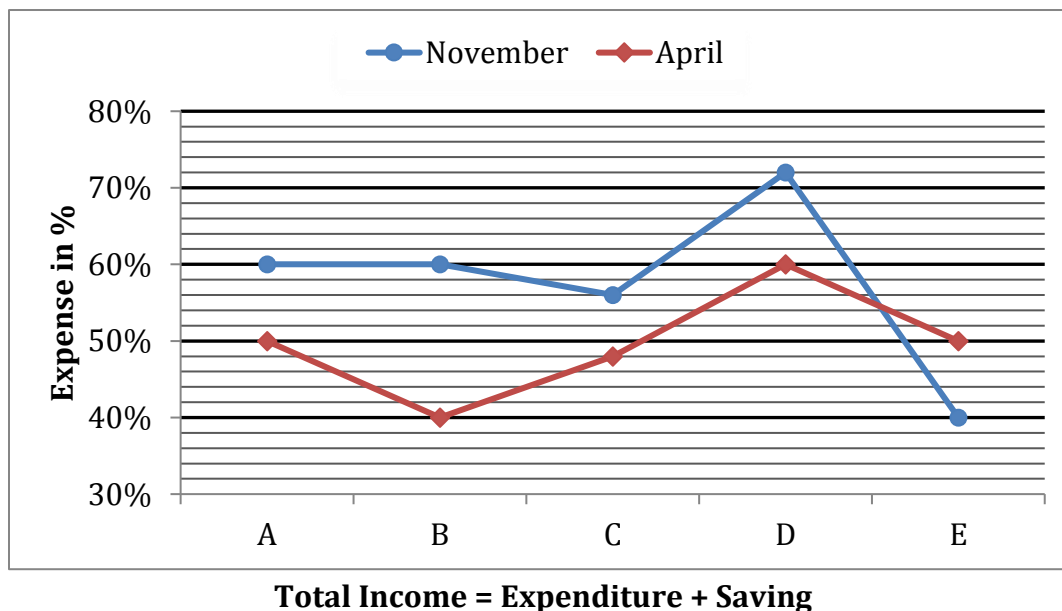
(a) 64, 50

(b) 62, 55

(c) 62, 50

(d) 64, 55

(e) 60, 55

Directions (57-59): Line chart given below shows expense of five persons (in %) out of total income of two months. Income of persons is same in both months.

Total Income = Expenditure + Saving

Q57. Find the difference between income of D and E ? **(2 MARKS)**

(I) Difference between expense of 'D' in November and saving of 'E' in April is Rs 3200.

(II) Difference between Saving of 'D' in April and Expense of 'E' in November is Rs 8000.

(a) Statement **(I)** alone is sufficient to answer the question but statement **(II)** alone is not sufficient to answer the questions.

(b) Statement **(II)** alone is sufficient to answer the question but statement **(I)** alone is not sufficient to answer the question.

(c) Both the statements taken together are necessary to answer the questions, but neither of the statements alone is sufficient to answer the question.

(d) Either statement **(I)** or statement **(II)** by itself is sufficient to answer the question.

(e) Statements **(I)** and **(II)** taken together are not sufficient to answer the question.

Q58. Average saving of 'C' in both months is Rs 19,200 while A's income is 20% more than C's income. Find expense of 'A' in the month of November **(2 MARKS)**

(a) Rs 9600

(b) Rs 19200

(c) Rs 38400

(d) Rs 24000

(e) Rs 28800

Q59. 'B' invested some amount of his saving in PPF account in November. Find the amount invested by 'B' in PPF account? **(2 MARKS)**

(I) Amount invested by 'B' in PPF is 62.5% less than amount expend by 'B' in April while difference between amount expend by 'B' in November and April is Rs. 16,000.

(II)'B' invested 37.5% of his saving in PPF account while difference between saving of 'B' in November and April is Rs 16,000.

(a) Statement **(I)** alone is sufficient to answer the question but statement **(II)** alone is not sufficient to answer the questions.

(b) Statement **(II)** alone is sufficient to answer the question but statement **(I)** alone is not sufficient to answer the question.

(c) Both the statements taken together are necessary to answer the questions, but neither of the statements alone is sufficient to answer the question.

(d) Either statement **(I)** or statement **(II)** by itself is sufficient to answer the question.

(e) Statements **(I)** and **(II)** taken together are not sufficient to answer the question.

Directions (60-62): Given below is the information about wind mills in four different villages A, B and C and D. Number of wind mills in villages A, B, C and D are 24, 20, 15 and 12 respectively. Number of electricity units produced in one week by one wind mill when they operate with maximum efficiency in village A, B, C and D is 2 lakh units/week, 80000 units/ week, 1 Lakh units/week and 1.5 Lakh units/week respectively. Number of houses in each village A, B, C and D are 540, 240, 150 and 350 respectively. Total units produced are consumed equally by each house in the village

→ Different number of winds mills are operate in four different weeks

In first week number of wind mills are operative in village A, B, C and D are 75%, 50%, 40% and 75% respectively. In second week it is 50%, 75%, 60% and 50% respectively. In third week it is 75%, 100%, 80% and 50% respectively. In fourth week it is 100%, 50%, 60% and 75% respectively.

→ Given below is the three ranges of efficiency of a wind mills (number of unit produced /Week by one mill)

Efficiency Type	Range
Efficiency 1	60% - 70%
Efficiency 2	45% - 55%
Efficiency 3	30% - 40%

Three wind mills also operate on different levels

→ level 1 : Consider upper limit of range of efficiency

→ level 2 : consider mid of range of efficiency

→ level 3 : consider the lower range of efficiency

Eg. If a wind mill is operative at efficiency 2 then its level 2 efficiency will be $= \frac{45+55}{2} = 50\%$

Its level 1 efficiency will be 55%

Its level 3 efficiency will be 45%

Q60. What is the ratio of total production of village A in First week at level 1 of efficiency 2 to the total production of village B in second week at Level 2 of efficiency 1. **(2 MARKS)**
(a) 20 : 13
(b) 33 : 13
(c) 33 : 19
(d) 27 : 19
(e) 27 : 13

Q61. Total units produced in village C in second and fourth week at level 1 of efficiency range 1 is what percent of total units produced in village A in first and fourth week at level 2 of efficiency range 1 **(2 MARKS)**
(a) $25\frac{7}{13}\%$
(b) $23\frac{21}{273}\%$
(c) $13\frac{12}{13}\%$
(d) $22\frac{5}{13}\%$
(e) $24\frac{5}{13}\%$

Q62. What is the ratio of units consumed per house in village B in week 4 operating at level 3 of Efficiency range 3 to the units consumed per house in second week at level 1 of efficiency range 2 of the village C? **(2 MARKS)**
(a) 5 : 6
(b) 13 : 19
(c) 15 : 19
(d) 13 : 33
(e) 10 : 33

Directions (63-65): There are three quantities provided in the questions. You have to find out the values of the quantities and compare them according to the given codes as follows

$@ \rightarrow >$

$\& \rightarrow <$

$* \rightarrow \geq$

$\$ \rightarrow \leq$

$\# \rightarrow =$ (or relationship can't be established)

Example :

Quantity I: $3^2 + 5^3$

Quantity II: $5^2 \times 2^2$

Quantity III: 100

(a) @, $

(b) *, #

(c) $, #

(d) &, *

(e) @, #

Quantity I > Quantity II = Quantity III

So, answer is (e)

Q63. Quantity I: $360 \ m^7 n^9 \div 120 \ m^{-2} \ n^3 \times 24 m^{-4} \ n^4$; m>0, n<0   **(2 MARKS)**

Quantity II: $240 \ x^9 y^7 \div 60 x^4 y^3 \div 3x^{-2} y^3$; x<0, y<0

Quantity III: $48 \ a^8 b^{12} \times 5 \ a^3 \ b^{-4} \div 6a^6 b$, a>0, b<0

(a) (@, &)

(b) (#, @)

(c) ($, @)

(d) (&, @)

(e) (*, #)

Q64. 'p', 'q','r' and 'n' are positive integers.   **(2 MARKS)**

Quantity I: 'p' :– $\frac{(p+n)^2-(p-n)^2}{8pn(p+n)^2} = 1$

Quantity II: 'q' : – $\frac{(q+n)^3-(q-n)^3}{(n^2+3q^2)^2} = \frac{1}{8n}$

Quantity III: 'r' : – $\frac{\sqrt{r+n}+\sqrt{r-n}}{\sqrt{r+n}-\sqrt{r-n}} = 2$

(a) (@, &)

(b) (#, @)

(c) ($, @)

(d) (&, @)

(e) (*, #)

Q65. Quantity I – Coaching teacher asked a question to three students A, B & C and probability of question not being answered by three students is 0.5, 0.4, 0.7 respectively. Find the probability that at most two students will solve the question.

Quantity II – A bag contains 5 green balls & 7 red balls, if three balls drawn at random from bag, then find probability of getting at least 1 green ball.

Quantity III – Arun speaks the truth 4 out of 5 times, and Bhavya speaks the truth 6 out of 7 times. What is the probability that they will contradict each other in stating the same fact? **(2 MARKS)**

(a) (@, &)

(b) (#, @)

(c) (@, @)

(d) (&, a)

(e) (*, #)

Q66. Vijay can cover 'D' distance with 'S' speed in 'T' time. He can cover same distance with 'S + 10' speed in '(T – 2)' time. He can cover same distance 'D' with 'S – 15' speed in (T + 6)' time. What can be found from the given data. **(2 MARKS)**

(i) time to cover 200 km with speed 'S + 10'

(ii) distance covered in (T + 6) time with (S + 10) speed

(iii) speed by which a tunnel can be crossed in $\frac{T}{2}$ hour

(iv) Ratio between time to cover distance 'D' with speed 'S' to time to cover distance (D – 5) with speed (S + 10)

(a) only (ii)

(b) only (ii) and (iii)

(c) only (i) and (iii)

(d) all of the above

(e) only (i), (ii) and (iv)

Q67. Two trains A and B cross each other in 12 seconds when they move towards each other. Speed of train A and train B is 81 km/hr and 54 km/hr respectively. Length of train A is 150 metre more than length of train B. **(2 MARKS)**

→ Which of the following can be obtained from the above given information.

(i) Time taken by train B to cross a man moving in same direction as of train B.

(ii) Time taken by train A to cross a platform of half of its length.

(iii) Length of train A.

(iv) Speed of another train C whose length is equal to average of length of train A and B.

(a) (i) and (iii)

(b) (i), (ii) and (iii)

(c) (ii) and (iii)

(d) All (i), (ii), (iii) and (iv)

(e) (i) and (iv)

Q68. When the digits of a two digit natural number are interchanged then original number is greater than three times the new number so obtained. How many such natural numbers are there which satisfy the above given condition? Ignore the numbers which have '0' in its unit place. **(2 MARKS)**

(a) 5

(b) 6

(c) 7

(d) 8

(e) 9

Q69. Veer invested Rs.10000 at simple interest for 2 years at the rate of R% and gets an interest of Rs1400. He invested total amount (Principle + Interest) in a scheme, which offered compound interest at the rate of (R%+x%) for two years. **(2 MARKS)**

→ What are the possible integral values of 'x%' so that obtained compound interest is less than Rs.2400

(i) 1%

(ii) 2%

(iii) 3%

(iv) 4%

(v) 5%

(a) Only (i)

(b) Only (i), (ii)

(c) Only (i), (ii) and (iii)

(d) Only (i), (ii), (iii) and (iv)

(e) All of the above

Q70. Ratio between marked price of article A to article B is 4 : 5. Shopkeeper allowed d% discount on article 'A' and (d + 18) % discount on article 'B', so selling price of both articles become equal. If shopkeeper made a profit of 20% on article A and 25% on article B and profit made on article B is Rs. 384 more than that of article A, then find the cost price of article 'A' and article 'B' respectively?

(a) 9000 Rs. 8400 Rs **(2 MARKS)**

(b) 9600 Rs. 9216 Rs.

(c) 9800 Rs. 9012 Rs.

(d) 9600 Rs. 8488 Rs.

(e) 9200 Rs. 9216 Rs.

Direction (71-74): Study the data given below and answer the following questions

Data is provided for 3 months for a water tank whose capacity is 600000 L to provide continuous water supply to a building. Water tank is first completely filled and then it gets completely emptied to supply water in a building. It supply water continuously to the building and is refilled again and again to provide continuous supply. In the building there are 40 flats in which all flats may or may not be completely occupied in the given three months.

November → Each flat is filled with a tap from which rate of flow of water is 250 L/h and only 50% flats are occupied in November. Water tank provides continuous water supply to these taps in whole month.

December → In this month 30 flats are occupied and tank gets emptied after 4 ⅙ days. Rate of flow from one tap in December is **A** % more or less than rate of flow from one tap in November.

January → Rate of flow of water from the taps is same as of November and gets emptied after supplying water to building for 100 hr. Number of flats occupied in January is **B** %

Q71. In November tank has to be filled how many times? **(1 MARKS)**
(a) 5
(b) 6
(c) 8
(d) 7
(e) 9

Q72. What is the value of A% **(1 MARKS)**
(a) 30%
(b) 25%
(c) 33 ⅓%
(d) 20%
(e) 15%

Q73. What is the value of B% **(1 MARKS)**
(a) 80%
(b) 40%
(c) 75%
(d) 60%
(e) 70%

Q74. In October efficiency of each tap decrease by 20% due to leakage as compared to efficiency of November and capacity of tank is reduced to 80%. In how many hours tank will be emptied in October if total occupied flats in October is equal to no. of occupied flats in December **(1 MARKS)**
(a) 65 hours
(b) 70 hours
(c) 30 hours
(d) 60 hours
(e) 80 hours

Directions (75-77): Given below is the sequence of series. Analyze the pattern of the series and answer the given following questions.

Q75. 1, 3, 9, 31, 129, 651   **(1 MARKS)**
2, _, __, __, ___, ?
(a) 625
(b) 37
(c) 153
(d) 771
(e) 631

Q76. 4, 2, 2, 3, 6, 15, 45   **(1 MARKS)**
If $(2835)^n$ is the term of the sequence where n is the nth term of sequence then find 'n'.
(a) 8th
(b) 9th
(c) 10th
(d) 11th
(e) 12th

Q77. A series is 113, 170, 232, 303, 399, 556, 838. Another series is 93, _, __, __, __, __, m. Which follows same pattern as given number series. Then m= ?   **(1 MARKS)**
(a) 808
(b) 443
(c) 626
(d) 818
(e) 909

Q78. A can do a task in 18 days, B can do the same task in 24 days and C can destroy the whole work in 36 days. If A & B work for first x days together after that C also joined them, remaining work is completed in $\left(x + 4\frac{4}{5}\right)$ days. Find how many days all three worked together?   **(1 MARKS)**
(a) $6\frac{4}{5}$ days
(b) $5\frac{4}{5}$ days
(c) $4\frac{4}{5}$ days
(d) $7\frac{4}{5}$ days
(e) $8\frac{4}{5}$ days

Q79. A boat goes 28 km downstream and while returning covered only 75% of distance that covered in downstream. If boat takes 3 hr more to cover upstream than downstream then find the speed of boat in still water (km/hr) if speed of stream is $\frac{5}{9}$ m/sec ?   **(1 MARKS)**

(a) 8 km/hr
(b) 2 km/hr
(c) 5 km/hr
(d) 4 km/hr
(e) 3 km/hr

Q80. A cylindrical vessel with radius and height of 17.5 cm and 18 cm respectively is filled upto 80% of its capacity with milk. If total milk from cylindrical vessel transferred into 30 cuboidal vessels whose length and breadth is 7 cm & 3 cm respectively. Find height of each cuboidal vessel?

(a) 18 cm   **(1 MARKS)**
(b) 25 cm
(c) 23 cm
(d) 20 cm
(e) 22 cm