QUANT TEST PAPER 1

Directions for question 1 to 50. Choose the correct alternative.

1. If an article cost 50% of its selling price there was a profit of Rs60. What was the selling price?

    ◉ 125   ○ 120   ○ 140   ○ 200

2. A can do a piece of work in 10 days which can be done by B in 12 days. How long would it take to do the work together?

    ◉ 4 7/9   ○ 5 3/9   ○ 5 5/11   ○ 5 ½

3. The denominator of a fraction is greater than its numerator by 5 but if 7 were added to the denominator the value of the fraction would then become $1/4^{th}$. What is the fraction?

    ◉ 4/9   [2_____]   2/3   ○ 5/11   ○ 4/7

4. The sum of all 2 digit numbers which can be formed from 4 & 5 ?

    ◉ 45   ○ 99   ○ 100   ○ 101

5. Find the number whose double is greater than its half by 30.

    ◉ 20   ○ 30   ○ 25   ○ 23

6. A divided Rs. 200 amongst 15 children giving some Rs. 20 and remaining Rs.10.How many children receive Rs. 20?

    ◉ 7   ○ 12   ○ 10   ○ 5

7. If 3 apples are worth 2 bananas, how many bananas are 15 apples worth?

    ◉ 15   ○ 8   ○ 10   ○ 12

8. A buys an item for Rs. 600 of which 12% is excise and 4% is sales tax . How much would A pay exclusive of taxes and excise?

    ◉ 519.82   ○ 521.33   ○ 517.24   ○ 518.00

9. X has Rs. 6 with him. If 2/3 of what X has is ¼ of what Y has. How much does Y have?

    ◉ 8   ○ 16   ○ 12   ○ 14

10. The sum of a number and its reciprocal is ½ . The sum of their squares is,

    ◉ 9/4   ○ 4/5   ○ 5/3   ○ 7/4

11. X,Y,and Z take 20, 30 and 60 days respectively to complete a job independently. They set out to complete a job together . However Y leaves after 4 days and Z leaves after another 6 days . How many more days will it take for X alone to complete the job now?

   ◉ 4   ○ 3   ○ 5   ○ 6

12. A rectangular block of dimensions 5*6*7 cm. Is dropped into a cylindrical vesssed of radius 6 cm. And height 10 cm.. If the level of fluid in the cylinder rises by 4 cm. , what portion of the block is immersed in the fluid?

   ◉ 22/7*15/18   ○ 22/7*24/35   ○ 22/7*22/34   ○ 22/7*12/15

13. The difference between a number and its square is 870. What is the number?

   ◉ 42   ○ 29   ○ 30   ○ 32

14. In an election , 60% of the voters exercised the franchise. Of these, 40% were women. The number of males exercising their franchise was 53040. How many eligible voters were there in all?

   ◉ 125000   ○ 150000   ○ 230000   ○ 153000

15. If the side of a square is increased by 3 cm., the area increases by 33 cm. The side of the square is

   ◉ 5.5   ○ 6   ○ 2   ○ 4

16. A sum of RS. 88000 is to be divided among A, B, and C such that for every rupee, A gets, B gets 75 paise and for every rupee, B gets , C gets 90 paise . How much is C's share?

   ◉ 28345   ○ 28563   ○ 29887   ○ 30500

17. A family uses a mixture of a blend of 2 coffees costing Rs. 30 and Rs. 60 respectively.If the family uses only the expensive variety, it will have to spend Rs.450 more. The annual consumption of coffee of the family is 20Kgs. In what ratio are the two blends being used?

   ◉ 3:1   ○ 2:3   ○ 4:5   ○ 2:1

18. A buys a washing machine costing Rs.6000 on instalment basis. He pays Rs. 3000 cash at the time of delivery and subsequently 2 monthly instalments of Rs. 1575 each. The rate of interest charged p.a. is

   ◉ 39%   ○ 32%   ○ 28%   ○ 30%

19. If 4-[2.8-{3.5-(1-X)}]=5, Then value of X is

   ◉ 2.3   ○ 1.5   ○ 1.3   ○ 2.5

20. A salesman earns a commission of 3% on the value of sale that he makes. If by selling a radio at 60 % of the marked prices, he earns a commission of Rs. 12, then the marked price of the radio is?

   ◉ 667   ○ 700   ○ 655   ○ 680

21. P, Q, and R enter into a Partnership and their shares are in proportion of 3:2:1.
P withdraws half his capital at the end of 4 months and after 8 months more the profit of Rs. 1800 is divided. What is P's share

   ◉ 570   ○ 660   ○ 720   ○ 700

22. A sum of Rs. 8.25 is made up of 100 coins which are either 10 paise or 5 paise. How many are there of 10 paise?

   ◉ 65   ○ 35   ○ 40   ○ 55

23. A trader has 100 Kg of wheat, part of which he sells at 5% profit and the rest at 20% profit. He gains 15% on the whole. Find how much is sold at 5% profit?

   ◉ 60   ○ 50   ○ 66.6   ○ 33.3

24. If $x*y*z = (x^2+y^2)^z$, then value of 4*3*2 is

   ◉ 650   ○ 675   ○ 550   ○ 625

25. If the side of a square is increased by 8cm, the area increases by 64cm^2. What is the side of the square?

   ◉ 1.3   ○ 1.5   ○ 1   ○ 2

26. Ashish travels a distance of 100 km in the following manner, at 20 kmph for the 1st 50 kms, at 25 kmph for the next 50 kms. He returns at a constant speed of 25kmph. What was his average speed for the journey?

   ● 22.50   ○ 23.52   ○ 24.60   ○ 22.35

27. A purchases a car at a discount of 20% from a wholesaler and sells it at a profit of 20% for Rs.1800. How much discount did he get from the wholesaler?

   ● 60   ○ 85   ○ 70   ○ 75

28. A radio can be brought for Rs.2000 cash or for Rs.2200 on 5 months credit. Find the interest rate p.a. Consider simple interest.

   ● 24   ○ 22   ○ 32   ○ 25

29. If 20kg of rice cost Rs.200 less than 80 kgs of wheat. If a kg mixture of rice and wheat is in the proportion 2:3 and cost Rs.15, Find per kg cost of rice in Rs.

   ● 15   ○ 20   ○ 10   ○ None of these.

30. X is 25% more efficient than Y and his hourly wages are 25% more. If X is paid Rs.75, how much will Y receive for the same work?

   ● 65   ○ 90   ○ 75   ○ 110

31. Ashish spends 10% of his pocket money on himself and gives his sister Rs.5. If he still has 80% of the original sum, what was the amount he had as pocket money?

   ●

32. A owes B a sum of Rs.5000 to be paid 6 months from today. If simple interest @12% p.a. is calculated, what sum shall A have to pay B, 4 months from now in full discharge of the debt?

   ○ 4726   ○ 4824   ○ 4900   ○ 4906

33. The difference of 2 positive numbers is 81 and quotient obtained on dividing the one by the other is 9. Find the first number.

   ● 75   ○ 90   ○ 10   ○ 80

34. Anand goes to a shop to buy the walkman costing Rs.2250. The rate of sales tax is 6% he wants the dealer to reduce the price so that he has to pay Rs.2000 inclusive of tax. Find the reduction needed in the percent of the walkman.

   ● 15   ○ 16   ○ 17   ○ 18

35. P,Q, R enter a partnership where they invest Rs. 20000, Rs. 30000, Rs. 40000 resp. P withdraws Rs. 10000 after 2 months, Q withdraws Rs. 15000 after 4 months and R withdraws Rs. 25000 after 8 months. What will be R's share in the profit of Rs. 12474? ◉ 3564 ◯ 3267 ◯ 5643 ◯ 5500

36. A company declares a dividend of 15% on Rs.150 shares. A man buys such shares and gets 10% on his investment. Find at what price he bought the shares?
    ◉ 255   ◯ 356   ◯ 225   ◯ 240

37. If x sells for Rs.20 each, 250 Rs.10 share in a company which pays a dividend of 10% and then invests the proceeds of this sale in the purchase of Rs.5 shares in another company at Rs.4 each, find what difference is made in his income if the company pays a dividend of 4%?
    ◉ 50   ◯ 66   ◯ 105   ◯ None of these.

    ¼ of one number + 2/3 of another = 3/8 of their sum. Find the ratio of their numbers.
    ◉ 4:3   ◯ 2:5   ◯ 3:7   ◯ 2:1

38. At how many distinct points do the diagonals of a square intersect if no 2 diagonals pass through the same point?
    ◉ 4   ◯ 1   ◯ 2   ◯ 3

39. X buys an apple from Y for Rs.5 and sells it to Z for Rs.10. He later buys the apple back from Z for Rs.12 and sells it to Y for Rs.15. What is his profit over the venture?
    ◉ 8   ◯ 6   ◯ 12   ◯ 10

40. I have a rectangular piece of cloth 16 meters long & 1 1/4 metre broad. Iwant to cut as many large square pieces of the same size as possible. How many such pieces can I cut out of it ?
    ◉ 320   ◯ 240   ◯ 360   ◯ 325

41. The sum of two natural numbers is 85 and their L . C .M is 102. Find the numbers
    ◉ 51 & 34   ◯ 25&63   ◯ 40&25

42. A man XY of height 1.75 cm stands at a distance of 4 metres from a pillar AB. If the pillar l is at the height of 5.25 m from the ground, what is the length of the man's shadow on the ground ?

   ◉ 1m   ○ 2m   ○ 5m   ○ 6m

43. triangles x & y have the same area. If the bases are in the ratio 2 : 3, what is the ratio of their heights ?

   ◉ 3:2   ○ 2:3   ○ 3:4   ○ 5:6

44. A ground of 4.9 m width is prepared on the inside of a circular area of diameter 10 m. Find the cost of levelling the garden at Rs. 10 per sqm.

   ◉ 789.25   ○ 653.43   ○ 775.54   ○ 650.33

45. Three circloes touch each other externally. If xy = 15 ,yz = 10, xz = 21 Find the radius of each circle.

   ◉ 13 ,8 ,2   ○ 14 , 5 ,9   ○ 10 ,13 ,12   ○ 5 ,6 ,3

46. If the diameter of a circle is increased by 100 %, find the % increase in the area.

   ◉ 200   ○ 300   ○ 100   ○ 250

47. A spherical ball of 8 cm diameter is melted into a cone with base 20 cm in diameter. Find its height.

   ◉ 2.56cm   ○ 3 cm   ○ 2 cm   ○ 3.75 cm

49. Water flows out at the rate of 10m per minute, from a cylindrical pipe of diameter 5 mm. Find the time taken to fill a conical tank whose diameter at the surface is 40 cm and depth 24cm.

   ◉ 53 1/2 min   ○ 51 1/5 min   ○ 57 1/5 min   ○ 60 min

50. Find the S.I. for Rs.2500 for 73 days at 6 % p.a.

   ◉ Rs.30   ○ 2]Rs.50   ○ Rs.40   ○ Rs.20

Explanation to Paper I

1. Let the selling price be S .

2.

   Cost price = C = 0.5S
   Profit = 0.5S
   0.5S = 60
   S = 120

3. In one day A can do 1/1 work

4.

   In one day B can do 1/12 work
   In one day A+B =1/10+1/12
   =22/120 =11/60
   =60/11 = 5 5/11

5. Let the fraction be a/b

6.

   b = a+5 --I
   Also, a/b+7 =1/4
   4a = b+7 --II
   Solving I+II,
   -a+b = 5
   4a-b = 7
   3a = 12
   a = 4, therefore b = 9

7. 45, 54

8.

   sum = 45+54 = 99

9. Let the number be x

10.

2x-1/2x = 30
3/2x = 30
3x = 60
x = 20

6. 20x+10y = 200 --I
x+y = 15 --II
20x+10y =200
(-)10x+10y = 150
10x = 50
x = 5

7. Apples   Bananas
      3   2
          15

15*2/3 = 10 Bananas

8. cost exclusive of excise and tax = x

9.

excise = 0.12
Tax= 0.04
X+0.16x = 600
X = 600/1.16
= 517.24

10. x has Rs. 6.

11.

2/3 of x = 2/3*6 = Rs. 4
Rs. 4 = ¼ y
Y = 4*4 = 16

12. x+1/x = ½

$(x+1/x)^2 = x^2 + 2x1/x + 1/x^2$

$= x^2 + 2 + 1/x^2$

$= x^2 + 1/x2 + 2$

$= ¼ + 2$

$= 1 + 8/4$

$= 9/4$

13. x will complete 1/20 in one day.

Y will complete 1/30 in one day.

Z will complete 1/60 in one day.

4 days = (1/20 + 1/30 + 1/60)*4

= (3+2+1/60)*4

= 6/60*4

= 4/10

= 2/5th complete

6 days = (1/20 + 1/60)*6

= (3+1/60)*6

= 4/60*6

= 4/10 = 2/5

total work complete = 2/5+2/5 = 4/5

work remaining = 1/5

1/5/1/20=1/5*20/1

= 4 days

14. volume increase in cylinder=(volume of block *portion of it which is immersed)

22/7*62*4 = 5*6*7(p)

p = 22/7*36*4
       5*6*7

p = 22/7*24/35

13. Let the number be x.

$X^2-x = 870$

$X^2-30x+29x-870 = 0$

(x-30)(x+29) = 0

x = 30

14. Let the no. of eligible voters = x

Then, (0.6)(.6x) = 53040

0.36x = 53040

x = 54000/0.36

x = 150000

15. Let side of the square be x.

$(x+3)^2 = x^2 + 33$
$x^2+6x+9=x^2+33$
$6x=24$
$x=4$

16. A:B is 10:7.5

B:C is 10:9
A:B:C is 100:75:67.5
C gets 90*88000/242.5=24495

17. Expensive brand cost = 20*60=1200

Expense now = 1200-450=750
Average cost of the mixture =750/20
Rs.30 Rs. 60
Rs. 750/20
450/20 150/20
3:1

18. Instalments paid = 1575+1575 = 3150

Interest = 3150-3000 = 150
For 2 months interest = Rs.150
Rate of interest 2.5%p.m.
Rate of interest p.a. = 12*2.5 = 30%

19. 4-2.8+3.5-1+x=5

x=5-4+2.8-3.5+1
=1.3

20. Let the marked price be 100.

Selling price =60
Commission = 3/100*60 = 1.8
Commission(%) Commission(Rs).
1.8   12
100   ?

100*12/1.8=666.67

21.   3:2:1

             1.5*12+1.5*4:2*12:1*12
             18+6:24:12
             24:24:12
             2:2:1
             1800/5*2
             360*2
             Rs.720.

22.   By alligation rule:

23.
     10   5

             825/100

     13   7

         10 paise = 100/20*13
         = 65 coins
         5 paise =100/20*7
         =35 coins

    23. By alligation rule:
       5   20

                15

       5   10
     2/3*100=66.6

24. = $(16+9)^2$

25.
     = 25^2
     = 625

     25. Let side be x.
     $(x+8)^2$ = x^2+80
     x^2+16x+64=x^2+80
     16x=16
     x=1

26. Total time taken = 2.5+2+4=8.5 hour

         Distance = 100+100 = 200 kms
         Speed = 200/8.5 = 23.52

    27. 120   1800
          100   ?
100/1800*120 = 1500
Cost price = 1500
100*1500/80 = 1875
Discount from the wholesaler= 20%*1875= Rs375

28. 200/2000*12/5*100 = 24% p.a.

29. Let cost of rice be Rs.x per kg.

30.
And cost of wheat be Rs.y per kg.
20x = 80y-200
x = 4y-10
x-4y = 10
2x-8y = 20 -- I
2x+3y/5 = 15
2x+3y = 75 --II
2x+3y = 75
-2x-8y = 20
5y = 55
y = 11
x-44 = 10
x = 54
2x-8y = 20
2x+3y= 75
-11y = -55
y = 5
x = 10

31. Let wages of y =a, then x=1.25a

32.
X took 75/1.25a = 60/a
Y will take 1.25*60/a
=75/a*a
=Rs.75

33. Let his pocket money be x.

34.
His expense = 10%
0.1x + 5 = 0.2x
5 = 0.1x
5/0.1=x
x = Rs. 50

35. Principal amount = x

36.
5000 = x + x*6/12*12/100

5000 = x+3x/50
5000 = 50x+3x/50
250000 = 53x
x = 250000/53

Rs. 4717
4717*4/12*12/100
Rs. 189
Amount = 4717+189
Rs. 4906

37. Let the 2 no.s x and y.

        x-y = 80 --I
        x/y = 9 --II
        x-y = 80
        <u>x-9y = 0</u>
        8y = 80
        y = 10
        x-y = 80
        x-10 = 80
        x = 90

34. 2250*6% = 135

35.
2250+135= 2385
2385-2000=Rs. 385
discount% = 385/2385*180
= 16.14%
Hence [2]

36. P   Q   R

37.
2   3   4

1*12+1*10 1.5*4+1.5*12 2.5*8+1.5*12
22 6+18 20+18
22 24 38
11:12:19
P = 12474/42*11 = 3267
Q = 12474/42*12= 3564
R = 12474*19/42=5643

38. Dividend = 150*15% = 22.50

39.
Let market value be x.
Rate of return on investment = 22.5/x*100
10x = 2250
x = 225

40. 250 Rs.10 shares = Rs.2500

41.
    dividend = Rs.250
    Proceeds of sale = 250*20 = Rs.5000
    No. of Rs. 5 shares bought in the other company = 5000/4 = 1250
    Capital = 1250*5 = 6250
    Dividend in the other company = 6250*4%
    = 250

42. Let numbers be x and y.

43.
    1/4x +2/3y = 3/8(x+y)
    3x+8y/12 = 3x+3y/8
    6x+16y = 9x+9y
    7y = 3x
    x:y = 3:7

39. The diagonals of a square intersect at 1 point if no 2 diagonals pass through the same point

40. cost price for x = 5
selling price for x = 10
profit = 5
cost price for x = 12
selling price = 15
profit = 3
total profit = 8

41. The H .C .F of 1600 and 125 is 25.
Length wise---- I can cut 64 breadthwise. 5 pieces
Altogether I can cut 320 pieces.

42. Let the numbers be H_pH_q Where H is their H. C. F. and p
q are prime to each other.
Then, their L.C. M = Hpq
Hp + Hq = 85 H pq = 102
Dividing , p + q / pq = 85 / 102 = 5 /6
Therefore the numbers p,q must be 3 2
H = 102 / 6 = 17
Therefore A = 17 * 3 = 51 B = 17 * 2 =34

43. Triangle SAB is similar to triangle SFL
SA / SF = AB / FL
x /x + 4 = 1.75 / 5.25 = 1/ 3
3x = x + 4
Therefore x = 2m

44. A (triangle x) / A (triangle y) = $b_1h_1 b_2h_2$</sub>
$b_1/ b_2 = 2 / 3$
$1 = 2 h_1 / 3 h_2$
Therefore $h_1/ h_2 = 3 / 2$

45. Area of the ground
(22 /7) (r_1 + r_2) (r_2-150; r_2)
22 /7 * 5.1 * 4.9

= 77.54 sq.m
Cost of levelling. = 77.54 * 10
Rs. 775.54

46. $r_1 + r_2 = 15$
$r_2 + r_3 = 10$
$r_1 + r_3 = 21$
$2 (r_1 + r_2 + r_3) = 46$
$r_1 + r_2 + r_3 = 23$
$15 + r_3 = 23$
$10 + r_1 = 23$
$21 + r_2 = 23$
Therefore $r_3 = 8$
$R_1 = 13$
$R_2 = 2$

47. When Diameter increased by 100 %
radius also increased by 100 %
Therefore radius = 2 r
Therefore original area of the circle / New area of the circle.
= $(22 /7) r^2$/ $(22 /7) (2 r^2 = (22 / 7) r^2/ (22 /7) 4 r^2 = 1 /4$
If the original area is 'A'
then new area = 4 A
increase in area = 4 A - A = 3A
Therefore % increase = 3 A / A * 100
= 300 %

48. Volume of cone = volume of sphere
$1 / 3 (22/ 7) r^2 h$
$= 4 /3 (22 /7) r^2$
$1 /3 * (22 / 7) * 10^2 h$
$= 4 /3 * (22 /7) * 4^3$
$10^2 h = 256$
$100 h = 256$
Therefore h = 2.56

49 . Volume of water flowing out in 1 minute.
$= (22 /7) r^2 h$
$= (22/7) * 1/4 * 1/4 * 1000$ c.c
Time taken = volume of conical tank / volume of water flowing out.
$= 1 / 3 (22 /7) r^2 h / (22 /7) r^2 h$
$= 1 /3 * (22 / 7) * 20 * 20 * 24 / (22 / 7) * 1 /4 * 1/ 4 * 100$
= 51 1/5 minutes.

50. S.I = 2500 * 73 / 365 * 6 / 100
= 30