QUANT TEST PAPER 2

1. Suman borrowed Rs. 60,000 to build a bungalow. She pays 10 % S.I. She lets out her bungalow and receives a rent of Rs. 1500 p.m. In how many years will she clear her debt.

(•) 1 year ( ) 4 years ( ) 5 years ( ) 2 years

2. If the interest on Rs. 800 exceeds that on Rs. 600 by Rs. 15.50 in 6 months, find the rate percent p.a.

(•) 15 I/2 % ( ) 18 1/2 % ( ) 14% ( ) 5%

3. Find the compound interest in Rs.2400 for 2 1/2 years at 5 % p.a.,interest being compounded annually.

(•) 270.50 ( ) 300 ( ) 412.25 ( ) 312.15

4. A square piece of ground is 45 metres long. Find the cost of fencing it round with 10 lines of wire at the rate of Rs. 1.50 per metre.

(•) 2700 ( ) 2500 ( ) 2300 ( ) 2800

5. The external dimensions of a box are 10 cm , 6 cm , & 4 cm. If the thickness of wood is 1 cm, Find the volume of wood.

(•) 125 ( ) 150 ( ) 176 ( ) 183

6. The radii of two cylinders are in the ratio 2 : 3 and heights 5 : 3. Calculate ratio of their volumes.

(•) 20 /27 ( ) 27/ 20 ( ) 3 /4 ( ) 20 /32

7. The diameter of a roller. 100 cm long is 60 cm. It takes 500 complete revolutions to level a playground. What is the cost of levelling @ 50 ps. per sq. m.

(•) Rs. 200 ( ) Rs. 220 ( ) Rs.400 ( ) Rs. 500

8. If a+b+c = 0.The value of
$a^4+b^4+c^4/b^2c^2+c^2a^2+a^2b^2$ is :

(•) 2 ( ) 3 ( ) 6 ( ) 8

9. A man divides his property among his sons so that one gets half, another gets quarter and third gets one fifth and the fourth Rs. 10000. What is the value of the total property?

(•) 200000 ( ) 400000 ( ) 1400000 ( ) 2400000

10. If m:n = 2:3, the value of 3m+5n/6m-n is

(•) 7/3 ( ) 3/7 ( ) 5/3 ( ) 3/5

11. Divide 27 into two parts so that 5 times the first and eleven times the second are together equal to 195

(•) 17:10 ( ) 15:11 ( ) 16:10 ( ) 10:17

12. 40% of 5/6 is

(•) 1/3 ( ) 2/3 ( ) 2/6 ( ) 3/4

13. A dog taken 4 leaps for every 5 leaps of a hare but three leaps of the dog is equal to 4 leaps of the hare. Compare their speeds.

16:15 12:16 19:20 10:12

14. 55 men can finish a job in 42 days. If the work has to be completed 9 days earlier, how many additional men must be engaged to complete the work?
15 20 25 12

15. A retailer buys an electronic buzzer for Rs. 215. His overhead expenses are Rs. 25. If he sells the buzzer for Rs. 300, his profit percentage would be
25% 26% 20% 30%

16. In an election between two candidates one got 55% of the total valid votes. 20% of the votes are invalid. If the total votes are 7500, what is the number of valid votes that the other person got?
2700 2800 3000 3300

17. Aunt uses a car to travel from mumbai to nashik. She travelled at 60 kmph and covered half the distance in 2 hours. At what uniform speed should she travel to reach nashik at 4.00 pm?
40 60 50 35

18. The sum of ages of Nitya and her aunt is 63 years. Four years ago her aunt's age was 4 times that of Nitya's ages at that time. What is the present age in years of Nitya's aunt?
48 50 45 40

19. A watch ticks 90 times in 95 secs. And another watch ticks 315 times in 323 secs. If they start together, how many times will they tick together in first hour?
101 times 100 times 99 times 102 times

20. Area of a square is given to be S. If the sides are doubled, then the new area will be,
4S 2S S/2 S^2

21. The product of two numbers is 2400. If the bigger number is 1.5 times the smaller number is
40 45 35 30

22. Six men earn as much as 8 women, 2 women earn as much as 3 boys and 4 boys earn as much as 5 girls. If a girl earn Rs.50 a day, then the earning of a man would be
Rs.125 Rs.135 Rs.105 Rs.120

23. A train 150 meters long running at a speed of 60 kmph takes 30 seconds to cross a bridge. The length of the bridge is,
350m 450m 300m 400m

24. If a sum of money at certain rate of interest doubles in 5 years and at a different rate of interest becomes 3 times in 12 years, the better rate of interest is,
20% 10% $16^2/_3$ 15%

25. 126, 756,252,1512, ____
504 500 1210 None of these

26. The cost of painting the walls of a hall 30 meters long, 20 meters broad and 12 meters high, if it costs 25 paise per sq. metre.
Rs.300 Rs.325 Rs.350 Rs.400

27. The product of 3sqrt(4), 6sqrt(6) and 2sqrt(5) is
6sqrt(12000) 6sqrt(1000) 4sqrt(12000) 3sqrt(120000)

28. If A can complete a work in 6 hours, and B can complete it in 8 hours, then how much time would they take to complete the work together?

(●) 3 3/7 ( ) 2 5/2 ( ) 4 5/6 ( ) none of these.

29. A,B,and C can independently complete a task in 6,8 and 12 hours respectively. C starts working. 2 hours later she stops and simultaneously A and B starts working. Yet another 2 hours later, B stops working too. Now how long does A have to work alone to complete the task?

(●) 2 hours ( ) 1.5 hours ( ) 3 hours ( ) 4 hours

30. 128, 32, 224, 56, ____

(●) 392 ( ) 350 ( ) 25 ( ) 36

31. Taps A and B can independently fill a tank in 6 and 10 hours . Leak C can empty a filled tank in 8 hours. On an empty tank A, B, C are opened. How long does it take to fill the tank?

(●) 7.05 ( ) 8.05 ( ) 10.10 ( ) 5.07

32. Ten years age, Ram was 2/3 Shyam's age. 10 years hence Shyam will be 25% older than Ram. What are their present ages?

(●) 30;40 ( ) 40;30 ( ) 20;40 ( ) 30;60

33. 25 years ago A's age was 1/3 of what B's age will be 25 years hence 50 years hence, B's age will be twice A's present age. What is the sum of their present ages?

(●) 90 ( ) 100 ( ) 200 ( ) 400

34. The sum of X and Y's age is 105. When X was Y's age, she was 1.5 times Y's age then what are their present ages?

(●) 45;60 ( ) 30;40 ( ) 50;60 ( ) 60;45

35. 10 men working for 20 days, 5 hours a day can build a fence of length 20 meters. I need to build a fence of length 100 metres in 5 days and the men are willing to work 10 hours a day. How many men do we need?

(●) 200 ( ) 300 ( ) 400 ( ) 100

36. Find the factor of a^4+64

(●) $(a^2+8)(a^2-8)$ ( ) $(a^2+2)(a^2-2)$ ( ) $(a^2+4a+8)(a^2-4a+8)$ ( ) none of these.

37. A contractor undertakes to complete a project in 56 days using 100 men. However after 46 days, 100 men thereby completing the project on time. Had the additional men not been deployed, then by how many days would the project be delayed?

(●) 10 ( ) 20 ( ) 5 ( ) 40

38. Exam-1 = 30/50 Exam2 = 40/50
a) what is the increase in percent?
b) What is the % of increase?

(●) 20;33 1/3 ( ) 33 1/3;20 ( ) 20;40 ( ) 40;33 1/3

39. a) What is 30% of 60%?
b) What % is 30% of 60%?
c) What % of 30% is 60%?

(●) 17%;45%;190% ( ) 18%;50%;200% ( ) 20%;100%;150% ( ) 50%;18%;200%

40. a)The price of sugar increases by 25%. By what % should consumption be decreased so that expenditure on sugar remains constant?
b)Consider the same problem but price increases by 50%?

40;66.66 80;99.99 20;33.33 10;11.11

41. I have bought a car for some amount. I sell it to Mr.X at 10% loss due to need of money urgently. But later I buy it again from him at my original purchase price.
a)What is Mr.X's profit?
b)What is my loss?

11.11%;10% 10%;11.11% 20%;22.22% 40%;44.44%

42. A farmer purchases 2 horses for the same price. One he sells at a 10% profit and the other he sells at a 10% loss. What is his overall profit or loss?

Rs.200 loss Rs.200 profit no loss,no profit Rs.400 loss

43. A farmer sells 2 horses for the same price. In one he gains 20% and in the other he loses 20%. What is his overall profit or loss?

4% profit 4% loss 2% loss 2% profit

44. Money doubles in 3 years. When does it become 8 times?

24 years 12 years 6 years 18 years

45. A magician can double the no. of coins given to her in 1 minute. I give her a certain no. of coins and after an hour she has a boxfull of coins. When was the box 1/4 filled?

15 min 30 min 58 min 45 min

46. Principal Rs. 100, rate of interest 10%, compound interest, duration 2 years.
a)Compounded annually
c)Compounded daily

121 120 100 12.1

47. I buy a 20% stock of face value 50/- at 45/- and sell it at 55/-. A year later, what is my yield?

45.44% 44.45% 54.55% 55.54%

48. A dishonest seller pretends to sell his goods at cost price, but he uses a weight of 950gm for the kg weight. Find his gain%

5 6 7 4.5

49. P lent Rs.600 to Q for 2 years and Rs.150 to R for 4 years and received altogether from both Rs.90 as interest. Find the rate of interest, simple interest being calculated.

1% 5% 6% 3.5%

50. P owes Q Rs.455 payable 4 months hence and Q owes P Rs.450 payable 2 months hence. If they agree to settle their account what sum should be paid over and to whom reckoning the rate of true discount p.a.

Rs.12 Rs.13 Rs.11 Rs.16

Explanation to Paper II

1. S.I = 60,000 * 10 /100
= Rs. 6000
Rent received = 1500 * 12
= 18000
Therefore debt cleared in one year = 18000 - 6000
=12000
Therefore in 5 years.

2. 800 - 600 = 200

n = 6 months. = 1 /2 year
r = 100 I /Pn
= 100 * 15.50/ 200 * 1/2
= 1550 / 100
= 15.5%

3. A = P (1 + r/ 100^2 (1 + r /100)
= 2400 (1+ 5 /100^2 (1 + 2 1/2/100)
= Rs. 2712.15
Therefore C. I. = 2712.15 -150; 2400
= Rs. 312.15

4. Perimeter of square = 4a = 4 * 45
=180 m
Length of fence = 10 * 180
=1800m. with 10 lines of wire.
Therefore cost of wire = 1.50 * 1800
= Rs. 2700

5. External volume = l * b * h
= 10 * 6 * 4
= 240 cm^3
Internal dimensions = (10 -2); (6- 2); (4- 2)
= 8 , 4 , 2 cm.
Internal volume = 8 * 4 * 2
= 64 cm^3
Therefore volume of cube = 240 - 64
= 176 cm^3

6. Let radii --> 2x and 3x
Let height --> 5y and 3y
V_1 /V_2= (22 /7) (2x) ^{2} (5 y) / (22 /7) (3x) ^{2} (3y)
= 20 / 27

7. Diameter of a roller = 60 cm
r = 30 cm = 0.30 m
Height of roller = 1.00 m
Curved surface area = 2 (22 / 7) rh
= 2 * (22 / 7) * 0.30 * 1
= 1.32 / 7
= 0.88
Area covered by roller = 500 * 0.88
= 88 * 5
= 440 cm^2
Therefore cost of levelling = 0.50 * 440
=5 * 44
= 220

8. Since a+b+c = 0
a+b = -c
$(a+b^2=(-c^2)$
$a^2+2ab+b^2=c^2$
$a^2+b^2-c^2= -2ab$
$(a^2+b^2+c^2)^2=(-2ab)^2$
or

$a^4+b^4+c^4+2a^2b^2-2b^2c^2-2c^2a^2=4a^2b^2$
or
$a^4+b^4+c^4=2a^2b^2+2b^2c^2+2c^2a^2$
or
$=2(a^2b^2+b^2c^2+c^2a^2)$
$a^4+b^4+c^4/a^2b^2+b^2c^2+c^2a^2$
$= 2$

9. Let x be the total value of the property.
$x = x/2+x/4+1/5x+10000$
$= (10+5+4)x/20+10000$
$= 19x/20+10000$
$= 20*10000$
$= 200000$

10. $m/n = 2/3$
$3m = 2n$
now, $3m+5n/6m-n = 2n+5n/4n-n = 7n/3n = 7/3$

11. $a+b = 27$
$5a+11b = 195$
solving simultaneously we have,
$a = 17$ $b = 10$

12. 40% of 5/6 = 40/100*5/6 = 1/3

13. 3 leaps of the dog = 4 leaps of the hare.
1 leap of the dog = 4/3 leaps of the hare.
4 leaps of the dog = 16/3 leaps of the hare.
Speed of the dog : Speed of the hare
16: 15

14. 9 days earlier mean that the work should be completed in (42-9) = 33 days.
No. of Men = 42*55/33 = 70
Hence the no. of extra men = 70-55
=15 men

15. Total cost of the electronic buzzer = Rs.215+Rs.25 = Rs.240
Selling Price = Rs.300
Profit% = 60/240*100 = 25%

16. 7500*20%=1500
No of valid votes=6000
45% of 6000=2700
Hence[1]

17. At the speed of 60 kmph, aunt will reach nashik in 4 hours.
The distance between mumbai and nashik is 240 kms.
If 120 km are to be covered in 3 hours then aunt should travel at the uniform speed of
120/3 = 40kmph

18. If x and y are the ages of Nitya and Nitya's aunt,
$x+y = 63$
$y-x = 4(x-4)$
we have Nitya's age = 15 years

her aunt's age = 48 years

19. First watch ticks after 95/90 seconds.
second watch after 323/315 seconds.
LCM = 19*5*17/45 seconds.
No. of times they will tick in first 3600 seconds = 3600/(19*5*17)/45
Once they have ticked together in the begining , 50 in 1 hour they tick 100+1 = 101 times

20. If area = S, Sides = sqrt(S)
If side is doubled i.e. 2sqrt(S)
area = $\{2\text{sqrt}(S)\}^2$
= 4S

21. Let a and b be the numbers where b is the bigger number.
b =3/2a
a-b = 2400(given)
$3/2a^2 = 2400$
$a^2 = 1600$
a = 40

22. 6 M = 8W, 2W = 3B, 4B = 5G
1 G = Rs. 50 a day.
Now, 1B = 5/4G 1 W = 3/2 * 5/4G
1 M= 8/6* 3/2* 5/4G = 5/2G
1 M = 5/2 * 50 = 125/-Rs.

23. The distance covered by the train in 30 seconds = 6000/3600* 30 metres
= 500 metres.
Length of the Bridge = 500 - 150
= 350m.

24. If we assume that the sum = Rs. 100
Then, 1st rate of interest = 100*100/100*5 = 20
2nd rate of interest = 200*100/100*12 = 16 2/3
$76n_1=5$, $x_1= 42.2$ $n_2 = 4$, $x_2 = 35.5$
$x_{12} = n_1x_1 + n_2x_2 / n_1+n_2$
= 5 * 42.2 + 4 * 35.5 /9
= 211.0 + 142.0 /9
= 353 /9
= 39 2/9

25.*6, /3
Hence[1]

26. Area of the four walls.
= 2(length + breadth) * height
= 2 (30 + 20) *12 sq. meteres
= 1200 sq. metres
Total cost of painting = Rs. 1200*25/100
= Rs.300

27.Product of 3 sqrt (4), 6 sqrt (6), 2 sqrt (5) is
$4^{1/3} * 6^{1/6} * 5^{1/2}$
$=4^{2/6} * 6^{1/6} * 5^{3/6}=(4^2 * 6 * 5^3)^{1/6}$
$=(16 * 6 * 125)^{1/6}$

= 6 sqrt.12000

28. A takes 6 hours to complete a work.
He can complete 1/6th of the work in one hour.(taking complete work as 1.)
B takes 8 hours to complete it.
He can complete 1/8th of the work in one hour.
Together, A and B can complete,
1/6+1/8 = 14/48 = 7/24 of the work.

Hour	Work
1	7/24
?	24/24

=24/7 = 3 3/7
Hence, [1]

29. In one hour, C can complete 1/12th of the work.
In two hours, he can complete 1/12*2 = 2/12th of the work.
A and B start work simultaneously,
together work completed by A and B,
1/6+1/8 = 14/48 work = 7/24 work.
In 2 hours they complete 7/24*2 = 7/12 work
Total work done by A,B,C = 7/12+2/12 = 9/12
Total work to be completed = 12/12 or 1
Remaining work = 3/12

Hour	work done by A
1	1/6
?	3/12

3/12*6 = 1.5 hours
Hence[2]

30./4, *7
Hence[1]

31. In 1 hour C can empty 1/8th of tank
In 1 hour amount of water filled in the tank = A+B-C
= 1/6+1/10-1/8
68/480 = 17/120

Hour	Water filled in tank
1	17/120
?	120/120

= 120/17 = 7.05 hours

32. Let the present ages of Ram and Shyam be R and S resp.
3R-2S = 10 -- I
4S-5R = 10 -- II
15R-10S = 50
-15R+12S = 30
2S = 80
S = 40
R = 30
Hence,[1]

33. Let their present ages be A and B.

3A-B = 100 -- I
2A-B = 50 -- II
3A-B = 100
-2A-B = 50
A = 50
B = 50
Sum of their ages = A+B
=100
Hence[2]

34. Let their present ages be X and Y.
X+Y = 105 --I
1.5X-2Y = 0 --II
X = 60
Y = 45
Hence[4]

35.	M	D	H	L
old	10	20	5	20
new	x	5	10	100

10/x = 5/20*10/5*20/100
x = 100

36. $a^4+b^4 = (a^2+ab+b^2)(a^2-ab+b^2)$
$=(a^2+4a+8)(a^2-4a+8)$
$=(a^2+8)2-(4a)^2$
$=a^2+64$
Hence[3]

37. x = 10*2 = 20 days
100 men would require 20 days from 46 days
46+20 = 66 days
But we want to complete the work in 56 days.
Hence[1]

38. Exam 1 = 30/50*100 = 60%
Exam 2 = 40/50*100 = 80%
Increase in percent =20%
percent in increase = 20/60*100 = 33 1/3%

39. a)30/100*60/100 = 18/100 = 18%
b)30% is 50% of 60%
c)60% is 200% of 30%

40. a)Old price of sugar = Rs.10/-
New price of sugar = Rs.12.5/-
Old consumption = (10*100) = 1000
New consumption = (12.5*x)= 1000
x = 1000/12.5 = Rs.80/-
Decrease in consumption = 20/100*100 = 20%

b) old price = Rs.10
New price=Rs.15
10*100 = 1000
15*x = 1000
x = 1000/15 = 66.66Rs.

Decrease in consumption = 33.33%

41. a)Let my cost price be 100
Selling price = 90
Profit for Mr. X = 10
Profit % = 10/90*100 = 11.11%
b) Let cost price be 100
Selling Price = 900
My loss = 10 = 10/100*100 = 10%

42. Let cost price be 100 of both horses.
horse1 = S.P. = 110
horse 2 = S.P.= 90
Total cost price = 100+100=200
total selling price= 110+90 = 200
Hence[3]

43. Horse 1- C.P S.P.
x 100
? 120
S.P. = C.P.(100+profit%/100)
x = 83.33
Horse 2- C.P S.P.
y 100
? 80
y = 125
Total cost price = cost price of Horse1+cost price of Horse2
= 125 + 83.33 = 208.33
Total S.P.= 100+100 = 200
loss = 8.33
% of loss = 4%
Hence[2]

44. 3 years - 2 times
6 years - 4 times
9 years - 6 times
12 years - 8 times

45. In 60 min - box is full.
In 59 min - box is half filled.
In 58 min - box is 1/4 filled.
hence[3]

46. $A = 100(1+10/100)^2$
$= 100(110/100*110/100)$
$= 121$

47 . Income = Rs.10/-
20%*50 = 10
capital gain = 55-45 = 10
gain = 10+10 = 20
% gain = 20/45*100 = 44.45%

48. Suppose goods cost him Rs.1/kg, then he sells goods costing Rs. 0.95 for Rs.1/-
gain = 1-0.95 = 0.05
% gain = 0.05/0.95*100 = 500/95 = 5%

Hence[1]

49. Let r be the rate of interest.
600*2*r/100 + 150*4*r/100 = 90
1200r/100 + 600r/100 = 90
r = 5
Hence[2]

50. p = Rs.455, n = 4months = 1/3 year, rate = 5%
Amount of Rs.100 = (455*1/3*5)/100 = 107.58
455 ?
107.58 100
= 423
q = Rs.450, n = 2months = 1/6 year, rate = 5%
Amount of Rs.100 = (450*1/6*5)/100 = 103.75
450 ?
103.75 100
= 434
Sum to be repaid to p = 434-423 = Rs.11
Hence [3]