SIMPLE INTEREST & COMPOUND INTEREST

(Classroom handout.

1. At what rate percent will a sum of money treble itself in 16 years at SI?

   1. 16.25 2. 10% 3. 25% 4. 15% 5. None of these

2. A certain sum at certain rate of SI becomes Rs.1344 in 4 years. The same sum becomes Rs.1416 in 6 years at the same rate of interest Find the sum.

   1. Rs.1200 2. Rs.1250 3. Rs.1000 4. Rs.1150 5. None of these

3. A sum of money at simple interest amounts to Rs.2800 in 2 years and to Rs.3250 in 5 years. Find the rate of interest?

   1. 5% 2. 4% 3. 8% 4. 6% 5. None of these

4. Out of Rs.1500, a part was lent at 5% p.a. and the remaining at 8% pa simple interest. If Rs.270 is received as interest at the end of 3 years, find the sum lent at 8%.

   1. Rs.750 2. Rs.500 3. Rs.1000 4. Rs.800 5. None of these

5. A person invested Rs.12500 partly at 10%pa and partly at 12%pa both at SI. At the end of 4 years, the total simple interest accrued was Rs.5520. Find the part lent at 10%p.a.

   1. Rs. 6500 2. Rs. 7500 3. 5000 4. Rs. 6000 5. None of these

6. Divide a sum of Rs.2500 into two parts so that at the rate of 5% interest both yield equal amounts after 6 years and 4 years respectively at SI. Then the smaller part is

   1. 1200 2. 1100 3. 1000 4. 1050 5. None of these

7. Santosh borrowed Rs. 2000/- from Suresh at 8% pa SI. After 6 years he cleared the account by giving Rs.2500 and watch. Find the cost of the watch in Rs.

   1. 500 2. 450 3. 420 4. 460 5. None of these

8. Tony lent Rs. 7500 to Lony for 3 years and Rs.8000 to Sony for 72 years at the same rate. What is the rate of interest if the total simple interest earned is RS.770?

   1. 3% 2. 2% 3. 5% 4. 3.33% 5. None of these

9. The compound interest on Rs.1875 at 4% p.a. for 2 years is

   1. Rs.162 2. Rs.160 3. Rs.163 4. Rs.165 5. None of these

10. A sum becomes Rs.4630.5 in 3 years at 5% pa Cl. What is the sum?

    1. Rs.4100 2. Rs.4000 3. Rs.4200 4. Rs.4050 5. None of these

11. A sum of money lent at compound interest amounts to Rs.2420 in 2 years and to Rs.2662 in 3 years. Find the sum?

    1. Rs.2000 2. Rs.2100 3. Rs.1875 4. Rs.2020 5. None of these

12. Divide Rs.2602 between brothers, aged 19 yrs and 17 yrs so that at the age of 21 yrs they get equal amounts, rate of interest being 4% pa Cl. The share of the elder one is

    1. Rs.1150 2. Rs 912 3. Rs.800 4. Rs.1352 5. None of these

13. Divide Rs.8410 between two brothers A and B so that A's share after 5 years may be equal to B's share at the end of 7 years Cl being 5% pa. The share of B is

    1.4200 2.4210 3.4000 4.4410 5. None of these

14. The difference between simple interest and compound interest on a certain sum of money after 2 years at 15% pa is Rs 144. The sum is

    1. Rs.6000 2. 6200 3. Rs.6300 4. Rs.6400 5. Rs.6500

15. The simple interest on a sum of money for 3 years is Rs. 240 and the compound interest on the sum at the same rate for 2 years is Rs.170. The sum is

    1. Rs.6000 2. Rs.6200 3. Rs.6300 4. Rs. 6400 5. None of these

16. If Rs.1200 amounts to Rs.1323 in 2 yrs at Cl, what will Rs.1600 amount to in 3 yrs at the same rate?

    1. 1752.2 2. 1850 3. 1850.5 4. 1852.2 5. None of these

17. The SI on a sum of money at 4% pa for 2 years is Rs.80, Find the Cl on the same sum for the same period.

    1. Rs.84 2. Rs.82.6 3. Rs.83.2 4. Rs. 81.6 5. None of these

18. The. Cl on a certain sum of money for 3 years at 5% pa is Rs.157.625. Find the corresponding SI ?

    1. Rs.157.625 2. Rs.150 3. Rs.120 4. Rs, 50 5. None of these

19. What equal annual payment will discharge a debt of Rs.13200 due in 3 years at 10% pa SI?

    1. Rs.2000 2. Rs.3000 3. Rs.4000 4. Rs.4400 5. None of these

20. A man bought a TV worth Rs. 22, 500. If he wanted to pay in three equal annual installments at 20% pa SI, find the amount of each installment?

    1. Rs.7500 2. Rs.8000 3. Rs. 9000 4. Rs. 10000 5. None

RATIO & PROPORTION (Classroom handout.

1. The sum of two numbers is 20 and their difference is 2 1/2. Find their ratio.

    1. 8:5 2.11:9 3.9:7 4. 7:9 5. 9:7 or 7:9

2. If 0.7 of one number be equal to 0.075 of another, what is the ratio of the two numbers?

    1. 3 : 28 2. 3 :4 3. 1:10 4. 3:25 5. None of these

3. Find a fraction which shall bear the same ratio to 1/27 that 3/11 does to 5/9.

    1. 27/55 2. 1/55 3. 5 /33 4. 1/33 5. None of these

4. Two numbers are in the ratio of 8:7. When each is diminished by 12 1/2, they shall become in the ratio of 3 2/3 to 3. What is the difference between the numbers?

    1. 10 2. 15 3.5 4. 4 5. 2

5. Divide 37 into 2 parts such that 5 times one part and 11 times the other are together 227.

    1. 30 & 7 2. 28&9 3. 25 & 12 4. 21 & 16 5. None of these

6. Divide Rs. 324.36 into three parts in the proportion of 5:6:7 and find the value of the largest part.

    1.Rs. 90.10 2. Rs. 108.12 3. 126.14 4. Rs.150 5. None of these

7. Divide Rs. 90.30 between A and B such that A gets twice the amount as B. What is B's Share?

    1. 60.20 2.30.10 3.45.65 4. 90.30 5. None of these

8. Divide Rs.625 among A, B and C such that A gets C gets 3/4 of A's share.

    1. 200 2. 150 3. 100 4. 75 5. None of these

9. Divide Rs.99 among A, B and C such that A may times as much as B and C gets 1/2 of what A and B together get What is C's Share?

    1. Rs. 11 2. Rs.33 3. Rs. 22 4. Rs. 55 5. None of these

10. A body of 7300 troops is formed of 4 battalions, so that 1/2 of the first, 2/3 of the second, 3/4 of the third and 4/5 of the fourth are all composed of the same number of men. How many men are there in the largest battalion?

1. 1500 2. 1600 3. 1800 4. 2400 5. None of these

11. How many one-rupee coins, 50p coins and 25p coins, of which the numbers are proportional to 4,5 and 6 are together worth Rs. 32 ?

    1. 16, 20,24 2. 15,18,12 3. 16,12,20 4. 20,16,12 5. None of these

12. What must be added to two numbers that are in the ratio of 3 :4, so that they become in the ratio 4:5 ?

    1. 1 2. 3 3. 4 4. Data Inadequate 5. None of these

13. Find the number which when subtracted from the terms of the ratio 19 : 23 making it equal to the ratio of 3 :4.

    1. 12 2. 19 3. 7 4.9 5. None of these

14. An employer reduces the number of his employees in the ratio 9:8 and increases their individual wages in the ratio 14:15. What is the ratio of the employer's wage bill before and after the changes?

    1. 11:10 2.21:20 3.20:21 4. 15:14 5. None of these

15. A sum of Rs.86700 is to be divided among A, B and C in such a manner that for every rupee that A gets, B gets 90 paise and for every rupee that B gets, C gets 110 paise. How much is B's share?

    1. Rs.26010 2. Rs.27000 3. Rs.30000 4. Rs.36000 5. None of these

16. The students in three classes are in the ratio 2:3:5. If 20 students join each class, the ratio changes to 4:5:7. What was the total number of students in the three classes earlier?

    1. 10 2. 90 3. 100 4. 120 5. None of these

17. Three fourth of a number is same as 130% of another number. Find the ratio of the two numbers?

    1. 15:13 2. 13:15 3. 1:13 4. 3:52 5. None of these

18. The ratio between the ages of Gayatri and Savitri is 6:5 and the sum of their ages is 44 years. What will be the ratio of their ages after 8 years ?

    1. 5 : 6 2. 7 : 8 3. 8 : 7 4. 14:13 5. None of these

19. The ratio of money with Ram and Gopal is 7:17 and that with Gopal and Krishna is also 7:17. If Ram has Rs. 490, how much money does Krishna have?

    1. Rs.2890 2. Rs.2330 3. Rs.1190 4. Rs.2680 5. None of these

20. If 7.5 :10.5 = 80/21: x, then the value of x is:

    1. 6 2. 5 1/3 3. 7 % 4. 8 5. None of these

21. Two numbers are such that the ratio between them is 3 : 5 but if each is increased by 10, the ratio between them becomes 5 :7. The numbers are

    1. 3, 5 2. 7, 6 3. 13,22 4. 15,25 5. None of these

22. In a factory the ratio of male workers to female workers was 5 : 3. If the number of female workers was less than that of males by 40, what was the total number of workers in the factory ?

    1. 100 2. 500 3. 160 4. 200 5. None of these

23. The ratio of a father's age to that of his son is 4 : 1 and the product of their ages is 196. The ratio of their ages after 5 years will be....

    1.3:1 2.10:3 3.11:4 4.14:5 5. None of these

24. Rs.5625 is divided among A, B and C such that A receives 1/2 as much as B and C together receive and B receives 1/4 of what A and C together receive. The share of A is more than that of B by....

    1. Rs. 750 2. Rs.775 3. Rs.1500 4. Rs. 1600 5. None of these

25. The prices of a scooter and a television set are in the ratio of 3 : 2. If a scooter costs Rs.6000 more than the television set, what is the price of the television set ?

    1. Rs.18000 2. Rs.12000 3. Rs.10000 4. Rs.6000 5. None of these

26. A solution contains milk and water in the ratio of 8:3. On adding 3 litres of water, the ratio becomes 2:1. Find the quantity of milk in the original solution ?

    1. 9 litres 2. 24 litres 3. 3 litres 4. 6 litre 5. None of

27. The sides of two squares are in the ratio of 2:3. Find the ratio of their areas ?

    1. 2:3 2. 4:5 3. 3:2 4.4:9 5. None of these

28. If a/4 = b/5 = c/9, what is the value of (a + b +c./c ?

    1. 2 2. 1 3. ½ 4. can't be determined

    5. None of these

29. The incomes of A and B.gre in the ratio of 6:7. Their expenditures are in the ratio 8:5. Find the ratio of their savings if A spends two-third of his income?

    1. 1:1 2. 2:1 3. 8:9 4. 4:9 5. can't be determined

30. Incomes of P and Q are in the ratio 2:3 and their expenditures in the ratio 1:4. Find the ratio of their savings if Q saves one-third of his income?

    1.1:1 2.2:1 3.3:1 4. 3:2 5. can't be determined

PERCENTAGE

(Classroom Handout.

1. Due to fall in manpower, the production in a factory decreases by 36%. By what percent should the number of working hours be increased to restore the original production?

    1. 36% 2. 56% 3.57% 4. 56.25% 5. None of these

2. A man spends 30% of his salary on food, 10% on transport and 25% on rent. If he is left with Rs 10500, what is his salary?

    1. Rs.20,000 2. Rs.40,000 3. Rs.32,000 4. Rs.30,000 5. None of these

3. A man spends 50% of his income on boarding and lodging, 20% of the remainder on other personal necessities and 25% of the rest in charity. Find his income, if he is left with Rs. 4200.

    1. 14000 2. 8000 3.12000 4. 18000 5. None se

4. A man loses 14% of his money and after spending 25% of the remainder, he is left with Rs. 1290. How much had he at first?

    1. Rs. 4000 2. Rs. 2000 3.Rs. 2500 4. Rs. 3000 5. None of these

5. In a certain year, the population of a certain town was 9000. If the next year the population of males increases by 5% and that of the females by 8% and the total population increases to 9600. Then what was the ratio of population of males and females in that year?

    1. 4:5 2. 5:4 3. 2:3 4. Data in adequate 5. None of these

6. A candidate scoring 25% in an examination fails by 30 marks while another candidate who scores 50% marks gets 20 marks more than the minimum required for a pass. Find the pass percentage.

1.20% 2.80% 3. 40% 4. 50% 5. None of these

7. A man spends 80% of his income. His income increases by 40% and his expenditure also increases by 25%. Find the percentage change in his savings

   1. 100% 2. 20% 3. 60% 4. 40% 5. None of these

8. A solution of salt and water contains 5%, salt by weight. Of it 20 kg water evaporates and the solution now contains 15% of salt. Find the original quantity of solution

   1. 15 kg 2. 30 kg 3. 18 kg 4. 24 kg 5. None of these

9. What quantity of water should be added to reduce 16 litres of 25% acidic liquid to 20% acidic liquid?

   1. 5 lts 2. 4 lts 3. 12 lts 4. 8 lts 5. None

10. What quantity of water should be taken out to concentrate 12 Lts of 30% acidic liquid to 40% acidic liquid

    1. 4 lts 2. 6 lts 3. 3 lts 4. 8 lts 5. None

11. A reduction of 33 1/3 per cent in the price of oranges would enabled purchaser to obtain 8 more for a rupee. What was the price before the reduction?

    1. 16 per rupee 2. 24 per rupee 3.12 per rupee 4. Can't be determined

    5. None of these

12. If the price of oranges were less by 40%, one could buy 20 ore oranges for Rs. 120. The earlier price of each orange

    1. Rs. 2 2. Rs.3 3. Rs.4 4. Rs.5 5. None of these

13. Weights of two friends Ram and Shyam are in the ratio of 4 : 5. Ram's weight increases by 10% and the total weight of Ram and Shyam together increases by 15%. By what percentage did the weight of Shyam increase?

    1. 12.5% 2. 17.5% 3. 19% 4. 21% 5. None of these

14. Weights of two friends Ashok and Vinod are in the ratio of 2 : 5. Ashok's weight increases by 5% and the total weight of Ashok and Vinod increases by 15%. By what percent did the weight of Vinod increase?

    1.19% 2.19.5% 3.16% 4. 21.5% 5. None of these

15. When the price of rice was increased by 32%, a family reduced its consumption in such a way that the expenditure on rice was only 10% more than before. If 30 kg were consumed per month before, find the new monthly consumption.

    1. 25 kg 2. 24 kg 3. 20 kg 4. 18 kg 5. None of these

16. Pradip spends 40 percent of his monthly income and food items, and 50 percent of the remaining on clothes and conveyance. He saves one third after spending on food, clothes and conveyance. If he saves Rs. 19,200 every year what is his monthly income

    1. Rs. 24000 2. Rs. 12000 3. Rs. 16000 4. Rs.20000 None of these

17. A's monthly income is 25% more than that of B. B's monthly income is 5% less than that of C. If the difference between the monthly incomes of A and A is Rs. 1875, find B's income

    1. Rs. 9500 2. Rs. 1000 3. 11375 4. Cant be determined 5. None of these

18. The ratio of males and females in a city is 7 : 8 and the percentage of children among males and females is 25% and 20% respectively. If the number of adult females in the city is 156800 what is the total population?

1. 245000 2. 367500 3. 196000 4. 171500 5. None of these

19. The ratio of the number of students appearing for examination in the year 1998 from states A, B and C was 3:5;6. Next year if the number of students in these states increases by 20%, 10% and 20% respectively, the ratio in states A and C would be 1 : 2. What was the number of students who appeared for the examination in the state A in 1998?

    1. 7200 2. 6000 3. 7500 4. Data inadequate 5. None of these

20. Seven friends agree to divide their lunch bill in a restaurant. Six of them share the bill while the seventh pays a 15% tip. If the person paying the tip spends 15 paisa less than each of his friends, the total bill without the tip is

    1. Rs. 9 2. Rs. 6 3. Rs.15 4. Rs.12 5. None of these

21. The price of wheat drops by 20%. How many kgs can be bought with the same money that was sufficient to buy 16 kgs prior to price change?

    1. 18 2. 20 3. 20.5 4. 17 5. None of these

22. A vendor sells 40% of his fruit and throws away 20% of the remainder. Next day he sells 50% of the remainder and throws away the rest. What percent of his fruit does the vendor throw?

    1. 24 2. 30 3. 36 4. 40 5. None of these

23. A positive number is by mistake divided by 6 instead of being multiplied by 6. What is the % error on the basis of correct answer.

    1. 87.85 2. 89.56 3. 97.56 4. 97.22 5. None

24. One litre of water is added 4 litre of sugar solution containing 25% of sugar. What is the percentage of sugar after the addition?

    1. 20 2. 25 3. 15 4. 25 5. None of these

25. At an election where there are two candidates only, the candidate who gets 43 per cent of the votes got rejected by majority of 420 votes. Find the total no. of votes recorded.

    1. 3000 2. 600 3. 1200 4. 2400 5. None

AVERAGES

(Classroom handout.

1. The average of 5 consecutive odd numbers A, B, C, D and E is 45. What is the product of B and D?

    1. 2107 2. 2205 3. 1935 4.2021 5. None of these

2. A, B, C and D are four consecutive even numbers respectively and their average is 65. What is the product of A and D?

    1.3968 2.4216 3.4092 4.4352 5. None of these

3. The average age of 15 students in a class is 24 years. Including the teacher, the average increases by 1 year. Find the teacher's age?

    1. 39 2. 40 3. 41 4. 42 5. None of these

4. The average age of 9 members of a family is 21 years. When one of them expires the average becomes 15. Find the age of the expired person?

    1. 27years 2. 48 years 3. 79 years 4. 69 years 5. None of these

5. Average marks of boys in a class is 60 and that of girls is 50. If boys and girls in the class are in the ratio of 7:3, find the average marks of the class?

    1.57 2.63 3.60 4. Cannot be determined

5. None of these

6. There are 25 boys and 20 girls in a class. The average marks of boys to that of girls is 2 :3. Find the average marks of the class?

   1. 22 2. 21 3.23 4. can't be determined

   5.None of these

7. The average monthly expenditure of a man for the first seven months is Rs 269.47 and for the next 5 months is Rs 281.05. If he saves Rs 308.46 during a year, find his monthly income?

   1. 1200 2. 600 3.400 M, 4. 300 5. None of these

8. Average weight of students in a class is 43 Kg., 4 new students are admitted to the class whose weights respectively are 42 Kg, 36.5 Kg, 39 Kg, and. 42.5 Kg. Now their average weight is 42.5Kg, Find the number of students in the class in the beginning

   1. 10 2.15 3. 20 4. 25 5. None of these

9. The average monthly salary of employees in an industry is Rs.95. Average monthly salary of 15 officers is Rs.525 and the average monthly salary of workers is Rs.85. Find out total no of employees in the industry?

   1.645 2.660 3. 675 4.690 5. None of these

10. The average salary per head of the entire staff of an office including officers and clerks is Rs 90. The average salary of the officers is Rs. 600 and that of the clerks is Rs 84. If the number of officers is 12, find the temperature clerks in the office.

    1.102 2. 10200 3.1020 4.1008 5. None of these

11. The average temperature& Monday, Tuesday, Wednesday and Thursday was 48 degrees and for Tuesday, Wednesday and Friday was 46 degrees. If the temperature on Monday was 42 degrees Celsius; find the temperature on Friday.

    1. 34 2. 50 3. 32 4. 52 5. None of these

12. Average age of 5 members of a family is 20 years. If the age of the youngest member is 8 years, then find the average age of the family just before the birth of the youngest member.

    1. 12 2.15 3.18 4.20 5. None of these

13. There werbl50 students in a hostel. If 10 more students join the hostel, then expenditure on food increases by Rs 70. But average expenditure per student decreases by Re.1. Find the expenditure of the 50 students.

    1. Rs. 130 2. Rs. 260 3. Rs. 520 4. Rs. 650 5. None of these

14. The average weight of six men is increased by 5 Kg when one of them who weighs 20 Kg is replaced by another man. What is the weight of the new man?

    1. 50 kgs 2. 30 kgs 3. 20 kgs 4. 10 kgs 5. None of these

15. The average of A and B is 20 years. If C were to replace A, the average would be 19 and C w6re to replace B, the average would be 21. What are the ages of A, B and C?

    1.22,20,18 2.18,22,20 3.20,22,18 4.22,18,20 5. None of these

DATA INTERPRETATION

(Classroom Handout.

Directions (Q. 1- 5.: Study the following table carefully and answer the questions that follow.

Investment fin Rs crores. bv six units of XYZ Company from 1996 - 2001

The percentage marks obtained bv seven students in six different subjects

Subject	A	B	C	D	E	F
Student	(Out of 75.	(Out of 150.	(Out of 100.	(Out of 50.	(Out of 150.	(Out of 75.
P	85	68	76	92	89	82
Q	78	72	84	80	64	70
R	66	75	79	88	72	66
S	74	62	91	74	70	74
T	90	75	67	68	69	78
U	86	80	69	78	82	80
V	82	68	81	85	76	72

1. What percentage marks did 'R' secure in all the six subjects together?

   1. 75.73 2. 74.33 3. 73.75 4. 74.75 5. None of these

2. What is the difference between the marks obtained by 'P' in the subjects 'B', 'D' and 'E' and by 'T' in the same subjects?

   1. 32.5 2. 31. 5 3. 37 4. 34 5. None of these

3. What is the average of marks obtained by all the students in subject 'B' (round off to decimal places.?

   1. 107.14 2. 71.42 3. 114.07 4. 73.14 5. None of these

4. What is the average percentage of marks obtained by all the students in the subjects 'C' and 'D' together (rounded off to decimal places.?

   1. 78 2. 80.71 3. 79.43 4. 77.53 5. None of these

5. What are the total marks obtained by all the students in subject?

   1. 422 2. 398.5 3. 522 4. 391.5 5. None of these

Year Unit	96	97	98	99	'00	'01	Total
A	85	132	125	116	142	138	738
B	105	140	145	148	142	1445	824
C	114	137	138	136	150	152	827
D	98	125	132	145	158	152	810
E	82	128	141	152	149	165	817
F	108	150	145	156	154	162	875
Total	592	812	826	853	895	913	4891

6. In which year was the investment of unit 'C' minimum percent of the investment of all the units taken together in that year?

   1. 1997 2. 1998 3. 1999 4. 2001 5. None of these

7. In the year 1997 the investment of which unit was the maximum per cent of the total investment by the same unit during the given period?

   1. A 2. F 3. C 4. B 5. None of these

8. What is the increase per cent in the investment of unit 'D' from 1996 to 1999?

   1.36.75 2. 31.55 3.41.60 4. 217.55 5. None of these

9. How much more/less is the investment by units A, B and C in the year 1998 than the investment by the same three units in the year 1999?

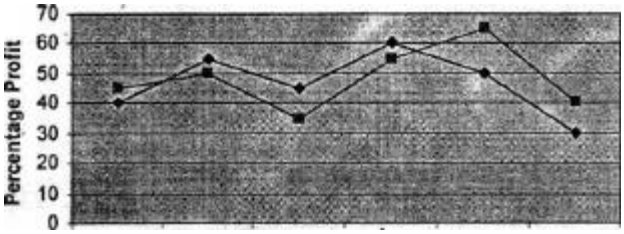
1. Rs 10 crores less 2. Rs 8 crores more 3. Rs 8 crores less 4. Rs 10 crores more

5. None of these

10. What is the ratio of the total investment of units A, B and C in 2001 and the total investment of units D, E and F in 1996?

1.217:144 2. 144:217 3.244:117 4. 117:244 5. None of these

Directions (Q. 11-15.: Study the following table carefully and answer the questions that follow. Percentage profit earned by two companies



11. If the income of Company A in 1998 was equal to its expenditure in 2000, what was the ratio between Company's expenditure in the years 1998 and 2000 respectively ?

1. 29 : 20 2. 20 : 29 3. 19 : 20 4. Cannot be determined

5. None of these

12. If the income of Company A in 1999 was equal to the expenditure of Company B in 2000, then what was the ratio of expenditure of Company A in 1999 to the income of Company B in 2000?

1. 25:66 2. 66:25 3. 10 : 13 4. 13 : 10 5. None

13. If the income of Company B in 1999 was Rs 18.6 lakhs and ratio of incomes of Companies A & B.was 2:3, what was the expenditure of Company A in that year?

1. 12 lakhs 2. 12.4 lakhs 3. 7.75 lakhs 4. 9.75 lakhs 5. None of these

14. If the total expenditure of the two Companies in 2001 was Rs 18 lakhs and expenditures of Companies A & B in that year were in the ratio of 4 : 5 respectively, then what was the income of Company B in that year (in Rs lakh.?

1.8 2. 10 3. 14 4. Cannot be determined

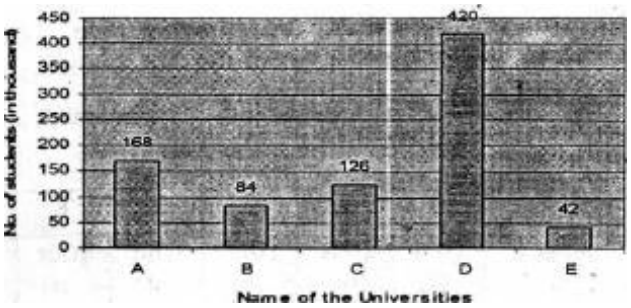
5. None of these

15. If the total income of Company A in all the years together was Rs 265 lakhs, what was the percentage profit earned by Company A for all the years together?

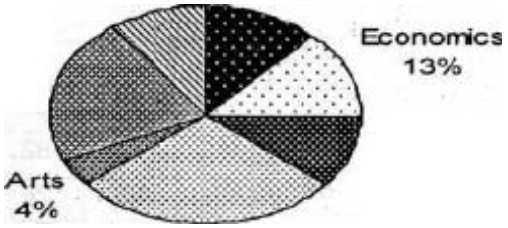
1. 45 W 2. 37 3. 52 4. Cannot be determined

5. None of these

Directions (Q. 16-20.: Study the following table carefully and answer the given questions



Percentage of the students studying various disciplines in all the universities



Ratio of Male and Female candidates for each discipline in all the universities.

Discipline	Male	Female
1. Economics	1	2
2. Computers	3	4
3. Commerce	4	3
4. Arts	2	1
5. Science	1	3
6. Engineering	1	2
7. Management	3	2

16. How many male students are studying science in all the universities?

    1. 41200 2.42000 3.43200 4.44000 5. None of these

17. What is the difference between the male and female students studying commerce in the universities A, D and E?

    1. 25000 2. 10800 3. 75600 4. 25200 5. None of these

18. What is the ratio of the number of male students studying Engineering to those studying Management respectively in university B?

    1. 6:5 2. 5:6 3. 54:25 4. 25 : 54 5. None of these

19. What is the sum of the number of males studying Arts in university A and the number of females studying Science in university B?

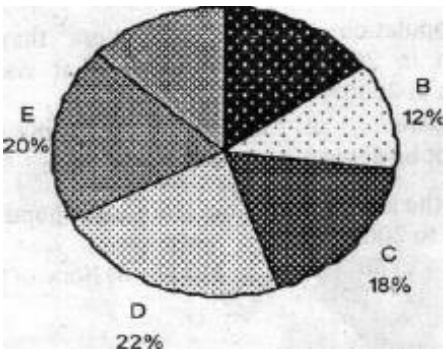
    1.19240 2.20340 3.21440 4. 18340 5. None of these

20. In which of the following universities was the number of female students the lowest?

    1. B 2. C 3. D 4. E 5.A

Directions (Q. 21-25.: Study the following table carefully and answer the given questions

There are six companies which manufacture two items. The pie chart shows the percentage of the total cost of production by the six companies



Cost of the total production of six companies = Rs 40 crores.

The following table shows the ratio of production between items 1 and II and the per cent profit earned for the two items

Company	Ratio of Production		% profit earned	
	Item -1	**Item - II**	**Item -I**	**Item - II**
A	2	1	25	30
B	7	5	35	15
C	3	5	20	25
D	1	3	28	20
E	1	3	24	32

F 6 7 25 35

21. What is the profit (in lakhs. earned by company D on item I? .

1. 6.16 2. 61.6 3. 0.616 4. 616 5. None

22. What is the total profit earned by company C for items I and II together (in Rs crore}?

1. 1.166 2. 1.665 3. 1.125 4. 1.765 5. None of these

23. What is the total cost of the production of item 1 by companies B and F together (in Rs crore.?

1. 10 2. 4.8 3. 5.2 4. 12 5.9

24. Cost of production of item 11 of company D is what per cent more than the profit earned by company A on item I?

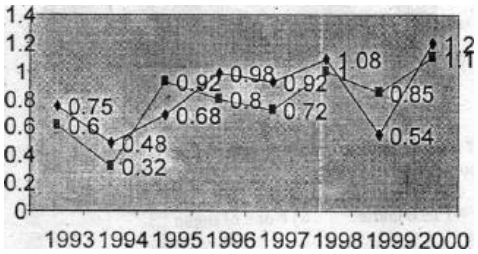
1. 550% 2. 660% 3. 560% 4.490% 5. None of these

25. What is the ratio of the cost of production of item 1 of company F to that of item II of company C?

1. 15:8 2. 8:13 3.4:7 4. 48; 65 5. None of these

Directions (Q. 26- 30.: Study the following table carefully and answer the questions that follow.

The following graph shows the ratio of imports to exports of two countries in different years



26. If the imports of country X in the year 1995 and the exports of country Y in 2000 were Rs 6.8 million and Rs 10 million respectively the exports of country X in 1995 was what per cent less than the imports of country Y in 2000?

1.10% 2. $9\frac{1}{11}\%$ 3. $9\frac{2}{11}\%$ 4. 12% 5. None of these

27. If the imports of country X in the year 1998 and the exports of country Y in 1996 were Rs 21.6 million and Rs 12.5 million respectively, find the ratio of imports of country Y in the year 1996 to exports of country X in 1998.

1. 1: 2 2. 1: 3 3. 3 :1 4. 1: 4 5. None of these

28. If the exports of country Y in the year 1997 was Rs 50 million, what would be the value of imports in the same year for country X?

1. 36 million 2. 46 million 3. 32 million 4. Cannot be determined

5. None of these

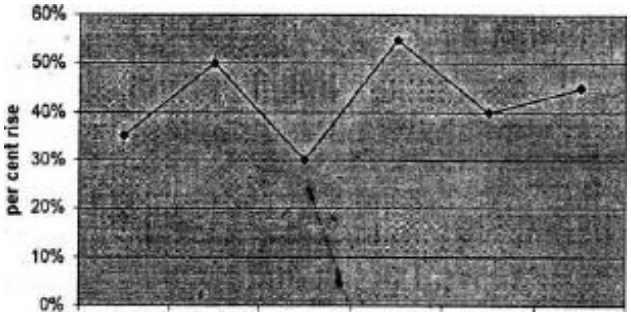
29. The ratio of imports and exports of country Y in the year 1999 was what percentage more than that for the country X in the year 1995?

1. 20% 2. 30% 3. 25% 4. 10% 5. 35%

30. In which of the following years was the value of exports less than value of imports in the case of country X?

1. 1997 2. 2000 3. 1996 4. 1994 5. Can't say

Directions (Q. 31 - 35.: The following graph shows the percentage increase in population



31. If the population in 1997 was 8 lakhs, what was the population in 1999?

    1. 13.6 lakhs 2. 16.2 lakhs 3. 14.8 lakhs 4. 15.6 .lakhs 5. None of these

32. If the population in 2003 was 5,07,500, what was the population in the year 2001?

    1. 2.5 lakhs 2. 3.5 lakhs 3. 2.85 lakhs 4. Cannot be determined 5. None of these

33. If the average population for the years 1998,1999 and 2000 was 2.67 lakhs, what was the population in 1998?

    1. 1.6 lakhs 2. 1.8 lakhs 3. 2.4 lakhs 4. Cannot be determined 5. None of these

34. If the population in 2001 was more than the population in 2000 by 1.65 lakhs, what was the population in 2000?

    1. 3.27 lakhs 2. 2.8 lakhs 3. 3 lakhs 4. Cannot be determined 5. None of these

35. What was the effective per cent increase in population from 2000 to 2002?

    1.217 2.88 3. 85 4. 117 5. None of these

Directions (Q. 36- 40.: Marks (out of 50. obtained by five students A, B, C, D, and E in five <u>subjects in five periodical examinations of each subject</u>

SUBJECTS

	A					B					C					D					E				
	PERIODICALS																								
	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V	I	II	III	IV	V
Math	22	41	30	26	22	22	44	46	48	38	38	36	34	24	30	30	26	38	32	40	40	48	40	26	40
Phy	24	42	38	18	41	40	24	42	36	36	38	48	46	44	22	26	30	26	40	26	48	40	48	38	36
Che	26	43	36	20	30	50	38	26	32	34	36	36	42	24	40	26	36	30	26	32	40	48	40	42	28
Bio	26	44	32	22	26	48	34	22	28	24	40	20	40	24	40	38	40	32	30	32	44	42	48	30	32
Eng	24	45	40	30	22	32	32	20	26	30	42	43	25	28	28	40	40	38	36	30	34	36	36	36	38

36. What was the % marks in the five subjects of student E in the second periodical?

    1. 81% 2. 83% 3. 84% 4.85% 5. None of these

37. What was the total marks of student C in Physics in all the periodicals together?

    1. 196 2. 197 3. 198 4. 199 5. None of these

38. The average percentage marks obtained by the student B in periodical V was x. In which subject average percentage marks obtained by the student C in all periodicals was x?

    1. Math 2. Physics 3. Chemistry 4. Biology 5. None of these

39. Find the odd one out.

1. Total marks obtained by D in Biology in all the periodicals.
2. Total marks obtained by C in Chemistry in all the periodicals.
3. Total marks obtained by B in periodical II.

4. Total marks obtained by D in periodical II.
5. Total marks obtained by E in periodical IV.

40. Marks obtained by A in Chemistry in periodical II is; what per cent of total marks obtained be him in that periodical?

1.10% 2. 20% 3.25% 4.26% 5. None of these

PERMUTATIONS AND COMBINATIONS

(Classroom handout.

1. The number of ways in which the letters of the word **CAREER** can be arranged is

1. 180 2.240 3. 150 4. 210 5. None of these.

2. In how many different ways can the letters of the word PORTION be arranged so that all the consonants are not together?

1.2222 2.2322 3.2233 4. 2232 5. None of these

3. In. how many ways can the letters of the word **ASSASSIN** be written such that all 'S' are not together

1. 840 2.640 3.720 4.780 5.None of these

4. How many words with or without meaning can be formed using all the letters of the word **SOLUTION** using each letter only once?

1. $7 \times 7P_6$ 2. $7 \times 6P_6$ 3. $8C_6$ 4. $8 \times 6P_6$ 5. None of these

5. In how many different ways can the letters of the word **DETAIL** be arranged in such a way that the vowels occupy only the odd positions?

1. 120 2.60 3.48 4.36 5. None of these

6. From a group of 4 men and 4 women, it is required to select a committee of 3 which has 2 men. The number of possible selections is

1. 12 2. 18 3.21 4.24 5. None of these

7. A committee of 6 is to be selected from among 6 girls and 6 boys. In how ways can it be done so as to include just one girl?

1. 120 2.70 3.36 4. 110 5. None of these

8. Jyothi and Anita are among 7 contestants from which 4 semi-finalists are to be selected. Of the different possible selections how many contain neither Jyothi nor Anita?

1. 8 2. 4 3.5 4. 10 5. None of these

9. For a group photograph, in how many ways can 8 people be arranged in a row such that two persons A and B never come together

1. 30340 2. 720 3. 8390 4. 14460 5. None of these

10. How many words with or without meaning of three distinct letters of the'English alphabets are there?

1. 15600 2.27625 3. 12270 4. 1032C 5. None of these

11. Four friends go to Nainital. If there are ten hotels available, in how many ways can they stay such that each one stays in a separate hotel?

1. 5040 2. 101 3.41 4. 10,000 5. none of these

12. 5 parcels are to be delivered to different places but there are only 4 messengers. In how many ways can this be done such that each messenger carries at least one parcel

1.5 2.120 3.240 4.125 5. None of these

13. How many 5 digit numbers can be formed using any digit from 0 to 9 without repetition

1.30240 2.27216 3.28040 4.36008 5. None of these

14. How many three digit numbers can be formed containing only odd digits?

1.25 2. 120 3. 60 4.125 5. None of these

15. How many numbers are there between 100.and 1000 such that the unit's digit is either 2 or 9

1.120 2.75 3.144 4.180 5. None of these

16. How many even numbers are there with three digits such that 5 is one of the digits and 7 is the other?

1.9 2.5 3.7 4. 8 5. None of these

17. How many five digit numbers can be formed using every digit of 5, 6, 7, 8 and 9 which are divisible by 4?

1. 12 2. 18 3. 24 4. 36 5. None of these

DIRECTIONS (18-20.: Study the following information to answer the given questions.

A committee of some members is to be made from a group of 8 men and 6 women. In how many different ways can it be made such that

18. The Committee of4 must include at least 1 woman.

1. 931 2.336 3.338688 4. 1001 5. None of these

19. The Committee of 4 must include at least 2 men

1. 1031 2. 3360 3. 3688 4. 1000 5. None of these

20. The committee of 6 must have exactly 3 men and 3 women?

1.3003 2.60 3. 1120 4. 180 5. None of these

21.40 men entered a lounge simultaneously. If each person shook hands with all the others, then find the total number of handshakes?

1. 280 2. 1560 3. 580 4. 780 5. None of these

22. At a meeting, each person gave a handshake to the rest of the people. If the total number of handshakes was 28, find the number of people at the meet?

1. 14 2.9 3.7 4.8 5. None of these

23. Three dice are rolled. Find the number of possible outcomes in which at least one dice is 4.

1. 89 2.90 3.91 4. 125 5. None of these

24. A question paper is divided into two parts each containing 6 questions. A student has to select 6 questions but not more than 4 questions from any part. In how many different ways can he make his selection?

1.450 2. 800 3. 850 4. 625 5. None of these

25. In how many ways can .5 boys and 4 girls stand in a row such that a boy and a girl stand alternately?

1.1250 2.14400 3.2880 4.5760 5.None of these

PROBABILITY

1. Two cards are drawn at random from a pack of 52 cards. The probability that the drawn cards are both Aces is

1. 2/445 2. 1/218 3.4/1569 4. 1/221 5. None of these

2. Three cards are drawn from a pack of 52 cards. Find the probability that all the three are honor cards?

   1. 168/1105 2. 28/1105 3. 16/5525 4.4324/5525 5. None of these

3. Three cards are drawn from a pack of 52 cards. What is the probability Jack and one king.

   1. 168/1105 2. 28/1105 3. 16/5525 4. 4324/5525 5. None of these

4. A bag contains 7 black and 5 white balls. Two balls Find the probability that both balls are black it fi drawn.

   1. 28/33 2. 49/144 3. 7/22 4. 5/33 5. None of these

5. In the above question, what is the probability if first ball is replaced and the second ball is drawn?

   1. 7/22 2. 28/33 3. 49/144 4. 7/24 5. None of these

6. Five persons are to be selected from a group of 3 men, 2 women and 4 children. What is the chance that it will contain

   1. 1/7 2. 1/42 3. 10/21 4. 10/63 5. None of these

7. A number of six digits is written down at random/ What is the probability that the number is even?

   1. 1/2 2. 1/4 3. 1/6 4. 2/5 5. None of these

8. In a box there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?

   1. 7/19 2. 2/3 3. 3/4 4. 9/21 5. None of these

9. A bag contains 2 red, 3 green and 2 blue balls. 2 balls are to be drawn randomly. What is the probability that the balls drawn contain no blue ball?

   1. 5/7 2. 10/21 3. 2/7 4. 11/21 5. None of these

10. 4 persons face an interview. If each has independently a probability of 1/3 of answering correctly, find the probability that atleast one of them answers correctly?

    1. 16/81 2.81/97 3.65/81 4. 1/81 5.80/81

11. A bag contains 5 white, 4 blue and 3 yellow ribbons. 4 ribbons are drawn at random. The probability that all ribbons drawn are of the same colour?

    1. 2/165 2. 6/165 3.1/4 4. 1/12 5. None of these

    Directions (12-15. : Study the following information carefully to answer the given questions.

    In a box there are 4 Blue, 4 Red, 4 White and 4 Black balls. Four balls are picked up randomly. What is the probability of the following event to occur?

12. All four may not be blue?

    1. 1/1820 2. 1/1870 3. 1/4 4. 1/55 5. None of these

13. All four may not be red?

    1. 1960/1990 2. 1819/1820 3. 99/364 4. 1/55 5. None of these

14. Not even one out of four is white

    1. 1819/1820 2. 99/364 3. 1960/1990 4. 1/455 5. None of these

15. All the four balls of the same color

    1. 1/1820 2. 1/4 3. 1/1870 4.1/455 5. None of these

16. 5 boys and 5 girls sit in a row randomly. Find the probability that all the 5 girls sit together

    1.1/462 2.1/21 3.1/42 4. 1/252 5. None of these

17. If 19 persons are seated at a round table, what is the probability that 5 particular persons sit together?

    1. $\frac{15! \times 5!}{19!}$ 2. $\frac{15! \times 4!}{19!}$ 3. $\frac{15! \times 5!}{20!}$ 4. $\frac{15! \times 4!}{18!}$ 5. None of these

18. A bag contains 5 red and 4 green balls and another bag contains 3 red and 7 black balls. If one ball is drawn from each bag, find the probability that both are of different colors

    1. 47/90 2. 5/6 3. 7/18 4. 2/15 5. None of these

19. Two cards are drawn from a pack of 52 cards. What are the odds in favour of drawing 2 kings.

    1. 221:1 2. 221: 1 3. 1:220 4. 220:1 5. None

20. The odd that A speaks the truth is 1:4 and that of B is 3 : 5. In what percent of cases are they likely to agree with each other?

    1. 42.5 2. 47.5 3. 52.5 4. 57.5 5. 60

MIXTURES/ALLIGATIONS

(CLASSROOM HANDOUT'.

1. In what proportion should one variety of oil at Rs 9.50 per Kg be mixed with another at Rs 10 per Kg to get a mixture worth Rs 9.60 per Kg

   1. 1:4 2.4:1 3.3:2 4.2:3 5.5:4

2. In what ratio must 25% alcohol be mixed with 50% alcohol to get a mixture of 40% alcohol strength?

   1.2:3 2.3:2 3.3:1 4.1:3 5. none

3. How much chicory at Rs 4 per Kg should be added to 15 Kg of tea at Rs 10 per Kg so that the mixture is worth Rs 6.50 per Kg?

   1. 20Kg 2. 15Kg 3. 21 Kg 4.10Kg5.25Kg

4. How many Kg of custard powder costing Rs.40 a Kg must be mixed with 16 Kg of custard powder costing Rs 55 a Kg so that 25% may be gained by selling the mixture at Rs 60 a Kg?

   1.1 lKg 2.14Kg 3.12Kg4.20Kg5.15Kg

5. A mixture of 80 litres of wine and water contains 10% water. How many litres of water must be added to make the water content 20% of the resulting mixture

   1.5 2.20 3.7 4.15 5.10

6. A solution contains 10 litres mixture in which there is 10% Sulphuric acid. How much sulphuric acid is to be added to make the solution contain 25% Sulphuric acid?

   l. 2lt 2. 1 lt 3.41t 4.51t 5. Data inadequate

7. A chemical solution contains 30% water and 70% alkali. What quantity of water should be added to 6 litres of solution so that water content becomes 40%?

   l.600ml 2.1.21itres 3.800ml 4.1 litre 5.none

8. A milk man borrowed Rs 2500 from two moneylenders. For one loan, he paid 5% p.a. and for the other, he paid 7% p.a. The total interest paid for two years was Rs 265. How much did he borrow at 5% rate?

   1.2100 2.2150 3.2175 4.2125 5.none

9. Two liquids are mixed in the proportion of 3:2 and the mixture is sold at Rs.11 per kg at a 10% profit. If the first liquid costs Rs. 2 more than the second, what is it's cost?

1. Rs 11 2. Rs 10.50 3. Rs 11.50 4. Rs 10.80 5.Rs. 10

10. A shopkeeper has 500 watches. He sells 100 watches at a loss of 10%. At what percent profit should he sell the remainder so as to make an overall profit of 10%

    1.10% 2.20%3.30% 4.25% 5.15%

11. There are some rabbits and pigeons in the zoo. If there heads are counted, there are 90 while their legs are 224. How many pigeons are there?

    1.58 2.68 3.90 4.45 5. 68

12. In an exam a student gets 3 marks for every correct answer and loses 1 mark for every wrong answer. A student attempts all 150 questions and scores 310 marks. Find the number of correct answers?

    1.110 2.120 3.125 4.115 5. 105

13. A solution of milk and water contains 80% milk. Another solution contains 25% milk. In what ratio should the two solutions be mixed ratio should the two solutions be mixed such that the quantities of milk and water become equal.

    i. 4 : 5 2. 5 : 4 3. 5 : 6 4. 6 : 5 5. None

14. A solution of milk and water contains 70% milk. How much water should be added to 360 litres of the above solution so that the percentage of milk in the resultant solution becomes 60?

    1. 1440 litres 2. 90 litres 3. 240 litres 4. 480 litres 5. None

15. Three varieties of rice cost Rs 10/ kg , Rs 20/kg and Rs 30/kg . In what ratio should they be mixed such that the mixture costs Rs 23/kg.

    1. 1:2:3 2. 6: 3: 2 3. 1 : 1: 1 4. Cannot be determined 5. None

16. How much water be added to 14 kilolitres of milk worth Rs. 5.40 P a litre so that the value of the mixture may be Rs. 4.20 P a litre?

    1.7 K.L. 2. 6 K.L. 3. 5 K.L. 4. 4 K.L. 5. None

17. Now much water should be added to 60 litres of milk at $1\frac{1}{2}$ litres a rupee so as to have a mixture worth $1\frac{7}{8}$ lives a rupee?

    1. 15 litres 2. 20 litres 3. 12 litres 4. 27 litres 5. None

18. How muck water must be added to a cask containing $40\frac{1}{2}$ litres of spirit worth Rs. 3.92 P a litre to reduce the price to Rs. 324 a litres?

    1. $9\frac{1}{3}$ litres 2. 9 litres 3. $8\frac{1}{2}$ litres 4. 8 litres 5. None

19. In what proportion much sand be mixed with cement to gain 15% by selling it at the cost price?

    1. 7:12 2. 2:13 3. 5:13 4.2:3 5. None

20. A milk seller buys milk at Rs. 3 per litre and after adding water he sells it at Rs. 3.60 P per litres and thus gain 60%. Find the percentage of water in the mixture?

    1. 20% 2. 15% 3. $17\frac{1}{2}$ 4. 25% 5. None

PROBLEMS ON NUMBER & L.C.M, H.C.F

1. Sum of two digits number and the number obtained by interchanging the digits is 36what is the different between the digits of the number?

   1.2 2. 3 3.4 4. 5 5. None

2. When 45 is added to a number, it will be increased by 20% what is the number?

   1.220 2.225 3.230 4.215 5. None

3. When 20 is substracted from a number, it will be decreased by its 25%. What is the number?

   1.20 2.40 3.80 4. 100 5. None

4. When 30 is substracted from a number. It will be decreased to its 80%. What is the number?

   1.140 2.120 3.150 4.160 5. None

5. The different between 1/3 and 1/4 % of number is 15. What is the number?

   1.120 2.150 3.210 4.180 5. None

6. In class each student contribute as many rupees. The number of students and the teachers contributes Rs.100 to have a total collections of Rs. 1000. What is the number of students in the class?

   1.40 2.30 3.20 4.60 5. None

7. Sum of two number is 42 and their products 360. What is their differences?

   1.17 2.16 3.18 4.20 5. None

8. $4*24-23@8=1646$ then find the small @ value?

   1. 0 2. 91 3. 89 4. 92 5. None

9. The sum of four consecutive even numbers 270 more than the first number. What is the last number?

   1.90 2. 91 3. 89 4. 92 5. None

10. The sum of five consecutive multiplies of 15 is 1080 more than the first number. What is their sum ?

    1.1110 2.1140 3.1155 4.1125 5. None

11. The L.C.M and H.C.F of two numbers are 1056 and 16 respectively and one of these number is 128. Find the second number ?

    1.136 2.132 3.134 4.138 5. None

12. Find the smallest number which when divided by 6,9,12,and 15 as leaves 5 as reminder in each case ?

    1.175 2.165 3.185 4.195 5. None

13. Find the smallest number which when increased by 7, divisible by 8,15,16, and 25

    1.1200 2.1292 3.1291 4.1193 5. None

14. Find the least number of 5 digit which is exactly divisible by 5,10,15,and 25

    1.10000 2.10050 3.10014 4.10010 5. None

15. Find the greatest number of 4 digit which is exactly divisible by 7,14,and 21

    1.9999 2,9994 3.9996 4.9995 5. None

16. There are -65 pens and 104 pencils all are of equal size. Find the highest number of pens {or} pencils possible to be packed in the minimum number of equal size packets without mixing pens with pencils (or. vice versa

    1. 11/pens or pencils pack

2. 12/ pens or pencils pack

3. 13/ pens or pencils pack

4. 14/ pens or pencils pack

5. None

17. Find the least number of which when divided by 4,6,8, and 12 leaves 1 as remainder but when divide by 15 leaves 7 as a remainder ?

    1.25 2.49 3.73 4.97 5. None

18. Find the length of the largest possible square bricks. Which can be used for paving the floor of 4.37m x 1.71m?

    1.16 cm 2.17 cm 3.18 cm 4,19 cm 5. None

19. Find the greatest number that will divide 120, 216, and 312 leaving 5, 9 and 13 as remainder respectively?

    1.23 2.33 3.28 4.38 5. None

20. The H.C.F of two numbers is 37 and their sum is 592. Flow many pairs of such numbers are possible?

    1.7 2.6 3.8 4.9 5. None

21. The ratio between the ages of Ramu and Raju 3:5 8 years hence it will be 7:9. What is the different between the ages?

    1. 3 2.4 3. 5 4.6 5. None

22. The Ratio between the ages of Gopi and Varshi 4:3 6 years hence it will be 11:9. What is the present age of Gopi?

    1. 15 2. 16 3. 14 4. 13 5. None

23. Ravi as much as younger than Satish as he older than Reheman. Raheman and Satish are 22 years and 48 years old respectively. What will be the ages of Ravi after 1 year?

    1. 35 2. 36 3.37 4.38 5. None

24. Sujatha 30 years younger than her father. The product of their ages after 10 years will be 600 years more than the product of their present ages. What is the age of Sujatha today?

    1. 10 2. 9 3. 11 4. 13 5. None

25. At present Laxmi is 6 years younger than Lalitha. After five years Lalitha will be 15 years old. What will be the age of Laxmi 4 years hence?

    1. 12 2. 11 3. 5 4. 8 5. None

APPROXIMATIONS

(Classroom Handout.

Find out the approximate value which should.replace the question mark (?. in the following questions. (You are not expected to find out the exact value..

1. $95^{3.7} - 95^{0.9989} = 95^{?}$

    1. 1. 9 2. 3 3. 2.99 4. 3.6 5. 2.7

2. $\sqrt{1000} + \frac{3.001}{4.987}$ of 1891.992 = ?

    1. 2500 2. 1230 3. 1640 4. 1525 5. 2130

3. $(4.5)^2 \times (3.5)^2 = ?$

1. 230 2. 240 3. 250 4. 260 5. 270

4. 85.51^2

1. 7200 2. 7225 3. 7250 4. 7275 5. 7300

5. $\sqrt{710612} = ?$

1. 780 2. 803 3. 840 4. 890 5. 913

6. $\sqrt[3]{86300} = ?$

1. 51 2. 35 3. 53 4. 38 5. 44

7. $\sqrt[3]{912670} = ?$

1. 87 2. 66 3. 75 4. 91 5. 97

8. $\sqrt[3]{7469} \times \sqrt{668} = ?$

1. 300 2. 350 3. 505 4. 425 5. 575

9. $\sqrt{675} \div \sqrt{171} \times \sqrt{10} = ?$

1. 3.5 2. 4.5 3. 5.5 4. 6.5 5. 7.5

10. $27\frac{1}{321} - 12\frac{2}{197} = 5\frac{86}{87} + ?$

1. 7 2. 8 3. 9 4. 10 5. 11

11. 21% of 1213 - 9% of 879

1. 155 2. 165 3. 175
4. 185 5. 195

12. 14.6% of 707 - 16.5% of 301.235 =

1. 45 2. 55 3. 65 4. 75 5. 85

13. 1923.892 + 382.144 + 217.1392 + 14.444

1. 10 2. 15 3. 20 4. 25 5. 30

14. $2.5 \times 0.08 \div (1.9)^2 = ?$

1. 1.5 2. 0.8 3. 0.010 4. 0.06 5. 2.1

15. $98 \times 785 \div (285)^2 = ?$

1. 0.3 2. 1.8 3. 2.2 4. 0.9 5. 0.08

16. $7^{1.499} \times 7^{2.5} = ?$

1. 7 2. 343 3. 49 4. 2401 5. 16807

17. $1\frac{4}{7} + 7\frac{1}{3} + 3\frac{3}{5} = ?$

1. 21 2. 8 3. 25 4. 13 5. 30

18. $2.5 \times 0.8 \div (1.9)^2 = ?$

1. 1.5 2. 0.8 3. 0.010 4. 0.06 5. 2.1

19. $388 \div 0.8 \div 0.7 = ?$

1. 681 2. 654 3. 693 4. 670 5. 700

20. $15.3 \times 12.3 + 41.2 \times 213 = ?$

1. 1125 2. 1098 3. 1132 4. 1032 5. 1067

21. $13.001 \times 98.987 + 6.11 \times 4.89 = ?$

1. 1120 2. 1220 3. 1320

4. 1420 5. 1520

22. $2\frac{3}{10}\times 4\frac{6}{7}\times 7\frac{1}{2}=?$

1. 68 2. 72 3. 93 4. 84 5. 101

23. $12.564\times 22.009\times 17.932=?$

1. 4901 2. 4895 3. 4800 4. 4959 5. 4350

24. 31% of 3581 + 27% of 9319 = ?

1. 3930 2. 3625 3. 3735 4. 3545 5. 3824

25. $15\sqrt{2}+20\%$ of 483 = ?

1. 110 2. 120 3. 125 4. 130 5. 135

Time - Work

(Classroom Handout.

1. Seven men can complete a work in 12 days. They started the work and after 5 days two men left. In how many days will the work be completed by the remaining men?

   1.7 2.5 3.8 4. 5. None of these

2. A certain number of men could do a piece of work in 50 days, If there were 8 more men, it could be finished in 10 days less. The number of men in the beginning was

   1.40 2.35 3.32 4.45 5. None

3. 10 men and 15 women finish a work in 6 days. One man alone finished that work many days will a woman finish the work?

   1. 125 days 2. 150 days 3. 12 days 4. 10 days 5. None of these

4. A and B can do a piece of work together in 60 days. B and C can do it in 40 days the work together but A and C absented themselves on every alternate day. How long did the work last? of these

   1. 24 days 2. 45 days 3. 48 days 4. Can't be determined 5. None of these

5. Two women Bindu and Hemalata working separately can sow a field in 12 hrs and 16 hrs respectively. If they work in stretches of one hour alternately, Bindu beginning at 5 a.m, when will the sowing be finished?

   1. 6:40 p.m 2. 6.20 p.m 3. 6.10 p.m 4. Can't be determined

   5. None of these

6. Three pipes are attached to a cistern A and B. It in 12 hrs it in 18 hrs. If A, B and C are kept open in the saine order will the cistern get filled.

   1. $30\frac{2}{3}$ hrs 2. 33 hrs 3. 27 hrs 4. 28 hrs 5. 29 hrs

7. There are two filler (A and B. and one user (C. pipes attached to a tank. A fills the tank in 20 hrs B fills the tank in 30 hrs while C can empty it is in 18 hrs. If A and B work for 8 hrs in a day, for how many hours user pipe can be used?

   1. Can't be determined 2. 10 hrs 3. 11 hrs 4. 12 hrs 5. 16 hrs

8. A can do in 3 hours a work which B takes 4 hours and C takes 12 hours to do. How long would A and B together take to do a work which C can do in 7 hours

   1. 1 hr 2. $1\frac{2}{3}$hr 3. $\frac{7}{12}$hr 4. $2\frac{1}{7}$hr 5. None of these

9. Peter and Paul working together could complete a takes in 20 minutes Paul and Pat in 30 minutes and Peter and Pat in 40 minutes. How much time would Peter alone take to complete the task?
   1. 48 mins 2. 45 mins 3. 50 mins 4. 42 mins 5. 16.6 days
10. A can do a piece of work in x days and B in 15 days. A started the work and was joined by B, 5 days before the completion of the work. What is the share of B our of the total wages of Rs. 120?
   1. Rs. 40 2. Rs. 60 3. Rs. 80 4. Rs. 30 5. None of these
11. 12 men take 18 days to complete to work whereas 12 children take 27 days to complete the same work. How many days will 10 men and 12 children together take to complete the same work?
   1. 12 2. 16 3. 18 4. 24 5. 24
12. 6 men & 9 women can do a piece of work in 10 days. How long will it take to complete the same work with 4 men and 6 women?
   1.15 days 2. can't be determined 3. 21 days 4. 6 days
   5. None of these
13. A can build a wall 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 15 days, in what time could B alone do it?
   1. 60 days 2. 27 days 3. 30 days 4. 24 days 5. None of these
14. Rakesh can do a piece of work in 15 days. When he had worked for 3 days. Narender joined him and the remaining work was finished in 8 days. In how many days can Narender alone finish the whole work?
   1. 20 days 2. 24 days 3. 27 days 4. 30 days 5. None of these
15. 2 men undertake to do a job for Rs. 1400. One can do it alone in 7 days and the other in 8 days. With the assistance of a boy they finish the work in 3 days. How should the money be divided?
   1. Rs. 600, Rs.525, Rs.275 2. Rs 550, Rs. 500, Rs.350
   3. Rs.630, Rs.490, Rs.280 4. Rs. 700, Rs. 500, Rs.200
   5. None of these
16. X does $\frac{3}{7}$ th of the work in Z hours. Y works twice as fast and finished the remaining work. How long did Y work?
   1. $\frac{1}{3}$ Z hours 2. $\frac{2}{3}$ Z hours 3. $\frac{1}{6}$ Z hours 4. $\frac{2}{6}$ Z hours
   5. None of these
17. X, Y, Z together can finish a piece of work in 18 days. X and Z together work twice as much as Y, X and Y together work thrice as much as Z, X can do the work alone in
   1.72 days 2. 54 days 3. 18 days 4. 43.2 days 5. None of these
18. A man a woman or a boy can do a job in 20 days, 30 days or 60 days respectively. How many boys must assist 2 men and 8 women to do the work in 2 days?
   1.7 2. 8 3.6 4.5 5. None of these
19. A contractor undertakes to do a piece of work in 40 days he engages 100 men and after 35 days, he engaged an additional 100 men and completes the work. How many days behind the schedule would the work have been, if he had not engaged the additional men.
   1. 2 days 2. 5 days 3. 8 days 4. None of these

20. 5 men 20 women and 40 boys can do a piece of work in 120 days working 6 hrs each day, in how many days will 10 men, 10 women and 20 boys do another piece of work thrice as large as the first, working 3 hrs day, if the amount of work done by each man, women and boy is in the ratio 4:2:1?

    1. 200 days 2. 250 days 3. 350 days 4. 300 days 5. None of these

21. Ajit can do as much work in 2 days as Baljit can do in 3 days and Baljit can do as much in 4 days as Diljit in 5 days. A piece of work takes 20 days if all work together. How long would Baljit take to do all the work by himself

    1. 82 days 2. 44 days 3. 66 days 4. 50 days 5. None of these

22. Raju can do a piece of work in 10 days. Ramu in days and Gitu in 32 days. All begin to do it together but Raju levels after 4 days and Ramu 3 days before the completion of the work. How long would the work last?

    1. 9 days 2. 8 days 3. 11 days 4. 15 days 5. None of these

23. A man employs 10 men for 3 weeks for wages amounting to Rs. 1,470. What would be the total wages payable if 2 men do not turn up for the last 2 weeks? (All men are paid equal wages..

    1. 1220 2. 1274 3. 1277 4. 1300 5. None of these

24. 50 men can do a job working 10 hours per day in 8 days. If 20 boys and 15 girls work 15 hours per day, in how many days can the job be completed, given that boys and girls work equally and each of them works half as much as a man

    1. 15.24 days 2. 20 days 3. 12 days 4. 10 days 5. None of these

25. Rohit, Harsha and Sanjeev are three typists who, working simultaneously can type 216 pages in four hours. In one hour sanjeev can type as many pages more than Harsha as Harsha can type more than Rohit During a period of five hours, sanjeev can type as many pages as Rohit can during 7 hours. How many pages does each of these type per hour?

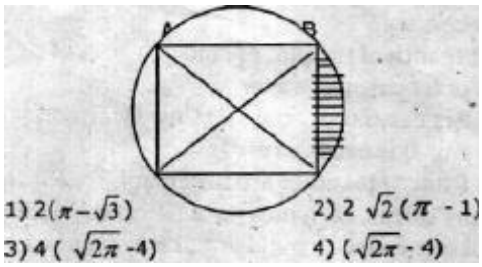
    1. 16,18,22 2. 14,17,20 3. 15,17,22 4. 15,18,21 5. 16,19,23

MENSURATION

1. A lawn is in the shape of a rectangle of length 60m and width 40m. Outside the lawn there is a footpath of uniform width lm bordering the lawn. The area of the path is

    1. 200 m^2 2. 204 m^2 3. 208 m^2 4. 218 m^2 5. None

2. In the figure below, ABCD is a square. If DC = 4 units, then the area of the shaded portion is



    5. None

3. In a circular pond a swimmer starts from a point on the edge, swims 600 mts to north to reach a point on-the edge. Then he turns east and swims 800 meters to reach yet another point on the edge. The diameter of the pond is...?

    l.600m 2.700m 3.800m 4.1000m 5.None

4. In the figure there are two semi circles with centers B and C. If AB=CD=10cm, what is the perimeter of the figure ?

l. 2Π 2. 10Π 3. $20(\Pi+1)$ 4.20 5.None

5. A coin is placed on a table. How many coins of the same size can be placed around it touching each other?

   1. 4 2. 5 3. 6 4. 8 5. 9

6. A regular hexagon is inscribed in a circle of radius 8 cm. Find the area of the hexagon

   1. $\frac{\sqrt{3}}{4}\times 17\text{Cm}^2$ 2. $96\sqrt{3}\text{Cm}^2$ 3. 35.69 cm^2 4. 20.5 cm^2 5. None

7. If the side of a regular hexagon is 10cm then what is the radius of its circum circle ?

   1. $10\sqrt{3}$cm 2.20cm 3. $10/\sqrt{3}$cm 4. 10cm 5.None

8. A square and a rectangle have equal areas. If their perimeters are Pi and P_2 respectively, then

   1. $P_1 < P_2$ 2. $P_1 = P_2$ 3. $P_1 > P_2$ 4. Any of the above 5. None

9. A room is of dimensions 15 m x 18 m. If it is to be fully laid with the least number of square tiles, find the number of square tiles?

   1. 15 2. 30 3. 20 4. 40 5. None of these

10. If the length of the diagnol of a square and that of the side of another square are both 10cm, the ratio of the area of the first square to that of the second is

    1.1:2 2.1:3 3.2:3 4.1:4 5.none

11. The length of a rectangular hall is 16 metres. If it can be partitioned into two equal square rooms, what is the measure of the side of the square room ?

    1. 8 m 2. 16 m 3. 10 m 4. Can't be determined 5. None

12. In a garden there are 10 rows and 12 columns of mango trees. The distance between each tree is 2 metres and a distance of one metre is left from all sides of the boundary of the garden. What is the length (in metres. of the garden ?

    1. 26 2. 24 3. 20 4. 30 5. None of these

13. The radius of a circular wheel is 1 3/4 m. How many revolutions will it make in traveling 13.2 km ?

    1. 1100 2. 1200 3. 1050 4. 1150 5.None

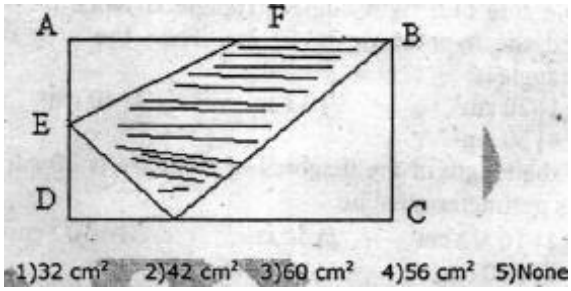
14. Two cubes each with 12 cm edge are joined end to end. Find the surface area of the resulting cuboid.

    1. 3456 cm^2 2. 1040 cm^2 3. 1440 cm^2 4. 1331 cm^2 5. None

15. If the volume of a sphere is double that of another sphere then the ratio of their radii is

    1. 2 : 1 2. 4 : 1 3. 8 : 1 4. 5 : 1 5. None

16. In a rectangle ABCDTs AB=14, BC=8 and E ,F and G are mid points of AD, AB and DC respectively. Find the area of the shaded portion ?



1)32 cm^2 2)42 cm^2 3)60 cm^2 4)56 cm^2 5)None

17. A copper sphere of radius 3 cm is melted and drawn into a wire of diameter 0.2 cm. The length of the wire is

    1. 3.6 m 2. 360 m 3. 36 m 4. 3600 m 5.None

18. A plate 2 cm thick, 2 cm broad, 54 cm long is melted into a cube. What is the difference in surface areas of two solids?

    1. 216 cm^2 2. 224 cm^2 3. 274 cm^2 4. 36 cm^2 5. None of these

19. 100 circular plates of radius 7 cm and thickness ½ cm are placed one above the other to form a circular cytmder. Find its volume.

    1. 7700 cm^3 2. 770 cm^3 3. 77 cm^3 4. 7.7 cm^3 5. None of these

20. A cylinder, a hemisphere and a cone stand on the same base and have the same heights. Find the ratio of the areas of their curved surfaces.

    1. $1:\sqrt{2}:1$ 2. $\sqrt{2}:\sqrt{2}:1$ 3. $2\sqrt{2}:1:\sqrt{2}$ 4. $1:\sqrt{2}:\sqrt{2}$ 5. None

21. If a sphere is inscribed in a cube, then the ratio of the volume of the sphere to that of the cube is....

    1. 1 : 6 2. $\pi:6$ 3. $\sqrt{3}:6$ 4. $\sqrt{3}\pi:6$ 5. None

22. Tennis balls are often supplied in a cylindrical can that contains exactly 3 balls. What percent of the volume of the container is occupied by the balls?

    1. 33 1/3% 2. 66 2/3% 3. 67 1/7% 4. Can't be determined 5. None

23. A beam 9 m long, 40 cm wide and 20 cm high is made of iron, which weighs 50 kg per cubic metre, Find the weight of the beam.

    1.. 36 kg 2. 40 kg 3. 56 kg 4. 50 kg 5. None of these

24. From a circular sheet of aluminium of diameter 40 cm, a sector with central angle 72° is cut off and the remaining piece is turned into a cone. Find the cone volume.

    1. 256π 2. 512π 3. 1024π 4.1024 5. 2048π

25. A portion is cut out of a circle and made into a cone of volume 50 2/7 cucm. If the cone has a radius of 4 cm, what is the angle of the cut off sector ?

    1. 60° 2. 70° 3. 72° 4. 270° 5.None

PARTNERSHIP

Classroom handout

1. Three partners A, B and C invest Rs. 1600, Rs. 1800 and Rs. 2300 respectively in a business. What should be the share of B if the total profit is Rs. 399?

    1. 112 2. 161 3. 145 4. 126 5. None of these

2. A, B and C enter into partnership. A advances Rs. 1200 for 4 months, B Rs. 1400 for 8 months, and C Rs.1000 for 10 months. They gain Rs. 585 altogether. Find the share of C.

    1.235 2.225 3.215 4.252 5. None of these

3. A and B start a business with Rs.5000 and Rs.6000. C joins diem after 3 months and B leaves the business after another 3 months. What is C's share if the Rs.21000?

    1.2000 2.9000 3. 15000 4.3000 5. None of these

4. A puts in Rs.600 more in a business than B. B invests his capital for 5 months only. If the share of A is Rs. 48 more than that of B out of the total profit of Rs. 528, find the capital of B.

1.1200 2. 1800 3.2400 4. 3000 5. None of these

5. A and B enter into a partnership with capitals in the the ratio of 4:5. After 3 months A withdraws half of his capital & B withdraws l\5th of his capital. The gain after 10 months was Rs. 780. What was A's share?

   1.240 2.230 3.260 4. 520 5. None of these

6. Three friends A, B and C started a business by investing a sum of money in the ratio of 5:7:6, After 6 months C withdraws half of his capital. Out of a total annual profit of Rs. 33000, C's share is

   1. Rs.9,000 2. Rs.12,000 3. Rs. 11,000 4. Rs. 10,000 5. None of these

7. A stared a business by investing Rs. 2700. After sometime B joined him by investing Rs. 2025 at the end one year, the profit was divided in the ratio 2:1. After how many months did B join the business

   1.8 months 2. 4 months 3. 6 months 4. 3 months 5. None of these

8. A begins a business/.with Rs. 3,000 capital. 4 months later B joins him with Rs. 2,500. 3 months later C joins with Rs.2,800. Out of profit at the end of the year, A gets 16 % for managing the business and balance is divided according to their capitals. If A gets a share of Rs.888, find the total profit

   1. Rs. 1500 2. Rs. 2,000 3. Rs. 2,500 4. Rs.1600 5. None of these

9. A, B, C enter into a partnership in a business with capitals of Rs.5,000, Rs.6,000 and Rs.3,000. A gets 30% of the pro fit for managing the business and the balance is divided in proportion to their capitals. At the end of year A gets Rs.200 more than B and C together. Find the profit of B.

   1. 840 2.640 3.600 4. 1200 5. None of these

10. Subash starts business by investing Rs.25000. Six months later Aditya joins him by investing Rs. 1500. After another six months Aditya invests an additional amount of Rs. 15000. At the end of 3 years they earn a profit of Rs.2,47,000. What is Aditya's share in the profit?

    1. Rs. 1,30,000 2. Rs. 1,23,000 3. Rs. 1,05,000 4. Rs. 1,11,500

    5. None of these

11. P and Q start a business with Rs.2000 and Rs.48000 respectively. After every month P invests Rs.2000 more and Q withdraws Rs.4000. What will be the share of P out of a total annual profit of Rs.6000?

    1. Rs.3000 2. Rs.2000 3. Rs.4000 4.Rs.l600 5. None of these

12. P, Q and R invest in a partnership in the ratio 8:13:19. If the ratio of their returns is 4:26:19, find the ratio of their investment periods

    1. 2:2:1 2. 3:2:1 3. 1:4:2 4. 4:2:1 5. None of these

ELEMENTARY ALGEBRA

(Classroom Handout.

Directions (Q. 1-20. : In each of the following questions one or more equation(s. is/are given. On the basis of given equation(s. find the relationship between p and q. Mark answer

1. If p = q or if no relation can be established

2. If p > q

3. If q > p

4. and

5. If

1. I. $3p+4q=25$ II. $2p+3q=18$
2. I. $p^2+5p+6=0$ II. $q^2-5q+6=0$
3. I. $56p^2-15p+1=0$ II. $72q^2+q-1=0$
4. I. $p^2+9p+20=0$ II. $q^2-12q+36=0$
5. I. $4p^2+q^2=5/4$ II. $p-q=0$
6. I. $q^2-2q-255=0$ II. $p^2+5p-150=0$
7. I. $2p+3q=18$ II. $p-2q+5=0$
8. I. $p^2-7p+12=0$ II. $q^2+9q+20=0$
9. I. $2p^2+7p+3=0$ II. $q^2-1/4=0$
10. I. $p^2=25$ II. $q=\sqrt{25}$
11. I. $p^2=25$ II. $q^2=25$
12. I. $p^2+p-6=0$ II. $q^2+3q-10=0$
13. I. $6p^2+5p+1=0$ II. $12q^2+7q+1=0$
14. I. $q^2-4q+3=0$ II. $p^2-7p+12=0$
15. I. $p^2-44p+384=0$ II. $q^2-17q+88=0$
16. I. $2p^2-7p-4=0$ II. $2q^2+11q+5=0$
17. I. $p^2-6p+9=0$ II. $q^2-4=0$
18. I. $3p+1/2=2q$ II. $2p+9/2=3q$
19. I. $2p+q=15$ II. $2q+3p=13$
20. I. $(p-1)^2=(q-1)^2$
21. If $3x^2-21x+36>0$, then which of the following must be true?
    1. $3<x<4$ 2. $x\le 3$ or $x\ge 4$
    3. $x<3$ or $x>4$ 4. $x>3$ or $x<4$
    5. None of these
22. For which values of n does the following inequality satisfy?
    $4n^2-13n+3\le 0$
    1. $3<n<4$ 2. $n<\frac{1}{4}$ 3. $3>n>\frac{1}{4}$ 4. $3\ge n\ge\frac{1}{4}$
    5. None
23. The expression $6m^2-5m+1>0$ is satisfied if
    1. $1<3m<2$ 2. $\frac{1}{3}<m<\frac{1}{2}$ 3. $m>\frac{1}{3}$ 4. $m>\frac{1}{3}$ or $m>\frac{1}{2}$ 5. None of these
24. For which values of x does the following inequality satisfy?
    $(x-3)(x-2)>0$
    1. $2<x<3$ 2. $1/2>x>1/3$ 3. $x<2$ or $x>3$ 4. $x>2$ or $x<3$
    5. None of these
25. For which values of x does the following inequality satisfy?
    $(2-x)(4x-3)<0$

1. $3/4 < x < 2$ 2. $2 < x < 3$ 3. $3/4 > x > 2/3$ 4. $x < 3/4$ or $x > 2$

5. None of these

DATA SUFFICIENCY

(Classroom handout.

Directions: Each of the questions below consists of a question and two statements numbered I and II given below it Read both the statements and mark answer

1. if the data in statement 1 alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
2. if the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
3. if the data either in statement I alone or in statement II alone is sufficient to answer the question.
4. if the data even in both statements I and II together is not sufficient to answer the question.
5. if the data in both statements I and II together is necessary to answer the question.

1. How many students are there in a class ?

   I.70 % of the class are boys

   II. There are 45 girls in the class

2. What is the population of the state A ?

I. After an increases in A's population by 12 % ,it becomes 627.20 lakhs.

II. Ratio of population of state A to that of state B is 4:5

3. What is the age of Bipin?

I. The ratio of the ages of Bipin and Ranjit is 1: 5

II. After 7 years the ratio becomes 3 :4

4. What is the ratio of the percentage of Hitendra to that of his father ?

I. Six years ago Hitendra's age was half his father's age at that time.

II. Some of their percentages is 72 years.

5. What is a two-digit number?

I. The difference between the two digits is 9.

II. The sum of the digits is equal to the difference between the two digits.

6. Find a two-digit number?

I. Difference between the digits of at two digit number is 1.

II. Digit at unit's place of the numberjs 20% of the digit at ten's place.

7. In a two-digit number the digit at tens place square of the unit's place number. Find the number?

I. The digit at ten's place is bigger than that at unit's place.

II. The difference between the digit at ten's place and that at unit's place is 6.

8. How many marks did Arun get in history ?

I. Average marks obtained by Arun in history, maths and English is equal to the average marks in Maths and English.

II. Arun got a total of 120 marks in Maths and English together.

9. What is the average monthly income per family member?

I. Each male, of the family earns Rs.1250 a month and each female earns Rs. 1050 a month.

II. Ratio of males to females in the family is 2 :1

10. How much profit was earned ?

I. 20% profit would have been earned if it had been sold for Rs. 90

II. The profit was one-third of the purchase price

11. What is the rate of simple interest per annum?

I. The sum triples in 20 years at simple interest

III. The sum is Rs. 3000.

12. What is the sum which earned interest ?

I. The total simple interest was Rs. 7000 after 7 years.

II. The total of sura and simple interest was double the sum after 5 years.

13. What is the length of the train which crosses a stationary man in 5 secs.

I. The train crosses a 150 mtr long platform in 20seconds.

II. The speed of the train is 36kmpn

14. 15 men and 18 women together can complete a work in 10 days. How many days will it take 9 men and 14 women together to complete the same work ?

I. 30 men can complete the work in 13 days.

II. The amount of work done by a man is three fourth of the work done by a woman in one day.

15. The area of a square is equal to that of a circle. What is the circumference of the circle ?

I. The diagnol of the square is X inches.

II. The side of the square is Y inches.

Questions 16-20 : In the following questions, which of the following statements is/are sufficient to get the answer

16. What is the value of x ?

I. $2x + 3y = 28$ II.$x+5y = 35$ III. $7x - y = 29$

1. Any one statement is sufficient
2. I and II are sufficient
3. All are required
4. Any two are sufficient
5. None of these

17. What is the length of the train ?

I. It crosses a pole in 12 seconds.

II. It crosses a bridge of 2000m in 30 seconds.

III. The train's speed is 50 kmph more than that of another train.

1. Any two are sufficient
2. Any one statement is sufficient
3. I and II are sufficient
4. I and III are sufficient
5. II and III are sufficient

18. In how many days can A do a work alone ?

I. B can do the same work in 20 days alone

II. C can do the same work in 30 days alone

III. A,B and C can do the same work together in 5 days.

1. Any one statement is sufficient
2. I and II are sufficient
3. All are required
4. Any two are sufficient
5. None of these

19. What is the volume of a solid sphere?

I. Its volume and surface area are numerically equal
II. The sphere is made of copper
III. The total cost of painting the sphere at Rs 20 per

1. Only I
2. Only I or Only III
3. Both I and III together are required
4. Cannot be determined
5. None

20. How is Priya related to Karan?

I. Priya is the only granddaughter of Karan's father
II. Priya has only one brother
III. Karan is the only son of his father

1. All are required
2. I and II are sufficient
3. I and III are sufficient
4. II and III are sufficient
5. Using all the three statements also, relation cannot be estalished

Questions 21-25 : In the following questions which of the statements is/are redundant to get the answer and can be dispensed with.

21. What is the area of the rectangle ?

I. It's length is 30m.
II. It's breadth is 40m.

1. Any one 2. Any two 3. Only III 4. Both I and II
5. None of these

22. What is the gender of A?

I. A has sister only
II. A is very intelligent
III. A's parent have no sons

1. Any one 2. Any two 3. Only III 4.Only II
5. Both I and II

23. What is the value of Y?

I. $2x + 3y = 18$ II. $x - 4y = 1$ III. $6x + 9y = 54$

1. Any I 2. Only I 3. Only II 4. Either I or III

5. I or II or III

24. In how many days can A do a work alone?

I. A can do half that work in 25 days.

II. A can do it 20% faster than B

III. B can do it in 60 days

1. Both II and III
2. only I
3. Either I or II and III together
4. All the three statements
5. None

25. What is the measure of the edge of a cube?

I. Volume of the cube is 216 cu.cm

II. Total surface Area of the cube is 216 cu.cm

III. The diagonal of the cube is

1. Any one 2. Any two
3. All of them 4. None of them
5. Only III

Data Analysis

(Classroom Handout.

Directions (Q. 1- 5.:

Total population of a village is 35000. Out of these 70% are literate. 44% of the total population are females. Out of the total illiterate population, males and females are in the ratio of 28:47 respectively.

1. What is the ratio between illiterate and literate females respectively?

1. 63:47 2. 47:63 3. 16:47 4. 47:16 5. None of these

2. Out of the total literate population what is the ratio between males and females respectively?

1. 17:8 2. 8:17 3. 9:16 4. 16:9 5. None of these

3. What is the total number of male population?

1. 15400 2.18600 3.17800 4. 19400 5. None of these

4. If 5% of the male literate population are graduates, how many male graduates are there in the village?

1. 784 2. 196 3. 980 4. 120 5. None of these

5. What is the total number of illiterate females?

1. 6850 2. 6480 3. 6580 4. 8820 5. None of these

Directions (Q. 6 - 10.: Read the following data to answer the questions that follow:

In a class of 106 students, each student studies at least one of the three subjects Maths, Physics and Chemistry. 48 of them study Maths, 51 Physics and 53 Chemistry. 16 study Maths and Physics, 17 study Maths and Chemistry and 18 study " Physics and Chemistry.

6. The number of students who study' exactly two subjects is

1. 31 2. 32 3. 33 4. 36 5. None of these

7. The number of students, who study more than one

   1.39 2. 41 3.40 4.42 5. None of these

8. The number of, students who study all the three subjects is

   1. 5 2. 6 3. 7 4.4 5. None of these

9. The number students who study exactly one subject is

   1. 45 2. 55 3. 65 4. 70 5. None of these

10. The Member of students who study Physics and Maths but not Chemistry is

    1.9 2.11 3. 10 4. 12 5. None of these

Directions (Q. 11 **-15.:** Answer these questions on the basis of the information given below:

(i. In a class of 80 students the girls and the boys are in the ratio of 3 : 5. The students can speak only Hindi or only English or both Hindi and English.

(ii. The number of boys and the number of girls who can speak only Hindi is equal and each of them is 40% of the total number of girls.

(iii. 10% of the girls can speak both the languages and 58% of the boys can speak only English.

11. How many girls can speak only English?

    1. 12 2.29 3. 18 4. 15 5. None of these

12. How many boys can speak Hindi?

    1. 12 2.9 3. 24 4. Data Inadequate 5. None of these

13. What percentage of all the students can speak only Hindi?

    1. 24 2. 40 3.50 4. 30 5. None of these

14. How many students can speak both the languages?

    1. 15 2. 12 3. 9 4. 29 5. None of these

15. How many boys can speak either only Hindi or only English?

    1.25 2. 38 3.41 4.29 5. None of these

Directions (Q. 16 - 20.: Study the following information carefully and answer according:

A survey was conducted among 770 people who speak one or more languages from among Hindi, English and Urdu. It was also found that 500 speak Hindi, 400 English and 300 Urdu.

(i. 30% of the Urdu-speaking people speak all three languages, which is 10% less than those who speak Hindi and English both but not Urdu.

(ii. No. of people who speak Hindi and Urdu both but not English is 33 1/3 % less than the no.of people who speak only-English.

(iii. No.of people who speak English and Urdu both but not Hindi is 30.

16. How many people speak only Hindi?

    1. 190 2. 170 3. 120 4. Can’t be determined

    5. None of these

17. How many people speak only English?

    1. 190 2. 100 3.90 4. Can’t be determined

    5. None of these

18. How many people speak Hindi and Urdu both but not English?

    1. 180 2. 120 3. 90 4. 150 5. None of these

19. By what per cent the no.of people who speak only Urdu is less than those who speak Hindi and English both but not Urdu?

    1. 66 2/3% 2. 33 1/3% 3. 40% 4. Can't be determined 5. None of these

20. What per cent is the no. of people who speak only English of those who speak all languages? .

    1. 50% 2. 100% 3.200% 4. Can't be determined

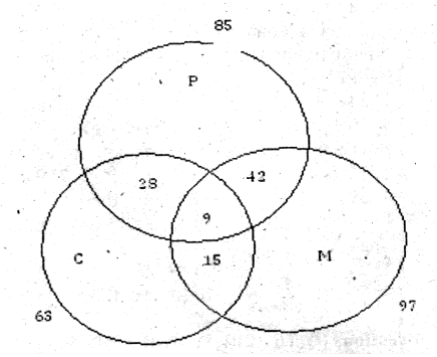
    5. None of these

Directions (Q. 21 - 25.: The diagram below represents the number of students who passed.

P= Physics C= Chemistry

M= Mathematics

Class strength = 260



21. What is the percentage of students who have failed in all three subjects?

    1. 58.2 2. 45.4 3.35.3 4. 22.5 5. 54.6

22. What is the approximate percentage of students who have passed in two or more subjects?

    1. 33 2. 29 3. 36 4. 25 5. 20

23. What is the percentage of students who have failed in at least one subject?

    1. 96.5 2. 5.8 3. 65.0 4. 75.5 5. 3.5

24. Which pair of subjects has the maximum number of students who passed in at least ope of them?

    1. Physics, Chemistry 2. Physics, Mathematics

    3. Chemistry, Mathematics 4. Can't be determined

    5. None of these

25. To be promoted to the next class it is essential to pass in Mathematics and at least in one of Physics and Chemistry. How many students are promoted to the next class?

    1.661 2. 160 3. 97 4. 48 5. Can't be determined

    Directions (Q. 26-30.:.

    200 CAT crackers were called for GD & PI in IIM Ahmedabad. During the Interview, 105 participants were offered tea, 56 coffee and 50 cool drinks. There were 32 participants who were offered tea and cool drinks, and at the same time 45 participants were offered tea and coffee. Also 30 participants were offered coffee and cool drinks.

26. Find the maximum possible number of participants who were offered all the three drinks.

    1. 23 2. 13 3. 30 4. 32 5. Can't say

27. Find the minimum number of participants who offered all the three drinks.

    1. 19 2. 43 3. 32 4. 30 5. Can't say

28. Find the minimum public number of participants who were offered no drink

1. 56 2. 66 3. 76 4. 73 5. Can't say

29. Find the maximum number of participants who were offered no drink,

1. 53 2. 66 3. 55 4. 77 5. Can't say

30. If 25 participants were offered all the drinks then how many were not offered any drink.

1. 79 2. 81 3. 71 4. 89 5. Can't say

Directions (Q. 31- 35.:

The students of a school have an option to study only Hindi, only Sanskrit or a composite subject Hindi and Sanskrit. Out of 175 students in the school, boys and girls are in the ratio of 3 : 4 respectively. 40% of boys have opted for only Hindi. 44% of the students have opted for only Sanskrit. Out of the total number of girls 32% have opted for the composite subject. The number of boys who opted for only Sanskrit and that for composite subject are in the ratio of 2 : 1 respectively.

31. What is the ratio between the number of boys who have opted for only Hindi and the number of girls who have opted for the composite subject respectively?

1.15:16 2.10:7 3.10:9 4.11:12 5. None of these

32. How many boys have opted for the composite subject?

1. 30 2. 15 3. 21 4. 32 5. None of these

33. How many girls have opted for only Sanskrit?

1. 72 2. 47 3. 51 4. 77 5. None of these

34. What is the ratio of the number of girls opting for only Sanskrit to the total no of students opting for the composite subject?

1.2:1 2.1:2 3.1:1 4.47:32 5. None of these

35. How many girls opted for only Hindi?

1. 32 2.47 3. 11 4.21 5. None of these

Directions (Q. 36-40.:

The average age of Ramesh, Sushant, Vijay, Neel, Amit and Rodney is 58 years. Amit and Vijay's total age is 124 years. Sushant is thrice Neel's age. The average age of Ramesh and Rodney is 52 years. Vijay is four years younger than Sushant. The ages of Ramesh and Rodney are in the ratio of 29:23.

36. Who among the following is the youngest?

1. Rodney 2. Ramesh 3. Vijay 4. Neel 5. Amit

37. What is the average age (in years. of Sushant, Neel, Vijay and Amit?

1. 244 2. 61 3. 40.66 4. 48 5. None

38. In how many years will Neel be exactly half of Vijay's present age?

1. 4 2. 20 3. 13 4. 18 5. None

39. What is the ratio of the ages of Amit and Neel?

1. 19:15 2. 29:21 3. 17:18 4.13:11 5. None of these

40. How old is Vijay (in years.?

1. 82 2. 66 3. 58 4. 74 5. None

PROFIT & LOSS

(Classroom Handout.

1. Ajay buys a phone for Rs 2400 and sells it for Rs 2700. What is his gain percent?

   a. 11 1/9 b. 10 c. 30 d. 12.5 e. None

2. A man sells an article at 10%Joss. If he gets Rs 1530, what was his purchase price?

   a. Rs 1477 b. Rs 1700 c. Rs 1683 d. Rs 1800 e. None

3. A trader sells 2 items for Rs. 2,97,000 each. On one he gains 10% and on the other, he loses 10%. Find his overall profit or loss?

   a. Rs 2000 b. Rs 3000 c. Rs 4000 d. Rs 3960 e. None

4. If an article is sold at a gain of 6% instead of at a loss of 6% then the seller gets Rs 6 more. The cost price of the article is

   a. Rs 50 b. Rs 94 c. Rs 100 d. Rs 106 e. None

5. Sheela buys eggs at Rs X per dozen and sells them at 8 times that price per hundred. What is the percentage profit or loss?

   a. 16% profit b. 4% profit c. 4% loss d. 16% loss e. None

6. A buys oranges at 9 for Rs 16 and sells them at 11 for Rs 20. What is the .gain or lose in percentage?

   a. 2 3/13% Profit b.3 2/11% profit c.2 5/12% loss d. 3 5/12% profit

   e. None

7. A hawker buys 12 dozen articles at Rs x a dozen and sells 8 dozen at Rs 3x/2 a dozen and 4 dozen at Rs x/2 a dozen. Find his gain/loss%?

   a. 16 2/3% toss b. 16 2/3% profit

   c. No gain no loss d. Can't be determined

   e. None

8. Krishna buys three articles at Rs 800 each. He sells the first at 15% profit and the second at 20% loss. What should be his percentage profit on the third article to ensure that he makes an overall profit of 10%?

   a. 30% b. 35% c.40% d. 25% e. None

9. Satish marks his goods 25% above cost price but allows 12.5% discount for cash payment. If he sells the article for Rs 875, find his cost price?

   a. Rs 775 b. Rs 800 c. Rs 825 d. Rs 850 e. None

10. Goods are sold so that when 2% is taken off the SP a profit of 40% is realized. By What percentage is the sale price higher than the cost price?

    a. 66 2/3% b. 42 6/7% c. 51% d. 30% e. None

11. A trader had 100 kgs of sugar, part of which he sold at 8% profit and the rest at 18% profit. He gained 10% on the whole. How much did he sell at 18% profit?

    a. 80 kg b. 20 kg c. 35 kg d. 1.44 kg e. None

12. Anand purchased milk at the rate of Rs 2/Ltr and added 25% water to it. If he sold the milk at Rs 2.50 per litre, what is his profit as a percent of his cost?

    a. 58.25% b. 75% c. 62.25% d. 86% e. None

13. The profit made on selling an article for Rs 475 is Rs 10 more than the loss incurred when it is sold for Rs 335. What is the cost price of the article?

    a. Rs 410 b. Rs 390 c. Rs 405 d. Rs 400 e. None

14. By selling toffees at 20 a rupee, a man loses 4%. To gain 20% he must sell toffees for one rupee?

    a. 16 b. 20 c. 64 d. 25 e. None

15. Harish bought eggs at the rate of 5 for Rs 7 and sold them at the rate of 7 for Rs 10 and made Rs 2450 in the business. How many eggs did he deal in?

    a. 87550 b. 80570 c. 85750 d.85050 e. None

16. A publisher sells 15 copies of a book at the printed price of 12 copies to a bookseller. The bookseller sells them at the printed price. Find the gain % of the bookseller.

    a. 15% b. 20% c. 25% d. 30% e. None

17. The cost price of four qualities of tea are Rs 12, Rs 15, Rs 18 and Rs 21 per 100 gm respectively. If they are mixed in the ratio of 4:3:2:1, the SP of the mixture per kg in order to make a profit of 10% will be

    a. Rs 16,50 b. Rs 165 c. Rs 17 d. Rsl70 e. None

18. A person s.old a book for Rs 450. If the profit he got was equal to the cost price, find his cost price?

    a. Rs 200 b. Rs 250 c. Rs 225 d. Rs 400 e. None

19. A person sold his watch for Rs 75 and got a percentage profit equal to the cost price. Find the cost price of the. watch.

    a. Rs 49 b. Rs 50 c. Rs 55 d. Rs 60 e. None

20. What profit% is made by selling an article at a certain price, if by selling it at half that price there would be a loss is of 12.5%?

    a. 70% b. 60% c. 75% d. 65% e. None

21. A man sells sugar to a trademan at a profit at 20% but the tradesmen becoming bankrupt pays only 72 paise in the rupee. How much % does the man gain or lose by his sale?

    a. 13 3/5% loss b. 13 3/5% profit c. 12 2/9% profit d. 12 2/9% loss

    e. None

22. A reduction of 40% in the price of eggs would enable a man to obtain 56 more eggs for Rs 10. What is the reduced price?

    a. 14 for a rupee b. 10 for a rupee c. 19 for a rupee d. 25 for a rupee

    e. None

23. A man buys 20 pens and 12 books for Rs 320. He sells pens at a profit of 40% and books at a gain of 25%. If his overall profit was Rs 95 the cost price of the book is.

    a. Rs 10 b. Rs 18 1/3 c. Rs 22 1/3 d. Rs 15 1/3 e. None

24. A person sold a horse at a gain of 15%. Had be bought it for 25% less and sold it for Rs 60 less, he would have made a profit of 32%. Find the cost price of the horse?

    a. Rs 375 b. Rs 350 c. Rs 325 d. Rs 300 e. None

25. A man purchases a certain number of toffees at 25 a rupee and the same number at 20 a rupee. He mixes them together and sells them at 45 for Rs 2. What percent does he gain or lose in the transaction?

    a. 1 13/23% loss b. 1 2/3% loss c. 1 19/81% loss d. 1 11/13% loss

    e. None