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First Term Exam 2081

Time: 3hrs **F:M=75**

Class:- 10 **Sub:- C.Math** **P:M=**

Attempt all questions.

1.In a survey of 500 students of a school , 300 liked Swargadwari, 200 liked Supadeurali and 50 liked both places , then :

a. Write the number of students who liked Swargadwari in set notation. 1

b. Compute the number of students who liked neither of two places. 3

c. Identify the number of students who likes only one place. 1

d. If the students who did not like both the places liked swargadwari,what would have been the ratio of number of students who like Swargadwari only and Supadeurali only? 1

2. In a group of 150 people , 120 like to play volleyball and 85 like to play football. If 25 like to play none of the games.

a. Write the given information in set notation. 1

b. How many people like to play both the games? 3

c. How many people who like to play volley ball only? 1

d. Compare the number of people who like to play atleast one game and almost one game. 1

3. Out of 65 players, 11 play cricket only and 33 play basketball only, If the number of players who play basketball is twice the number of players who play cricket.

a. State the relation among n(A) , no(A) and n(A∩B) in the two overlapping sets A and B. 1

b. By using a venn- diagram , compute the number of players who play both the games and who do not play any of the games. 3

c. Identify the number of players playing cricket. 1

d. Garima said that 25% of the number of players who play basketball is same as the number of players who play cricket only . Justify that her statement is not false . 1

4. In a survey conducted to determine suitable educational trips for students studying in class 10 at Shree Saraswati Secondary School , it was found that 240 students considered Kathmandu , to be suitable , 180 students considered chitwan to be suitable and 270 students considered Darjeeling to be suitable . When 90 students from the class said that all three are suitable destinations, 30 students did not provide any opinion and no one likes only two places.

a. If K,C and D denote the set of students who prefer Kathmandu , Chitwan and Darjeeling respectively, Write the cardinality notation of the set of students for whom all places are suitable . 1

b. Respresent the above information in a Venn-diagram . 1

c. How vmany students are studying in class 10 in Saraswati Secondary School ? 3

d. In a survey , suppose out of those 30 students who didn't express their opinion indicate chitwan as the best place then that would be the ratio of students who consider only Kathmandu to be the students who consider only chitwan as the suitable destination. 1

5. In a Survey of 100 people , it was found that 65 liked orange , 45 liked apples, 40 liked mango , 25 liked orange as well as apple ,20 liked orange as well as mango , 15 liked apple as well as mango and 5 like all three fruits.

a. Write the cardinality of universal set . 1

b.How many people didn't like all the fruits? 3

c. What is the value of only one? 1

d. What Percent of people liked orange or apple but not mango ? 1

6. A Farmer visits to identify the interest rates provided by different local banks to deposit his money Rs. 5,00,000 for 2 years . In this way he found the following interest rates.

Garima Bank	Kamana Sewa Bank	Nepal Bank
Annual compound interest	Semi-annual compound interest	Simple interest
10% P.A	8% P.A	12% P.A

a. Find the interest that Garima Bank provides. 2

b. What is the interest that kamana sewa Bank provide? 2

c. Find the interest that Nepal Bank provide ? 2

d. In which bank do you suggest the farmer to deposite his money and why ? 1

7. A Sum of money amounts to Rs 12,100 and Rs 13,310 in 2 years respectively at a certain rate of interest compounded annually.

a. If the simple interest of Rs.400 in 1 year is Rs 40, then what is the annual compound interest ? 1

b. What should be the rate of compound interest ? 2

c. What should be the principal ? 2

d. Compare simple interest and quarterly compound interest of the sum of 1 year at the same rate of interest ? 1

8. A person deposited Rs 2,00,000 in a development bank for 2 years to get the half yearly compound interest at the rate of 10% per annum after deducting the 5% tax on the interest . But right after a year , bank has changed the policy and decided to accomplish the interest terminally at the same rate of interest.

a. Write the formula to find the semi -annual compound interest . 1
b. Find the interest of the first year by deducting the tax . 2
c. What would be the interest of the second year after deducting the tax ? 2
d. What is the difference between interests of the first year and second year after deducting the tax ? 1
e. After deducting the tax , by what percentage the interest of the first year difer from the interest of the second year ? 1

9. A man borrowed Rs 18000 for 2 years at 12% p.a compounded annually . He paid only half of the principal after 2 years and remaining principal and interest at the same rate but compounded semi -annually after next two years.
a. How much money was paid at the end of two years ? 2
b. Find the amount at the end of first two years. 2
c. In the end , he went to clear the debt by taking amount of Rs.9000 How much amount will there be a Saving or shortage ? solve it . 2

10. A man bought a land at Rs.80,00,000 and started construction of a house on the same day . The construction of the house completed at the cost of Rs.2,70,00,000. The price of land increased at the rate 20% per year and the price of house decreased at the rate of 20% per year.
a. What does R indicate in the price after T years (P_T) = P=(1+$\frac{R}{100}$)T ? 1
b. What will be the price of the land after 2 years ? 2
c. What will be the price of the house after 2 years? 2
d. Will the prices of the land and house be the same after 2 years? If not in how many years will the prices of land and house be equal? 2

11. The population of a town at the end of the year 2020 AD was 1,50,000 . If the population increases during next three years be at the rate of 5% , 6% and 4% respectively.
a. Find the population of the town at the end of 2022 AD. 2
b. What will be the population of the town at the end of 2023 AD ? 2
c. If the population of the town was increased by 6% p.a in all three years then how much more would be the population of the town ? 2

12. Rajan has Rs 2,00,00,000. Rajan purchased a car for Rs.60,00,000 and a land for Rs .1,40,00,000 for 2 years .the price of the car has been decreasing at a compound rate of 5% per annum , while the price of land has been increasing at a certain compound rate.
a. Write the formula to find out the compound depreciation . 1
b. What will be the price of car after 2 years ? Find it . 2
c. After 2 years , if the total price of land and car is Rs.2,11,45,400 then what is the of compound growth in the price of land ? Calculate it . 3