Complete Assignment Questions

1. Define and differentiate between rational and irrational numbers with suitable examples.

2. Explain the divisibility rule of 7 with an example.

3. Find the LCM and HCF of 144 and 180 using prime factorization.

Unit 2: Averages and Progressions

4. The average of 7 numbers is 42. If one number is removed, the new average becomes 40. Find the number that was removed.

5. Find the sum of the first 20 terms of an arithmetic progression where the first term is 4 and the common difference is 3.

6. Find the 10th term of a geometric progression where the first term is 2 and the common ratio is 3.

Unit 3: Directions & Seating Arrangements

7. A person walks 30 meters towards the North, then turns right and walks 20 meters. After that, he turns left and walks 10 meters. What is the shortest distance between his starting and ending points?

8. Six people-A, B, C, D, E, and F-are sitting in a row. A is to the right of B but to the left of C. D is sitting at one end, and E is at the other end. Who is sitting in the middle?

9. A woman walks 5 km to the East, then 4 km to the North, then 6 km to the West, and finally 4 km to the South. How far is she from her starting position and in which direction?

Unit 4: Permutations, Combinations, and Probability

10. How many different 5-letter words can be formed using the letters of the word 'EQUATION,' where each letter is used exactly once?

11. A bag contains 5 black and 6 red balls. Determine the number of ways in which 2 black and 3 red balls can be selected.

12. Find the probability of drawing a face card (King, Queen, or Jack) from a standard deck of 52 playing cards.

Unit 5: Ratio & Proportion, Problems on Ages, and Percentage

13. Two numbers are in the ratio of 5:9. If each number is decreased by 5, the ratio becomes 5:11. Find the numbers.

14. A father is three times as old as his son. After 8 years, he will be two and a half times the age of his son. Find the present age of both.

15. In an election between two candidates, one gets 55% of the total valid votes. If 20% of the total votes were invalid and the total number of votes was 7500, find the number of valid votes that the other candidate received.

Unit 6: Time & Work, Pipes & Cisterns, Speed & Distance, Trains, Boats & Streams

16. A and B can complete a piece of work in 12 and 16 days respectively. If they work together, how many days will they take to complete the work?

17. A pipe can fill a tank in 10 hours, while another pipe can empty the same tank in 15 hours. If both pipes are opened together, in how many hours will the tank be filled?

18. A boat can row 24 km downstream in 3 hours and takes 4 hours to cover the same distance upstream. Find the speed of the boat in still water and the speed of the stream.