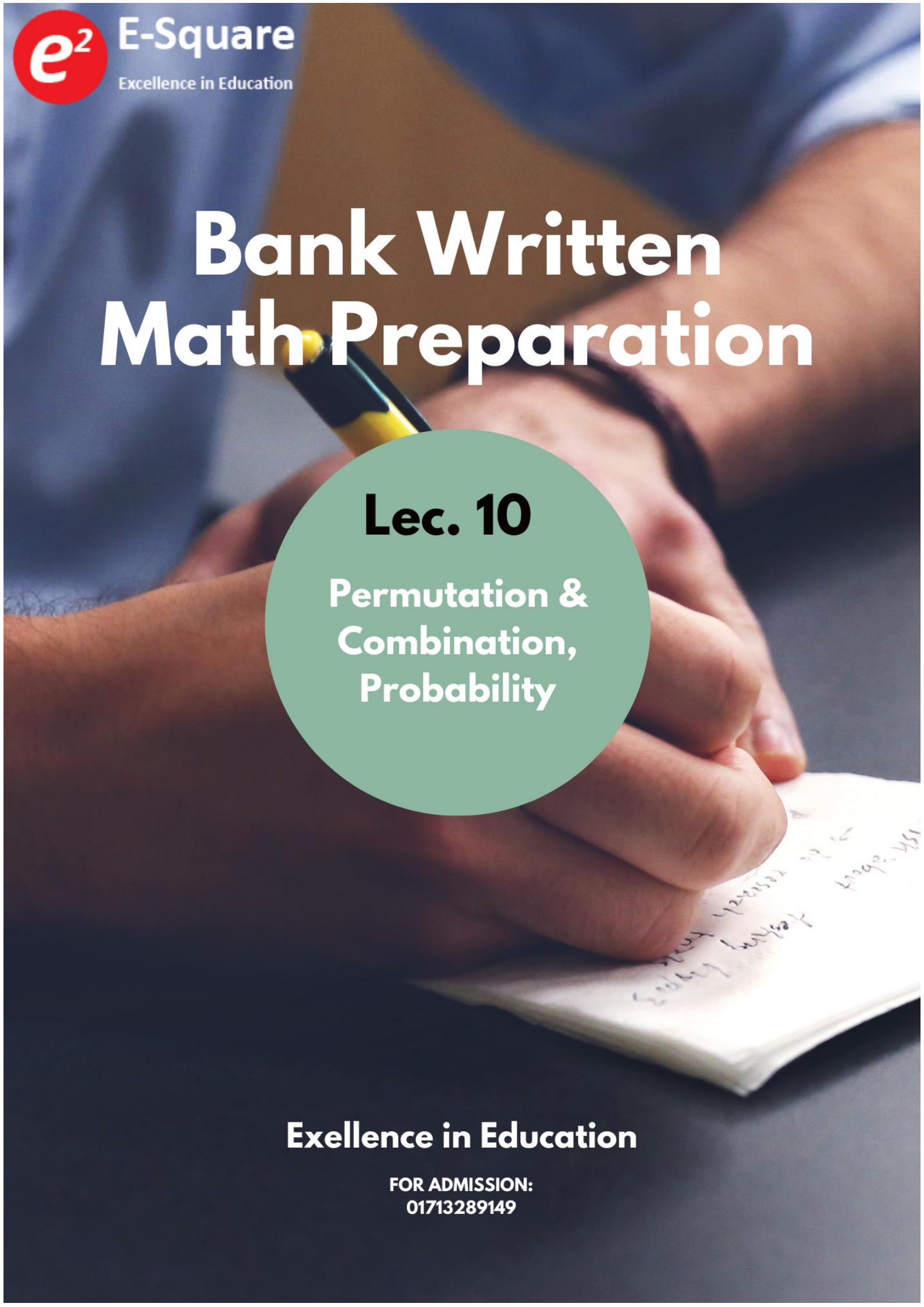
E-Square

Excellence in Education

Bank Written Math Preparation

Lec. 10

Permutation & Combination, Probability



Exellence in Education

FOR ADMISSION:
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CLASS WORK

1. How many arrangements can be made with the letters of the word MATHEMATICS? (38th BCS, written)
Ans : 11!/(2! × 2! × 2!)

2. In how many different ways can the letters of word 'FRACTION' be arranged so that the vowels always come together?
Ans : 4,320

3. In how many different ways can the letters of word 'COURAGE' be arranged so that the vowels always come at first? (35th BCS, written)
Ans : 2880

4. A committee consist of 3 members. If there are 7 men and 5 women available to serve on the committee. How many different committee can be formed? (BKB - CO : 2018)
Ans : 220 ways

5. A committee of 5 is to be formed from 6 male students and 5 female students. In how many ways can this be done so that the committee contains at least one male and one female student? (Rupali Bank : 2018 ; SBL - 2018)
Ans : 455 ways

6. A box contains 10 balls out of which 3 are red and rest are blue. In how many ways can a random sample of 6 balls be drawn from the bag so that at the most 2 red balls are included in the sample and no sample has all the 6 balls of the same color?
Ans : 168

7. How many ways 4 letters can be selected from 'COMBINATION'? (38th BCS, written)
Ans : 136

8. At a party, everyone shook hands with everybody else. If there were 66 handshakes, how many people were at the party? (RAKUB - SO : 2015 ; JBL - 2014 ; Bangladesh Bank - AD : 2012)
Ans : 12

9. How many ways are there to divide 50 people into 3 groups so that each group contains members equal to a prime number? (Bangladesh Bank - officer : 2018)
Ans : 5 ways

SELF PRACTICE

10. From a group of 7 men and 6 women, five persons are to be selected to form a committee so that at least 3 men are there on the committee. In how many ways can it be done?
Ans. 756

11. A box contains 3 white balls, 4 black balls and 5 yellow balls; In how many ways can 4 balls be drawn from the box, if at least one yellow ball is to be included in the draw?
Ans. 460

12. A select group of 4 is to be formed from 8 men and 6 women in such a way that the group must have at least 1 woman. In how many different ways can it be done?
Ans. 931

13. A committee of 5 members is to be formed out of 3 trainees, 4 professors and 6 research associates. In how many different ways can this be done, if the committee should have 4 professors and I research associate of all 3 trainees and 2 professors?
Ans. 12

14. A box contains 2 white, 3 black and 4 red balls. In how many ways can 3 balls ber drawn from the bolx, if at least 1 black ball is to be included in the draw?
Ans. 64

15. In an examination paper, there are two groups each containing 4 questions. A candidate is required to attempt 5 questions but not more than 3 questions from any group. In how many ways can 5 questions be selected?
Ans. 48

16. In party there is a total of 120 handshakes. If all the persons shakes hand with every other person. Then find the number of person present in the party.
Ans. 16

17. In the next World cup of cricket there will be 12 teams, divided equally in two groups. Teams of each group will play a match against each other. From each group 3 top teams will qualify for the next round. In this round each team will play against each other's once. Four top teams of this round will qualify for the semifinal round. Two top teams of this round will go to the final round, where they will play the best of three matches. The Minimum number of matches in the next World cup will be:
Ans. 53

18. First bag contains 4 red and 3 black balls. Second bag contains 2 red and 4 black balls. One bag is selected at random. From the selected bag, one ball is drawn. Find the probability that the ball drawn is red.
[Combined 4 Banks Officer–2019]

Ans. $\frac{19}{42}$

19. A brother and sister appear for an interview against two vacant posts in an office. The probability of the brother's selection is $\frac{1}{5}$ and that of the sister's selection is $\frac{1}{3}$. What is the probability that one of them is selected?

Ans. $\frac{2}{5}$

20. Bag x contains 3 red and 5 black balls and bag y contains 4 red and 4 black balls. One bag is selected at random and from the selected bag one ball is drawn. What is the probability that the ball drawn is red?
Ans. $\frac{7}{16}$

21. In a box, there are 10 apples and $\frac{2}{5}$th of the apples are rotten. If three apples are taken out from the box, what will be the probability that at least one apple is rotten. [BB-AD (Reasearch)–2019]
Ans. $\frac{5}{6}$

22. In a drawer there are 4 white socks, 3 blue socks and 5 grey socks. Two socks are picked randomly. What is the possibility that both the socks are of same color?
Ans. $\frac{19}{66}$

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