

# Indian Institute of Science Education and Research Mohali

## MTH202: Midsem-1

Course Instructor: Krishnendu Gongopadhyay & Lingaraj Sahu

01.02.2023

Time: 9:30–10:30

Answer the following questions.

- (1) In rolling 3 fair (six faced) dice, what is the probability  $P(E)$  of the event  $E$  of obtaining a sum not greater than 16? Are the event  $F$  of obtaining exactly one 5 and the event  $E^c$  independent? (2+2 pts)
- (2) A box contains 10 apples, three of which are defective. Four apples are drawn at random and without replacement. Find the probability that at least two of the four apples are defective. (4 pts)
- (3) A letter is known to have come either from TATANAGAR or from CALCUTTA. On the envelope just two consecutive letters 'TA' are visible. What is the probability that the letter came from CALCUTTA? (3 pts)
- (4) A box of contains 20 articles. The probability that the lot contains exactly 2 defective articles is 0.4 and the probability that the lot contains exactly 3 defective articles is 0.6. Articles are drawn from the lot at random one by one without replacement and are tested till all defective articles are found. What is the probability that the testing procedure ends at the twelfth testing? (4 pts)