1. Five balls of different colours are to be placed in three boxes of different sizes. Each box can hold all five balls. In how many ways can we place the balls so that no box remains empty?

   (1) 50
   (2) 100
   (3) 150
   (4) 200

2. Numbers of ways in which at least three fruits be selected out of 20 fruits in which 10-mangoes, 5-apples, 2-oranges and rest are different are

   (1) 1583
   (2) 1577
   (3) 1559
   (4) none of these

3. If $a,\ b,\ c \in N$, The number of points having position vector $a\hat{\mathbf{i}} + b\hat{\mathbf{j}} + c\hat{\mathbf{k}}$ such that $6 \leq a + b + c \leq 10$, is

   (1) 110
   (2) 116
   (3) 120
   (4) 127

4. Four different movies are running in a town. Ten students go to watch these four movies. The number of ways in which every movie is watched by atleast one student, is (Assume that each way differs only by the number of students watching a movie.)

   (1) 68
   (2) 72
   (3) 84
   (4) 104

5. If $33!$ is divisible by 2^n, then the maximum value of n is equal to

   (1) 30
   (2) 31
   (3) 32
   (4) 33

6. Let T_n denote the number of triangles which can be formed using the vertices of a regular polygon of 'n' sides. If $T_{n+1} - T_n = 21$, then 'n' equals

   (1) 5
   (2) 7
   (3) 6
   (4) 4

7. If a polygon of n sided has 275 diagonals, then n is equal to

   (1) 25
   (2) 35
   (3) 20
   (4) 15

8. Number of rectangles in the grid shown which are not squares is:

   (1) 160
   (2) 162
   (3) 170
   (4) 185

9. Sum of digits in the unit's place formed by the digits 1, 2, 3 and 4 taken all at a time is

   (1) 30
   (2) 60
   (3) 59
   (4) 61

10. The sum of all the four digit numbers which can be formed using the digits 6, 7, 8, 9 (repetition is allowed)

   (1) 2133120
   (2) 2133140
   (3) 2133150
   (4) 2133122