**Binomial, Permutation & Combination, A.P. & G.P.**

# Time: 1 hour 10 minutes Total Marks:30

**General Instructions:**

1. *Answers to this Paper must be written on the paper provided separately.*
2. *You will not be allowed to write during the first 10 minutes. This time is to be spent in reading the question paper.*
3. *The time given at the head of this Paper is the time allowed for writing the answers.*
4. *Attempt any 10 questions, each question carries 3 marks.*

**[ 3 ]**

**1. Evaluate ()6 - ()6.**

**[ 3 ]**

**2. Find the value of (2 + )4 + (2 - )4.**

**[ 3 ]**

**3. Find n, if the ratio of the fifth term from the beginning to the fifth term from the end in the**

**expansion of ()n is .**

**[ 3 ]**

**4. Find the expansion of (3x2 – 2ax + 3a2)3 using binomial theorem.**

**[ 3 ]**

**5. How many words, with or without meaning, can be formed using all the letters of the word**

**EQUATION at a time so that the vowels and consonants occur together?**

**[ 3 ]**

**6. If the different permutations of all the letter of the word EXAMINATION are listed as in a**

**dictionary, how many words are there in this list before the first word starting with E?**

**[ 3 ]**

**7. Determine the number of 5-card combinations out of a deck of 52 cards if each selection of 5**

**cards has exactly one king.**

**[ 3 ]**

**8. In how many ways can the letters of the word ASSASSINATION be arranged so that all the**

**S’s are together?**

**[ 3 ]**

**9. Show that the sum of (m + n)th and (m – n)th terms of an A.P. is equal to twice the mth term.**

**[ 3 ]**

**10. Find the sum of all numbers between 200 and 400 which are divisible by 7.**

**[ 3 ]**

**11. If = = (x 0) then show that and are in G.P.**

**[ 3 ]**

**12. The *p*th , *q*th and *r*th terms of an A.P. are respectively. Show that**

**[ 3 ]**

**13. If are in A.P.; are in G.P. and are in A.P. prove that are in G.P.**