# MATHEMATICS

**DPP**
DAILY PRACTICE PROBLEMS

# DPP No. 75

**Total Marks : 34**

**Max. Time : 34 min.**

**Topics : Permutation & Combination, Probability**

| Type of Questions | | M.M., Min. |
|---|---|---|
| Single choice Objective (no negative marking) Q.1,2,3,4,5,6,7 | (3 marks, 3 min.) | [21, 21] |
| Multiple choice objective (no negative marking) Q.8 | (5 marks, 4 min.) | [5, 4] |
| Fill in the Blanks (no negative marking) Q.9 | (4 marks, 4 min.) | [4, 4] |
| Subjective Questions (no negative marking) Q.10 | (4 marks, 5 min.) | [4, 5] |

**1.** A pair of fair dice is thrown independently three times. The probability of getting a score of exactly 9 twice is

(A) $\frac{1}{729}$ (B) $\frac{8}{9}$ (C) $\frac{8}{729}$ (D) $\frac{8}{243}$

**2.** If P(A) = 0.59, P(B) = 0.30, P(A $\cap$ B) = 0.21, then P(A′ $\cap$ B′) is equal to

(A) 0.79 (B) 0.11 (C) 0.32 (D) 0.38

**3.** Two non-negative integers are chosen at random, then the probability that the sum of their squares is divisible by 5 is

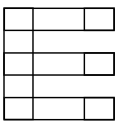
(A) $\frac{7}{25}$ (B) $\frac{8}{25}$ (C) $\frac{9}{25}$ (D) $\frac{5}{25}$

**4.** Suppose A and B shoot independently until each hits his target. They have probabilities $\frac{3}{5}$ and $\frac{5}{7}$ of hitting the targets at each shot. The probability that B will require more shots than A is

(A) $\frac{6}{31}$ (B) $\frac{7}{31}$ (C) $\frac{8}{31}$ (D) $\frac{1}{2}$

**5.** Number of ways in which A A B B B C can be placed in the squares of the figure as shown, so that no row remains empty, is :

(A) 9720
(B) 4860
(C) 2160
(D) 1620



**6.** A person throws dice, one the common cube and the other regular terahedron, the number on the lowest face being taken in the case of a tetrahedron. The chance that the sum of numbers thrown is not less than 5 is

(A) $\frac{1}{4}$ (B) $\frac{3}{4}$ (C) $\frac{4}{5}$ (D) $\frac{5}{6}$

**7.** If two events A and B are such that P($A^c$) = 0.3. P(B) = 0.4 and P(A $\cap$ $B^c$) = 0.5, then P(B/A $\cup$ $B^c$) =

(A) 0.9 (B) 0.5 (C) 0.6 (D) 0.25

**8.** The letters of the word PROBABILITY are written down at random in a row. Let $E_1$ denotes the event that two I's are together and $E_2$ denotes the event that two B's are together, then

(A) $P(E_1) = P(E_2) = \frac{3}{11}$ (B) $P(E_1 \cap E_2) = \frac{2}{55}$ (C) $P(E_1 \cup E_2) = \frac{18}{55}$ (D) $P(E_1/E_2) = \frac{1}{5}$

**9.** (i) The number of arrangements that can be made taking 4 letters, at a time, out of the letters of the word "PASSPORT" is _____

(ii) Probability that both S appear in such 4 letter words is _____

(iii) Probability that all letter are distinct in such 4 letter words is _____

**10.** Find the last digit of $(73)^{75^{64^{76}}}$ .

# Answers Key

**1.** (D) **2.** (C) **3.** (C) **4.** (A)

**5.** (B) **6.** (B) **7.** (D) **8.** (B)(C)(D)

**9.** (i) 606 (ii) $\frac{21}{101}$ (iii) $\frac{{}^{6}C_{4}.4!}{606}$ **10.** 3