
 <b>SURESH GYAN VIHAR UNIVERSITY</b> Accredited by NAAC with 'A' Grade		<b>INTERNAL ASSIGNMENT - 1</b>
<b>Course</b>	<b>BCA</b>	<b>Discrete Mathematics</b>
<b>Semester</b>	<b>3</b>	
<b>Total Marks:</b>	<b>15</b>	

**Q.1. Write answers for any two questions from below. (5 marks each – Word limit – 500)**

- A.** Show that the following pair of propositions are logically equivalent----  
 $\neg (p \wedge q)$  and  $\neg p \vee \neg q$  (ii)  $p \wedge q$  and  $q \wedge p$  (iii)  $p \vee (p \wedge q)$  and  $q$
- B.** Let  $A = \{k, l, m, n\}$ . Let  $R = \{(k, k), (l, l), (m, m), (k, l), (k, m), (l, m), (m, n), (n, k)\}$ ;  $S = \{(n, k), (n, l), (n, m), (m, k), (m, l), (l, k), (k, k)\}$ . Find the composition (a) ROR (b) SOS with diagram
- C.** A shop sells 9 different flavors of ice cream. In how many ways a customer can choose ice cream cones if a) they all are of different flavours b) they all are not necessarily of different flavours c) they contain different flavours.

**Q.2. Write short notes on all of the following topics (1 mark each - Word limit - 100)**

- A.** Matrix representation of graph
- B.** Eulerian graph
- C.** Composition of function
- D.** Coefficient
- E.** Derangement theorem

 <b>SURESH GYAN VIHAR UNIVERSITY</b> <small>Accredited by NAAC with 'A' Grade</small>		<b>INTERNAL ASSIGNMENT - 2</b>
<b>Course</b>	<b>BCA</b>	<b>Discrete Mathematics</b>
<b>Semester</b>	<b>3</b>	
<b>Total Marks:</b>	<b>15</b>	

**Q.1. Write answers for any two questions from below. (5 marks each – Word limit – 500)**

- A. How many solutions are there to equation  $X_1+X_2+X_3=17$ , where  $X_1, X_2, X_3$  are non-negative with  $X_1 < 6, X_3 > 5$ .
- B. Explain the principle of inclusion and exclusion with an appropriate example.
- C. Consider the group  $G=\{1,2,3,4,5,6\}$ , under the addition modulo 7, i) Find addition table of G ii) Obtain left and right coset of G

**Q.2. Write short notes on all of the following topics (1 mark each - Word limit - 100)**

- A. DeMorgan's Law
- B. Principle duality
- C. Group
- D. Conjunction
- E. Laws of the algebra of operation of sets