

H.N.G.U.-Patan
B.Sc.Sem-VI Examination-March/April-2017
Sub:Mathematics
Paper:ES: Business Mathematics-IV

Time: 2 Hours

Q:1 Attempt any Five

Total Marks:50

[25]

1. Prepare truth tables for the following statements
 (a) $(p \vee q) \wedge r$ (b) $p \wedge (\sim q)$
2. Without using truth table, check whether the following argument is logically valid or not
 Hypothesis: $S_1: p \vee q, S_2: (\sim p)$, conclusion : $S : q$.
3. Is 'For integers $x, x=2$ if and only if $x^2=4$ ' a true statement ?
4. Prove that $A - (B \cup C) = (A - B) \cap (A - C)$.
5. $n(A^3) = 8$ and Find $n(A)$.
6. Prove that $A \Delta B = A \Delta C \Rightarrow B = C$
7. If $A = \{3k | k \in \mathbb{N}\}, B = \{3k-1 | k \in \mathbb{N}\}, C = \{3k-2 | k \in \mathbb{N}\}$. Find $A \cup B \cup C$ and $A \cap B \cap C$.

Q:2 Attempt any Five

[25]

1. Find n if $7({}_n P_3) = 20[({}_{n+1} P_2)]$
2. Using every letter of the word 'TUESDAY' once, and only once, how many words can be formed whose last letter is 'S' ?
3. If $\binom{n}{7} = \binom{n}{5}$ then find the value of $\binom{n}{4}$
4. If $nPr = 120$ and $\binom{n}{r} = 20$, Find n and r .
5. Evaluate : $\binom{15}{8} + \binom{15}{9} - \binom{15}{6} - \binom{15}{7}$
6. $\binom{15}{r} : \binom{15}{r-1} = 11 : 5$ then find r .
7. $\binom{n+1}{r+1} : \binom{n}{r} : \binom{n-1}{r-1} = 11 : 6 : 3$. Find n and r .
