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KK-437

Seat No._____

B. Sc. (Sem. III) Examination

October / November – 2017

ES - MAT - 21 : Business Mathematics - I

(Elective Subject)

Time : **2** Hours] [Total Marks : **50**

1 Attempt any five : **25**

(1) Is the following argument logical or not ? (without truth table)

(hypothesis) $S_1 : p \Rightarrow q$, $S_2 : q \Rightarrow r$, $S_3 : p$,

(conclusion) $S : r$

(2) Is the following argument logical or not ? (using truth table) (hypothesis)

$S_1 : p \vee q$, $S_2 : p \Rightarrow (\sim q)$, $S_3 : p \Rightarrow r$,

(conclusion) $S : r$

(3) Prove that, if $x, y \in N$ and x and y are odd then xy is odd.

(1) By using direct method $p \Rightarrow q$

(2) By using method of contra positive $\sim q \Rightarrow \sim p$

(4) If $A = \{4k+1 \mid k \in N\}$ and $B = \{6k+1 \mid k \in N\}$ then find $A \cap B$ without finding elements of A and B.

(5) Prove that,

$n(A \Delta B) = n(A) + n(B) - 2n(A \cap B)$.

(6) Prove that,

(a) $A-(B\cup C)=(A-B)\cap(A-C)$

(b) $(A\cup B)-C=(A-C)\cup(B-C)$

(7) If $X-A=Y-A$ and $A\cap X=A\cap Y$ then prove that, $X=Y$.

2 Attempt any five : **25**

(1) $\binom{n-1}{r}:\binom{n}{r}:\binom{n+1}{r}=6:9:13$ find n and r.

(2) If $56P_{r+6}:5456P_{r+3}=30800:1$ then find r.

(3) Find the position of the word CHEMISTRY in dictionary order.

(4) In how many ways can seven digits numbers greater than 10,00,000 be formed using digits 1,2,0,2,4,2,4 ?

(5) How many five digits numbers divisible by 9 can be formed using 0, 1,2,3,4,7,8 ? (without repetition)

(6) How many different numbers can be formed using 223355888 in which even digit occur at even place ?

(7) A reception committee consisting of 6 students for the annual function of a school is to be formed from 8 boys and 5 girls. In how many ways can we do it if the committee is to contain

(i) at most 2 girls

(ii) at least 3 girls.
