BITT POLYTECHNIC

GETLATU, RANCHI

MATHEMATICS

SEMESTER – 1, BRANCH – ME

ASSIGNMENT NO – 1

(25 QUESTIONS)

VERY SHORT ANSWERS:

1. **FIND 5! =**
2. **$^{n}P_{r}$ =**
3. **$^{n}C_{r}$ =**
4. **FIND 10! / (2!*6!)=**
5. **FIND (n-1)! / { 5! * (n-6)!} =**
6. **FIND 15! =**
7. **FIND (18*16*15*15!) / (8! *5!*12*16) =**
8. **FIND r! / {5! * (r-1)!} =**
9. **FIND {8* (n-2)!} / { (n-5)! *5!} =**
10. **FIND {$^{n}C_{r-1}$ * $^{5}C_{3}$} / {$^{n-3}C_{r-2}$} =**

SHORT ANSWERS:

BY USING BINOMIAL THEOREM, FIND:

1. **$(a+b)^{2}$**
2. **$(a+b)^{3}$**
3. **$(a+b)^{4}$**
4. **$(a+b)^{5}$**
5. **$(2x+3)^{6}$**
6. **$(1- 1/x)^{7}$**
7. **$(5a-3b)^{8}$**
8. **$(x+ 1/2x)^{5}$**
9. **$(2a-3b)^{6}$**
10. **$(3m-5n)^{4}$**

LONG ANSWERS:

1. **PROVE THAT: $^{n}C_{r} + {}^{n}C_{r-1} = {}^{n+1}C_{r}$.**
2. **PROVE THAT: $n * {}^{n-1}C_{r-1} = (n-r+1) * {}^{n}C_{r-1}$.**
3. **PROVE THAT: $^{n}C_{r} / {}^{n}C_{r-1} = (n-r+1) / r$.**
4. **PROVE THAT: $^{n}C_{r} + {}^{n}C_{r+1} = {}^{n+1}C_{r+1}$.**
5. **IF$^{n}P_{r}$ =720 AND $^{n}C_{r}$ = 120, Find r?**

THE END