**ASSIGNMENT NO.- 6[Ch-1(Relations and Functions)]**

**Class -XII**

1. Let us define a relation $R$ in $R$ as $aRb$ if $a\geq b,$Then $R$ is

 (a) an equivalence relation (b) reflexive , transitive but not symmetric

 ( c)symmetric,transitive but not reflexive (d) neither transitive nor reflexive but symmetric

2. Consider the non-empty set consisting of children in a family and a relation $R$ defined as $aRb$ if $a$ is

 brother of $b$.Then $R$ is:

 (a) symmetric but not transitive (b) transitive but not symmetric

 (c) neither symmetric nor transitive (d) both symmetric and transitive

3. The maximum number of equivalence relations on the set $A=\{1,2,3\}$ are

 (a) 1 (b) 2 (c) 3 (d) 5

4. If the relation $R$ defined on the set $\{1,2,3\}$ be defined by $R=\{\left(1,2\right)\}$,then $R$ is

 (a) reflexive (b) transitive (c) symmetric (d) none of these

5. Let $f:R\rightarrow R$ be defined by $f\left(x\right)=\frac{1}{x} ,x\in R.$Then $f $ is

 (a) one-one (b) onto (c) bijective (d) $f$ is not defined

6. Show that the relation $R $defined by $\left(a,b\right)$ $R \left(c,d\right)⇒a+d=b+c$ on the set $N ×N$ is an

 equivalence relation.

7. Show that the relation $R$ in the set $N ×N$ defined by $\left(a,b\right)$ $R \left(c,d\right)$ ,if $a^{2}+d^{2}=b^{2}+c^{2}$for all

 $a,b,c,d\in N,$ is an equivalence relation.

 8. Show that the function $f:R\rightarrow R$ defined by $f\left(x\right)=\frac{x}{x^{2}+1} , $for all $x\in R$,is neither one-one nor onto.

 9. Let $A=R-\left\{3\right\},B=R-\left\{1\right\}.$Let $f:A\rightarrow B$ be defined by $f\left(x\right)=\frac{x-2}{x-3} ,$for all $x\in A.$Then,show that

 $f$ is bijective.

10. If $f:R\rightarrow R$ defined by $f\left(x\right)=x^{2}-x-2.$Find $fof.$

11. If $f=\left\{\left(5,2\right),\left(6,3\right)\right\},g=\{\left(2,5\right),\left(3,6\right)\}$,write $fog.$

12. Prove that $f:R\rightarrow R,f\left(x\right)=ax+b ,a\ne 0$ is a bijective function.