|  | BCM SCHOOL BASANT AVENUE DUGRI ROAD LUDHIANA ASSIGNMENT (RELATION AND FUNCTIONS) CLASS XII SC |  |
| :---: | :---: | :---: |
| 1 | For real numbers $x$ and $y$, define $x R y$ iff $x-y+\sqrt{2}$ is an irrational number. Then the relation $R$ is <br> (a) reflexive <br> (b) symmetric <br> (c) transitive <br> (d) none of these | 1 |
| 2 | If $A=\{a, b, c\}$ and $B=\{-3,-1,0,1,3\}$, then the number of injections that can be defined from $A$ to $B$ is <br> (a) 125 <br> (b) 243 <br> (c) 60 <br> (d) 120 | 1 |
| 3 | Show that the relation $R$ in the set of all books in a library of a collage given by $R=\{(x, y): x$ and $y$ have same no of pages $\}$, is an equivalence relation. | 2 |
| 4 | Show that the relation $R$ defined by $(a, b) R(c, d) \Rightarrow a+b=b+c$ on the set $\mathbf{N} \times \mathbf{N}$ is an equivalence relation. | 2 |
| 5 | Show that if $f: R-\left\{\frac{7}{5}\right\} \rightarrow R-\left\{\frac{3}{5}\right\}$ is defining by $\mathrm{f}(\mathrm{x})=\frac{3 x+4}{5 x-7}$ and $\mathrm{g}: R-\left\{\frac{3}{5}\right\} \rightarrow R-\left\{\frac{7}{5}\right\}$ is define by $\mathrm{g}(\mathrm{x})=\frac{7 x+4}{5 x-3}$ then fog = IA and gof $=\mathrm{IB}$ when $\mathrm{A}=\boldsymbol{R}-\left\{\frac{3}{5}\right\} \quad \mathrm{B}=\boldsymbol{R}-\left\{\frac{7}{5}\right\} ; \mathrm{IA}(\mathrm{x})=\mathrm{x}$, for all $\mathrm{x} \in \mathrm{A}, \mathrm{IB}(\mathrm{x})=$ $x$, for all $x \in B$ are called identify function on set $A$ and $B$ respectively. | 2 |
| 6 | Show that the function $f: R \rightarrow R$ defined by $f(x)=\frac{x}{1+x^{2}}, x \in R$, is neither one-one nor onto. | 3 |
| 7 | Show that the function $f: R \rightarrow\{x \in R:-1<x<1\}$ defined by. $f(x)=\frac{x}{1+\|x\|}, x \in R$ is one-one and onto function. | 4 |

