Downloaded from www.studiestoday,com
C- Functions
Q1 Let $A=\{1,2,3\}, B=\{-1,0,1\}$. Which of the following relations from $A$ to $B$ are functions? Justify the answer.
(i) $R=\{(1,-1),(2,0),(3,1)\}$
(ii) $R=\{(1,-1)(1,0),(2,0),(2,1)\}$
(iii) $R=\{(1,0)(2,-1)(3,1)\}$
(iv) $R=\{(2,0),(2,1),(1,-1),(3,1),(3,0)\}$

Ans
(i), (iii) are function $\because$ every element of $A$
has unique image in $B$
(iii, (iv) arse not function because few element in $A$ has double images ]
Q2. Which of re following arrow diagrams dos立 represent a function?
(i)

(iii)


ANS
(i), (iii) are function
(iii)', (iv) are not functions]


Downloaded from www.studiestoday.com y
Q3. Does the adjacent a row diagram represent a function? If so, Write its Domain, Co-domain, range


$$
\left.\begin{array}{rl}
{[\text { yes; } \quad D} & =\{-1,0,1,2,3\}, \\
C \text {-domain }=\{0,2,4,7\} & \text { range }=\{0,2,7\}
\end{array}\right]
$$

Q4. If a function $f$ is defined by $f(x)=2 x-1$, $x \in\{1,2,0,-1\}$, Find its range and the linear function

Q5. If a function $f$ is defined by $f(x)=2 x+5$, Find the value of (i) $f(0)$ (ii) $f\left(\frac{1}{2}\right)$ (iii) $f(-1)$
Ans.
(i) 5
(ii) 6
(iii) 3 ]

Q6. The function ' $t$ ' Which maps temperature in degree celsius into temperaluive in degree Fahrenheit is defined by $t(c)=\frac{9 c}{5}+32$ Find $c$ when $t(c)=212$ ANS $[c=100]$
Q7. Let $f=\{(1,1),(2,3),(0,-1)(-1,-3)\}$ be a function from $z$ to $z$ defined by $f(x)=a x+b$, for Some integer $a, b$, Find $a, b$. $z$ is the set of integers.

$$
\text { Ans. }[a=2, b=-1\}
$$

Downloaded from www.studiestoday.com
Q8. Let $f=\left\{\left(x, \frac{x^{2}}{1+x^{2}}\right): x \in R\right\}$ be a function from $R$ into $R$. Determine the range of $f$ ANs. [Range of $f=\{y=f(x): 0 \leq y<1\}]$

Q9. Find the domain and range of the following functions
(i) $f(x)=-|x|$
(ii) $f(x)=\sqrt{9-x^{2}}$
(iii) $f(x)=\sqrt{x-1}$
(iv) $f(x)=|x-1|$

Domain: (i) $R$
(ii) $[-3,3]$
$\left[\begin{array}{l}\text { (ii) }[1, \infty) \text { (iv) } R \\ \text { (iii) }[0, \infty) \text { (iv) } R^{+}\end{array}\right]$
Q10 If the real functions $f$ and $g$ are defined by $f(x)=2 x-1$ and

$$
g(x)=x+1
$$

evaluate the following
(i) $(f+g) x$-ins $(f-g) x$ iiii $f g(x)$ iv) $\frac{f}{g}(x)$
arts (i) $3 x, x \in R$ iii, $x-2, x \in R$
(iii) $2 x^{2}+x-1, x \in R$ (iv) $\left.\frac{2 x-1}{x+1}, x \in R\right]$
© www.studiestoday.com. Must NOT be copied or reproduced in any form or by any means.

