Q # 1	Circle the correct option	1x7=7	

1 $\lim\limits_{n\to\infty}\left(1-\dfrac{1}{n}\right)^n = ;$

a	e^{-1}	b	e	c	e^2	d	$\dfrac{1}{e^2}$

2 Domain of $f(x)=2+\sqrt{x-1}$, all $x \in R$ is ;

a	$(-1,\infty)$	b	$(1,\infty)$	c	$(2,\infty)$	d	$(-2,\infty)$

3 The function y= $27+x^2$ $is\ an$;

a	Constant function	b	$Even\ function$	c	$Implicit\ function$	d	Explicit function

4 $f(x) = ax + b$, $a \neq 0$ is ;

a	Trigonometric function	b	Linear function	c	Cubic function	d	Quadratic function

5 The domain of g$(x) = 2x - 5$ is

a	R	b	The set of positive No	c	$the\ set\ of\ negative\ real\ no$	d	$non\ negative\ real\ no$

6 If f(x) =$\dfrac{1}{x^2}$ (x$\neq$ 0),then fof(x) is

a	x^4	b	x^2	c	1	d	$\dfrac{1}{x^4}$

7 A function C :R$\to R$ define by C(x) =2 for all xϵR is called ;

a	Domain	b	Range	c	Constant	d	Objective function

Q # 2	Write short answer of following question.	2x7=14

i	Find the Domain and range of g$(x)=\sqrt{x^2-4}$
ii	Find $f^{-1}(x)$ if , $f\left(x = \dfrac{2x+1}{x-1}\right)$
iii	Find $\lim\limits_{n\to a}\dfrac{x^n-a^n}{x^m-a^m}$
iv	Evaluate $\lim\limits_{\theta\to 0}\dfrac{1-\cos\theta}{\theta}$;
v	Determine whether the the function is even or odd for f$(x) = x^{\frac{2}{3}} + 6$
vi	Define Explicit function ;
vii	Prove that $\lim\limits_{x\to\infty}\dfrac{\sqrt{x+a}-\sqrt{a}}{x} = \dfrac{1}{2\sqrt{a}}$

Q # 3	Write detail answer of these questions.	4+5=9

a. Evaluate the $\lim\limits_{\theta\to 0}\dfrac{\tan\theta-\sin\theta}{\sin^3\theta}$

b. If f(x) =$\begin{cases} 3x & if\ x \leq -2 \\ x^2 - 1 & if\ -2 < x < 2 \\ 3 & if\ x \geq 2 \end{cases}$