Edget Secondary schools maths ~~exam~~ mid examination for grade 11

(Boarding & 2017 E.C

Time allowed – 75 min

I - Choose the best answer of the f/g

1. Given a relation $R = \{(x,y): -2 \le x < 3 \text{ and } -1 \le y \le 3\}$. which one is not true?

A. $(-2,1) \in R$ B. $(-1,2) \in R$ C. $(3,2) \in R$ D. none

2. Given a relation $R = \{(x,y): y \le x+1 \text{ and } y \ge -x+3\}$ the range of inverse of R = ____.

A. $[1,\infty)$ B. $[2,\infty)$ C. $(-\infty,1]$ D. $\mathbb{R}$

3. which one is not true about relation and function?

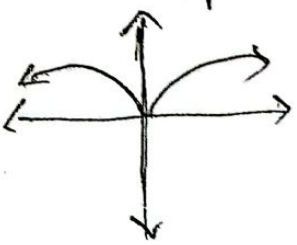
A. Any function is a relation.

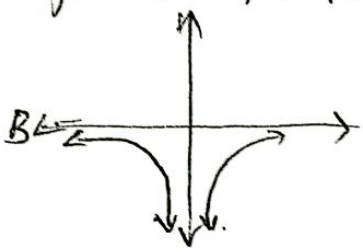
B. Any line is a relation.

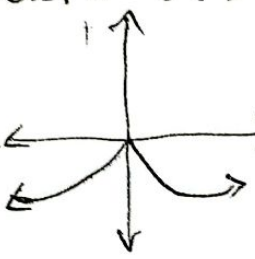
C. $R = \{(1,2),(1,3),(2,4)\}$ is a function

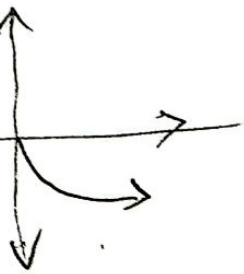
D. $R = \{(x,y): x^2 - y^2 = 0\}$ is not a function.

4. which power function graph represents $f(x) = -x^{\frac{2}{3}}$?

A 

B 

C 

D 

5. If $x < 0$ then $f(x) = \dfrac{x - |x|}{x}$ is simplified to ____

A. $2x$ B. 2 C. -2 D. 0

6. The range of $f(x) = \operatorname{sgn} x$ is ____

A. $[-1,1]$ B. $\{-1,0,1\}$ C. $y \ge 0$ D. A & B

7. If $f(x) = \log_2 x$ and $g(x) = x+1$ then $(f^{-1} \circ g)(3) =$ ____

A. 16 B. 4 C. 2 D. 8

8. The force applied to a spring varies directly with the distance that the spring is stretched. when 30 N of force is applied the spring stretched 3 m. How many meter will it Stretch when a 5 N force is applied ?

A 5 meter B 1.5 meter C 0.5 meter D 1 meter.

9. which one is a rational expression.

A. x^{-2} B 5 C $\frac{\sqrt{x^2+1}}{x^2-1}$ D. All

10. The simplified form of

$$\frac{\frac{a+1}{a-1}+\frac{a-1}{a+1}}{\frac{a+1}{a-1}-\frac{a-1}{a+1}} = \text{——}$$ A. $\frac{a^2+1}{a}$ B. $\frac{a^2+1}{2a}$ C $\frac{a+1}{a}$ D $\frac{a+1}{2a}$

11 If $\frac{x-4}{x^3+2x} = \frac{A}{x} + \frac{Bx+C}{x^2+2}$ then the values of A & B respectively are —— A -2 & 2 B 2 & -2 C 2 & 1 D 2 & -1

12 Let set $A = \{x : 7x-9 = \frac{26-12x}{2}\}$ and $B = \{x : \frac{12}{x-1} + \frac{4}{x-2} = \frac{3}{x-1}\}$ which one is true?

A. $B \subset A$ B. $A = B$ C. $A \cap B = \phi$ D. $A \subset B$

13 The Solution set of the inequality $\frac{1}{x+2} \geq 2 + \frac{1}{x}$ is ——

A $(0, \infty)$ B. $(-2, 0)$ C $(-\infty, -2) \cup (0, \infty)$ D $(-\infty, -2)$

14 The range of a rational function $f(x) = \frac{x-2}{x+3}$ is ——

A $\mathbb{R}/\{1\}$ B $\mathbb{R}/\{-3\}$ C $\mathbb{R}$ D none.

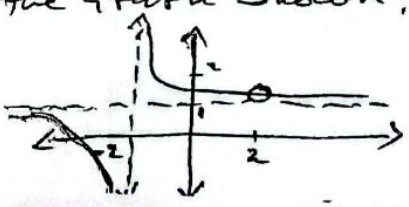
15. which rational function represents the graph shown?

A $\frac{x+3}{x+2}$

B $\frac{x^2-2x}{x^2-4}$

C $\frac{-x^2-x+6}{x^2-4}$

D $\frac{x^2+x-6}{x^2-4}$



II – write a short answer of the Hs

1. Let a relation $R = \{(x,y): y = \cos x \text{ and } x \in \{0^\circ, 30^\circ, 45^\circ, 60^\circ, 90^\circ, 15^\circ\}\}$ write the range of R. _____

2. The domain of $f(x) = \sqrt{x^2 - 100}$ is _____

3. $[-\sqrt{7}] =$ _____

4. If $f(x) = \sqrt[3]{7x+1} = 4$, then $f\left(\frac{x}{9}\right) =$ _____

5. For $a \neq b$, the simplified form of $\frac{a-b}{b-a} =$ _____

6. The simplified form of $\frac{x^3+6x^2+11x+6}{2x^2-8}$ is _____

7. The hole of the graph of $f(x) = \frac{x+1}{x^2-1}$ is at a point _____

III Work out and Show clear steps

1 Given a relation $R = \{(x,y): y \geq x+2, y \geq -x-2 \text{ and } y \leq 2\}$

a. Sketch the region of R
b. write domain & range of R
c. Find the area of the region
d. Find perimeter of the region.

2, Sketch the graph of $f(x) = -x + \operatorname{sgn} x$.

3 Solve the rational equation. $\frac{1}{x-2} = \frac{3}{x+2} - \frac{6x}{x^2-4}$

Set by. dep of maths.
24/02/2017 E.C.