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10 MATHS ENGLISH MEDIUM

2019-20

UNIT TEST

RELATIONS AND FUNCTIONS

TIME: 45 min MARKS: 25

SECTION-A

CHOOSE THE CORRECT ANSWER:- 1×1=25

1) If $n(A \times B) = 6$ and $A = \{1, 3\}$ then $n(B)$ is ___

(1) 1 (2) 2 (3) 3 (4) 6

2) If there are 1024 relations from a set $A = \{1, 2, 3, 4, 5\}$ to a set B, then the number of elements in B is ___

(1) 3 (2) 2 (3) 4 (4) 8

3) If the ordered pairs $(a+2, 4)$ and $(5, 2a+b)$ are equal then (a, b) is ___

(1) $(2, -2)$ (2) $(5, 1)$

(3) $(2, 3)$ (4) $(3, -2)$

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4) If $f(x) = 2x^2$ and $g(x) = \frac{1}{3x}$, then fog is _____

(1) $\frac{3}{2x^2}$ (2) $\frac{2}{3x^2}$ (3) $\frac{2}{9x^2}$ (4) $\frac{1}{6x^2}$

Ex 1.2 Pg. 15 (10)

5) $f(x) = (x+1)^3 - (x-1)^3$ represents a function which is _____

(1) linear (2) cubic

(3) reciprocal (4) quadratic.

Ex 1.3 Pg. 16 (15)

SECTION - B

II) Answer in short:- $5 \times 2 = 10$

1) Let $A = \{1, 2, 3\}$ and $B = \{x | x$ is a prime number less than $10\}$. Find $A \times B$ and $B \times A$. B. Pg - 2 Ex 1.1 (2)

2) Define - Relation B. Pg -

3) Given $f(x) = 2x - x^2$, find

(i) $f(1)$ (ii) $f(x+1)$ (iii) $f(x) + f(1)$

B. Pg - Ex 1.9

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4) Write the names of functions.

5) Using the functions f and g given below, find fog and gof. check whether fog = gof. B. Pg 12

i) $f(x) = x - 6$, $g(x) = x^2$ Ex. 5

ii) $f(x) = \frac{2}{x}$, $g(x) = 2x^2 - 1$ (i) (ii)

III) Answer in detail: $2 \times 5 = 10$

1) Consider the functions $f(x)$, $g(x)$, $h(x)$ as given below: Show that $(fog)oh = fo(goh)$ in each case.

i) $f(x) = x - 1$, $g(x) = 3x + 1$ and $h(x) = x^2$

ii) $f(x) = x - 4$, $g(x) = x^2$ and $h(x) = 3x - 5$ U-1.5 B. Pg (13) 8 (i) (iii)

2) If the function $f : \mathbb{R} \to \mathbb{R}$ is defined by $f(x) = \begin{cases} 2x + 7, & x < -2 \\ x^2 - 2, & -2 \le x < 3, \\ 3x - 2, & x \ge 3. \end{cases}$

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(i) $f(4)$ (ii) $f(-2)$ (iii) $f(4)+2f(4)$

(iv) $\dfrac{f(6)-3f(4)}{f(-3)}$

5. Eg 1.19.

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