**BISHOP SCOTT BOYS' SCHOOL**

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# REVISION PRACTICE ASSIGNMENT (RPA)

## SUBJECT-Mathematics

**SESSION-2020-21**

## CLASS-XII

# TOPIC: FUNCTION

## SECTION- A

## Q. MULTIPLE CHOICE QUESTION: -

**Q1.** If a set $A$ contains 7 elements and the set $B$ contains 10 elements, then the number of one-one functions from $A$ *to* $B$ is

(a) $C_7^{10}$

(b) $C_7^{10} \times 7!$

(c) $7^{10}$

(d) $10^7$

**Q2.** If a set $A$ contains 5 elements and the set $B$ contains 6 elements, then the number of one-one and onto mappings from $A$ *to* $B$ is

(a) 720

(b) 120

(c) 0

(d) None of these

**Q3.** Let L denotes the set of all straight lines in a plane. Let a relation R be defined by $lRm$ iff $l$ is perpendicular to $m$ for all $, m \in L$ . Then, R is

(a)Reflexive (b) symmetric (c) transitive (d) none of these.

**Q4.** A relation $\varphi$ from C to R is defined by $x\varphi y \Leftrightarrow |x| = y$. Which one is correct

$(a)\ (2+3\iota)\varphi 13$ $(c)\ (1+\iota)\varphi 2$

$(b)\ 3\varphi(-3)$ $(d)\ \iota\varphi 1$

**Q5.** Let R be the relation on the set N of natural numbers defined by $nRm\ iff\ n\ divides\ m$. Then, R is

a) Reflexive and symmetric

b) Transitive and symmetric

c) Equivalence

d) Reflexive, transitive but not symmetric

## SECTION- B

## Q. VERY SHORT ANSWER TYPE QUESTION: -

**Q6.** If a function $g = \{(1,1),(2,3),(3,5),(4,7)\}$is described by $g(x) = \alpha x + \beta$, Find the value of $\alpha$ and $\beta$.

**Q7.** If $f(x) = 4 - (x-7)^3$, write $f^{-1}(x)$.

**Q8.** If $f: R \to R$ is defined by $f(x) = x^2 - 3x + 2$, find $f\big(f(x)\big)$.

**Q9.** Show that the relation R on the set A of all the books in a library of a college given by $R = \{(x,y): x\ and\ y\ have\ the\ same\ number\ of\ pages\}$ is an equivalence relation.

**Q10.** Write the smallest equivalence relation on the set $A = \{1,2,3\}$

## SECTION- C

## Q. SHORT ANSWER TYPE QUESTION: -

**Q11**.Show that the Signum function $f: R \to R$, given by

$$f(x) = \begin{cases} 1 \ , if \ x > 0 \\ 0, if \ x = 0 \\ -1, if \ x < 0 \end{cases}$$ is neither one- one, nor onto.

**Q12.** State the reason for the relation R on the set {1,2,3} given by $R = \{(1,2), (2,1)\}$ not to be transitive.

**Q13.**If $f, g: R \to R$ are defined respectively by $f(x) = x^2 + 3x + 1$, $g(x) = 2x - 3$, find $(i) fog \qquad (ii) gof$

## SECTION- D

## Q. LONG ANSWER TYPE QUESTION: -

**Q14.**Prove that the function $f: R \to R$ defined as $f(x) = 2x - 3$ is invertible. Also ,find $f^{-1}$.