INDIAN SCHOOL AL WADI AL KABIR
PO 513, PC 117, WADI KABIR, SULTANATE OF OMAN
Department of Mathematics, 2020-2021

CLASS: XII Worksheet- Relations Functions-Part 1 23-03-2020

Q.1.	For real numbers x and y define xRy if and only if x-y +$\sqrt{2}$ is an irrational number. Then the relation R is							
	A	reflexive	**B**	symmetric	**C**	transitive	**D**	none of these
Q.2.	The relation R in ***R*** defined by R = $\{(a,b): a \leq b^3\}. Then$ R is							
	A	Reflexive but not symmetric	**B**	Symmetric but not symmetric	**C**	reflexive but not transitive	**D**	None of these
Q.3.	If R be the relation in the set N given by R =$\{(a,b): a = b-2, b > 6\}$ $then$							
	A	$(2,4)\epsilon R$	**B**	$(3,8)\epsilon R$	C	$(6,8)\epsilon R$	**D**	$(8,7)\epsilon R$
Q.4.	The number of all relations from set A = $\{1,2,3\}$ to itself is							
	A	3	**B**	9	**C**	81	**D**	512
Q.5.	Let R be a relation on N defined by x+ 2y = 8 . Domain of R is							
	A	$\{2,4,8\}$	**B**	$\{2,4,6\}$	**C**	$\{2,4,6,8\}$	**D**	$\{2,4,8,10\}$
Q.6.	If R be the relation on set A = $\{1,2,3\}$ $given\ by\ R = \{(1,2),(2,1)\}$ $then$ R is							
	A	only reflexive	**B**	$an\ equivalence\ relation$	**C**	only symmetric	**D**	only transitive
Q.7.	Let A =$\{1,2,3\}$ $and\ consider\ the\ relation\ R = \{(1,2),(2,2),(3,3),(1,2),(2,3),(1,3)\}$ $then\ R\ is$							
	A	reflexive but not transitive	**B**	symmetric and transitive	**C**	$reflexive\ but\ not\ symmetric$	**D**	None of these
Q.8.	If Relation R in the set Z of all integers defined as $R = \{(x,y): x-y\ is\ an\ integer\}$ $then\ R\ is$							
	A	only a symmetric relation	**B**	Symmetric and transitive	**C**	Reflexive and transitive	**D**	an equivalence relation.

Q.9.	If R == $\{(a,b): a = b\}, then\ R\ is$							
	A	only symmetric	**B**	Reflexive and symmetric	**C**	Symmetric and transitive	**D**	an equivalence relation
Q.10.	If R == $\{(a,b): a \leq b, a, b\ are\ real\ numbers\}, then\ R\ is$							
	A	reflexive and symmetric	**B**	reflexive and transitive	**C**	Symmetric and transitive	**D**	none of these
Q.11	Let T be the set of all triangles in a plane with R a relation in T given by R = $\{(T1,\ T2): T1\ is\ isimiar\ to\ T2\}$. Show that R is an equivalence relation.							
Q12.	Let L be the set of all lines in a plane and R be the relation in L defined as R = $\{(L1, L2): L1\ \perp\ L2\}$. Show that R is symmetric but neither reflexive nor transitive.							
Q13	Determine whether the relation R defined on the set of **R** of all real numbers as R = $\{(a,b): a, b\ \in \boldsymbol{R}\ and\ a - b + \sqrt{3}\ is\ the\ set\ of\ irrational\ numbers\}$ is reflexive or symmetric or transitive. Why?							
Q14	Prove that the relation R on the set NXN defined by (a, b)R(c, d), iff ad = bc, for all (a, b),(c, d)∈NXN is an equivalence relation.							
Q15	Show that the relation R defined on set A = $\{0, 1, 2, 3, \ldots .12\}$ R = $\{(a,b): \lvert a - b\rvert is\ diivisible\ by\ 4; a, b \in A\}$ is an equivalence relation							
ANSWERS	**1.**	A	**2.**	D	**3.**	C	**4.**	D
	5.	B	**6.**	C	**7.**	B	**8.**	D
	9.	D	**10**	B	**13.**	only reflexive		

****