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|  | **BAHRIA UNIVERSITY,**  **(Karachi Campus)**  *Department of Software Engineering*  **Quiz # 01 – Fall 2023 [CLO 1]** |

COURSE TITLE: **Formal Methods in Software Engineering** COURSE CODE: [**SEN -**](http://moodle.bimcs.edu.pk/course/view.php?id=291) **323**

CLASS: **BSE – 5B** SHIFT: **Morning**

INSTRUCTOR: **Engr. Ammarah Khalid** DATE: **11th Oct 2023**

MAX. MARKS: **5 Marks** TIME: **20 Mins**

**STUDENT NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ REG # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**QUESTION # 01:** Is this statement “**FMs are not used on real large-scale systems”** reality or just a myth? If it is a myth, then describe its reality**. .....……………………………...** **[ 1 Mark]**

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**QUESTION # 02:** Write set comprehension notation of the following statement:  **[1.5 Marks]**

1. The set of pairs for which the first element is a natural no greater than 10 and the second element is the square of the first element
2. Also write the notation to find the no of elements in the set above.
3. Write an expression to state that there is a number that is equal to itself squared

**QUESTION # 03:** Write down the elements of the relation. ……………………… **[2.5 Marks]**

**peoplen = { p: person; n: N | n < 3 • (*p, n*) }**

where person = {Shariq, Humza, Anum}.

**Elements of peoplen = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Which of the following predicates then hold?

1. Humza peoplen 4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Shariq peoplen 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. (Taha, 3) peoplen \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Humza peoplen 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. (Shakkir,2) peoplen \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_