SMART TEST SERIES

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Name:		Subject:	Mathematics-11
Roll # :		Unit(s):	2,
Class:	Inter Part-I	Test:	Type 2 - SQs Test - Marks=40
Date:		Time:	

SHORT QUESTIONS TEST

1- Write short answers to any 7 questions: (7x2=14)

(i) Write each of the following sets in the descriptive and tabular forms: $\{x \mid x \in O \wedge 5 \leq x \leq 7\}$

(ii) Which of the following sentences are true and which of them are false? $\{1, 2\} = \{2, 1\}$

(iii) Show A-B and B-A by Venn diagrams when: A and B are overlapping sets

(iv) Under what conditions on A and B are the following statements true? $n(A \cap B) = 0$

(v) If A and B two sets, then prove that $(A \cap B)^c = A^c \cup B^c$

(vi) Use Venn diagrams to verify $A - B = A \cap B^c$

(vii) If $A = \{1, 2, 3, 4, 5\}$ and $B = \{5, 6, 7, 8, 9, 10\}$, then represent $A \cup B$ and $A \cap B$ by Venn diagrams.

(viii) Show that addition is not a binary operation on $A = \{1, 2, 3, \ldots, 10\}$.

(ix) Define Monoid.

(x) What are residue classes modulo n?

2- Write short answers to any 7 questions: (7x2=14)

(i) Write set {a,e,i,o,u} in set-builder notation.

(ii) Write the following sets in set builder notation. $\{0, 1, 2, \ldots, 100\}$

(iii) Write the following sets in set builder notation. $\{0, \pm 1, \pm 2, \ldots, \pm 1000\}$

(iv) Under what conditions on A and B are the following statements true? $n(A \cap B) = n(A)$

(v) Under what conditions on A and B are the following statements true? $A \cup B = B \cup A$

(vi) For the set A={1,2,3,4} find relation in A for $\{(x, y) \mid x + y < 5\}$.

(vii) Let $A = \Re$, the set of all real numbers. Determine the relation r such that xry iff y=x+1

(viii) For A={1,2,3,4}, find the following relation in A. State the domain and range of each relation. Also draw the graph. $\{(x, y) \mid y = x\}$

(ix) Prepare a table of addition of the elements of the set of residue classes modulo 4.

(x) Give an example of a set which is a group with respect to both addition and multiplication.

3- Write short answers to any 6 questions: (6x2=12)

(i) Write each of the following sets in the descriptive and tabular forms: $\{x \mid x \in Q \wedge x^2 = 2\}$

(ii) Let $U = \{1, 2, 3, \ldots, 10\}$, find U^c.

(iii) Exhibit $A \cup B$ and $A \cap B$ by Venn diagrams in the following cases: A and B are disjoint sets

(iv) Verify distributivity of intersection over union for the sets A,B and C given below: $A = \phi, B = \{0\}, C = \{0, 1, 2\}$

(v) Write the converse and inverse of $q \rightarrow p$.

(vi) Write the inverse and contra positive of the condition $\sim P \rightarrow q$.

(vii) What is proposition?

(viii) Prepare a table of addition of the element of the set of residue classes modulo 4.

(ix) Whether a group can have more than one identity?