**King Saud University Math 131**

**Science and Medical Studies Section for girls First Term 1432H**

**College of Science second midterm**

**Department of Mathematics 90 minutes**

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| **Name:** | | | | | | **Student No.:** | | | | | |
| **Section No.:** | | | | | | **Sequence No.:** | | | | | |
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| **Question No.** | **I** | | **II** | **III** | | | **IV** | **Total** | |  |  |
| **Mark** |  | |  |  | | |  |  | |  |  |
| **QUESTION I**  **Choose the correct answer** | | | | | | | | | | | |
| 1. If is any set and ,  if  is the power set of then : | | | | | | | | | | | |
| i. | | ii. | | | | iii. | | | iv. None of the previous. | | |
|  | | | | | | | | | | | |
| 2.If  then  is equal to : | | | | | | | | | | | |
| i. | | ii. . | | | | iii. . | | | iv. None of the previous. | | |
|  | | | | | | | | | | | |
| 3. If  then A is equal to: | | | | | | | | | | | |
| i. . | | ii. - | | | | iii. -. | | | iv. None of the previous. | | |
|  | | | | | | | | | | | |
| 4. If  is a relation on  such that  is odd then : | | | | | | | | | | | |
| i. is reflexive and symmetric | | ii. is symmetric and not reflexive. | | | | iii. is symmetric and transitive. | | | iv. None of the previous. | | |
| **Question 2:**    a- By using the principal of mathematical induction show that .    b- If are sets show that .    c- If  is a family of sets and  is any set ,show that :  .      **Question 3**  1- Show that there exist integers m,n such that 2m+9n=1. | | | | | | | | | | | |
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2- For X,y are real numbers show that if x+y is irrational then either x is irrational or y is irrational.

3- Show that .

**Question 4**

a- Let  be a relation on the real numbers R such that show that:

i- is an equivalence relation on R ii- Express  iii- Find 