**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.:** |
|  |
| **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. |
|  |

 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 