

Qn	Weight					
	Algebra	SQL	FD	NF	Armstrong	ER
1	2					
2	2					
3		3				
4		3				
5		3				
6			2			
7			2			
8			3			
9				5		
10				1		
11				3		
12				5		
13					4	
14						1
15						1
Sum	4	9	7	14	4	2

1 Relational Algebra and SQL

Question 1 and 2 are on relational algebra. Question 3 to 5 are on SQL. The total marks for this section is **13 marks**. They use the following schema:

students(matric, sname)
workings(pid, matric, since)
projects(pid, pname)
category(pid, cname)

Assumptions: You may assume that there can never be any NULL values in the instance. No other constraints can be assumed.

2 Functional Dependencies and Normal Forms

Question 6 - 8 are on functional dependencies and analysis. Question 9 - 12 are on normal forms. The total marks for this section is **21 marks**. They use the following schema and set of functional dependencies:

R(A, B, C, D, E)
F = {BDE → AE, AD → C, CD → E, BE → AD}

3 Armstrong's Axioms

Question 13 is on Armstrong's axioms. You may not use *extended* Armstrong's axioms. The total marks for this section is **4 marks**.

4 Entity-Relationship Diagram

Question 14 and 15 are on entity-relationship diagram. The total marks for this section is **2 marks**.