(01) Each member of staff in ABC company is allocated a single computer. Information about computers belonging to staff member is planned to be stored in a database consisting of the following table.

HasComputer (staffNbr, ComputerNbr, Manufacturer, cost)

Compa#ny policy subsequently changes, and some s#a staff are allocated more than one computer. (Each computer is still assigned to a single member of staff)

1) Explain why the above table design is not suitable for ABC company.

There are multivalued attributes in some columns and it is very unorganized.

11) Suggest a new database design to handle the new situation.

1 NF
    HasComputer (<u>Staff Nbr</u>, <u>ComputerNbr</u>, Manufacturer, cost)

2 NF
    Computer (<u>computerNbr</u>, Manufacturer, cost)
    Staff-computer (<u>staffNbr</u>, <u>computerNbr</u>)

(02) An agency called Instant Cover Supplies part-time/temporary staff to hotels within Scotland. The table shows sample data, which lists the time spent by agency staff working at various hotels. The National Insurance Number (NIN) is unique for every member of staff.

Partial Dependancy

NIN	contractNO	hours	eName	hNO	hLOC
1135	C1024	16	Smith J	H25	East kilbride
1057	C1024	24	Hocine D	H25	East kilbride
1068	C1025	28	white T	H4	Glasgow
1135	C1025	15	Smith J	H4	Glasgow

Full dependancy   Full   transitive dependancy

1) Identify the functional dependencies represented by the attributes shown in the table. State any assumptions you make about the data and the attributes shown in this table.

2) Describe and illustrate the process of normalizaing the table to 3NF. Identify primary and forigegn keys in your relations

1NF

NIN	contract NO	hours	ename	hNO	hLOC

2NF

emp table (NIN , ename)

contract (NIN, contractNO , hours , hno, hLOC)

3NF

emp table (NIN , ename)

contract (NIN, contractNO , hours)

hotel   (hno, hLOC)

contract_hotel (contractNO , hno)