Paul McCusker

Part 1:

#1
I would reply that although this is not an altogether horrible design for the data to be organized it is also not the best. I would say that they need a better way to lay out the data to minimize redundancy and to organize tables more clearly. Using normalization would more clearly depict the data while maintaining organization and eliminating dependency.

#2

PackageID	TagNumber	InstallDate	SoftwareCostUSD
AC01	32808	09-13-2005	754.95
DB32	32808	12-03-2005	380.00
DB32	37691	06-15-2005	380.00
DB33	57772	05-27-2005	412.77
WP08	32808	01-12-2006	185.00
WP08	37691	06-15-2005	227.50
WP08	57222	05-27-2005	170.24
WP09	59836	10-30-2005	35.00
WP09	77740	05-27-2005	35.00

#3
Because none of the columns consist of unique keys alone the Primary key must be made up as a composite key. This uses the combination of PackageID and TagNumber to create a unique ID for each row.

Part 2:
#1

PackageID	TagNumber	InstallDate	SoftwareCostUSD	Sofrwarepackagename	Computermodel
AC01	32808	09-13-2005	754.95	World of Warcraft	DELL
DB32	32808	12-03-2005	380.00	Battlefield	DELL
DB32	37691	06-15-2005	380.00	Battlefield	Apple
DB33	57772	05-27-2005	412.77	Trine 2	AlienWare
WP08	32808	01-12-2006	185.00	League of Legends	DELL
WP08	37691	06-15-2005	227.50	League of Legends	Apple
WP08	57222	05-27-2005	170.24	League of Legends	Sabre
WP09	59836	10-30-2005	35.00	Dark Souls	ASUS
WP09	77740	05-27-2005	35.00	Dark Souls	HP

#2
There are 3 Functional Dependencies in this table :
TagNumber > ComputerModel
PackageID Tagnumber (composite key) > SoftwareCostUSD, InstallDate
PackageID > PackageName

#3
The table is not in third normal form because as shown in question two there are multi key dependencies. In order to be in third normal form there can be no multi key dependencies. ComputerModel only depends on TagNumer and PackageName only depends on PackageID. This shows that it is not in third normal from because it does not depend on the entire key but only part of it.

Part three:

#1
In order to put the data into third normal form the large table must be broken down into smaller tables. All three of these tables would have their own keys to uniquely identify its rows. The SoftwarePackage table would have the softwarepackageID as its primary key. The computer table will have the TagNumber as its primary key, and finally the instillation table will have the composite key of TagNumber and SoftwarepackageID.

#2
There are 3 functional dependencies for these table:
In the softwarepackage table :
PackageID > PackageName
In the computer table:
TagNumber > ComputerModel
Iin the installation table:
PackageID,TageNumer (composite key) > SoftwareCostUSD, InstallDate

#3
Theses three tables are now in third normal form. With the formation of three individual tables they are now only dependent on their individual key eliminating multi key dependency from first normal form. As previously shown you can now see that each key only depends on one other thing. Looking in question 2 of part 3 the PackageName only depends on PackageID same goes for ComputerModel.

#4

Software Table	
PK	PackageID
	PackageName

Install Table	
PK,FK1 PK,FK2	TagNumber PackageID
	InstallDate, SoftwarecostUSD

Computer Table	
PK	TagNumber
	ComputerModel