BTEC Nationals IT – Unit2 FAQs

Q1)

I need more clarity on the design task and what the students are expected to provide?

Q1 Answer:
The mark scheme for task 3 makes reference to showing the interface design for the forms, queries and the reports required. The relevant fields for each need to be stated. The mark scheme also makes reference to accurate details of search criteria and calculations being given. The mark scheme also makes reference to the designs being clear allowing a third party to implement them.

Here are some possible ideas (the list is not exhaustive):

- **Forms** - You could state which forms (including menu forms, data entry forms) are used, which tables they will front, how the user will access the form, how the user will navigate around the form (e.g. next button, back button etc.).
- **Queries** - You could state which tables are used, what calculations are taking place, what the search criteria will be, which fields will be visible etc.). *Identifying the calculations and success criteria is key*.
- **Reports** - You could state which queries they will front, how they will be accessed, the format of the report (e.g. orientation, headings, fonts, colours etc.).

Q2)

For the cycling SAM, is it expected that the race officials are entering times as raw times and then the table is set up so it converts the number down if it exceeds the max time and then calculates the penalty time OR is it that the officials do this on entry i.e. enter 120 rather than 134 for the stage completion and then put 10 in the penalty field?

Q2 Answer:
I can see why you have asked this question because it's not very clear in the exam paper. I would go with your first answer. The cycling times are entered as a raw figure and then the database will then carryout the calculations such as the maximum time and the time for not completing the race.

Q3)

I wanted to know if I can do the flowing steps as part of Activity 5 to import the data from csv file into the database.

1. Once we have completed the normalisation task, the students should know at this stage how many tables they will need in the ERD.
2. Students complete task 2- data types and validation rules identified
3. From the CSV file-copy and paste the relevant fields and data into a spreadsheet. Students may have up to 3 or 4 separate spreadsheet files. This is to match up with the tables identified in task 1 (normalisation)
4. Use wizard and import the organised spreadsheet file into database
5. Use task 2 to validate the data in Access before creating a relationship.

Q2 Answer:
The method that you have suggested would work very well. Normalising the data should always be the first task as this will tell you how to structure your database. This also allows you identify the relationships so that you can start to plan out the tables such as primary and foreign keys etc.

In terms of importing the data this should be fairly easy to do. You can import the files into Access and this will

then create the tables. During this process you can then select the fields you can or don't want. Matching the data files and the tables in Access makes the process more straightforward. However it Is slightly more difficult when the data into a file is to be split into different tables. In that case it would be easier to set the tables up first and then when you import the data using the wizard you can select 'append' and then bring the data you want into the table.

Q4)

Please help clarify what is required in this unit assessment.

Q4 Answer:
Here is some additional guidance for you that may help.

ERD - Learners will need to draw an ERD based on the scenario. They should clearly state the degree of the relationships (e.g. 1-2-1 etc). Clearly any many-to-many relationships will generate redundant data so will need to be broken up using a link table. I would always recommend normalising the database before creating the ERD. I would even get them to show the process they have gone through from 0NF to 3NF as they are going to have to do this anyway. They can talk about the reasons behind their decisions in the evaluation stage.

Data Dictionary - They should use a recognised naming convention for fields and tables. For example CamelCase, underscores, no spaces etc. This should be consistent throughout. They should select correct data types for each field (e.g. integer, text etc.). It is expected that there will be validation rules setup for all fields that require it. For example <Date() , NOT > 10 , BETWEEN 1 and 10 etc. It doesn't specify how many fields but looking at the mark scheme it says validation will be added where fields require it. The data dictionary must also identify the primary and foreign keys. Obviously any relationships marked with a 'many' relationship on the ERD will contain a foreign key.

Design Specification - The big thing here is that the interface has to be thorough. When you look at the designs if you think that the database programmer will be able to easily implement the designs then they are probably thorough. They need to show the design of the full range - forms (fields used, tables used, house style etc.), queries (fields used, tables used search criteria including simple and complex criteria, visible fields, calculations etc.) and reports (queries/tables used, house style, calculations carried out etc.).

Testing - The mark scheme says a range of normal, extreme and erroneous test. They can test validation rules work correctly, error messages appear correctly, input masks work (if used) work correctly, queries produce the correct results, Reports produce the correct results. For example when testing the validation rules they could use normal (correct) with the expected outcome that the data will be accepted, erroneous data (incorrect data) with the expected outcome that the data will be rejected and then extreme data (just on the upper/lower boundary) with the expected output that the data is accepted. The mark scheme does use the word 'iterative' so therefore they will need to show test evidence showing the errors that occurred and how they were fixed.

Evaluation - This is straightforward. The key is that their evaluation is relevant and brings in detailed technical concepts throughout. They should be referring back to key documents such as what changes they made during testing, why they selected the database structure and the overall quality. There can be real depth here. They can talk through their decisions such as: why they setup the relationships, why they setup the validation rules, how their forms are easy to use, why they setup the queries and reports. They can talk about how all of these improve the overall functionality and how they have set them up to be easily maintained in the future and how they are all fit-for-purpose.

Q5)

The Tour of Norfolk SAM asks that the database includes user accounts for race official, team and rider. The book pg 165 talks about applying user access levels by using the user level security wizard which is only available in .mdb. Is this what it means when it refers to user accounts? Can it be clarified what is expected for user accounts?

In applied ICT I have usually taught kids how to make a user table and then do a login form.

When both scenarios talk about database output, do we take it to mean reports. Some of the outputs e.g. a list of cleaners with 25 or less stars who require training could be done just using a query, Can you just clarify if you expect to see reports for the database outputs.

The only other bit was to clarify what was required for the query in in the Bleach & Clean scenario that asks for you to calculate and display the lowest average daily star rated cleaning service for each supervisor.

Certainly an example completed piece of work would help confirm some of these points.

I do feel that kids may struggle to complete the amount they are being asked to do in the exam. The applied ICT unit 7 exam is 10 hours and doesn't have data dictionary, test tables or design specification included. That said I am keen to clarify exactly what the requirements are so that the kids don't do any unnecessary work in the exam.

Q5 Answer:
Design Specification:
The key to this is that the interface design is thorough enough so that it can be easily implemented by a third party. The example in the book does show a graphical example and as they showing the interface I think that sketches/design layouts are probably the best method here. One quicker was of doing this may be to create all of the styles in a table (e.g. style 1 is x font style, x font size, centered and style 2 is……). Then on the interface designs they can simple be labeled with style 1 here, style 2 here etc. This therefore reduces the amount of annotation while at the same time making the interfaces informative. The best thing to do when marking the SAMs is to ask yourself if you could create the interface easily using the information they have provided. Remember to get in the top mark band for the interface design they need to include accurate details of criteria and calculations as well.

Testing:
The mark scheme makes no reference to functional testing. The key here is to use normal, erroneous and extreme data and the mark scheme says to use a range of these but not necessarily to test every single combination. The mark scheme refers to this being thorough, however I would stick to the main elements. At best I would try to have a normal, erroneous and extreme test for each validation rule, query and report. Testing the accessibility and security features is optional and there is no mention of this in the mark scheme at all. In terms of carrying out the test plan, you could simply add an extra column with details of whether it passed or not and if not what was done to fix the problem.

User Access Levels:
Yes you are right, user access levels can only be done in .mdb formats and they have stripped this out of new versions of Access. This has been removed from the spec. If you look at the most updated mark scheme for

the additional SAM for unit 2 the sentence in the mark scheme that says 'The database provides appropriate access for defined user groups' has been removed.

Output:
The mark scheme makes reference to the database 'being intuitive and accurately formatted allowing the user to easily use the database.' Therefore outputs could be done using a query but whether this is easy to use or not is a good question. I would generally say that a report is the most user friendly method of outputting data to the user.

Q6)

On Page 7, students are asked to
   Provide database outputs showing:
- an individual rider's time taken to complete each stage
- an individual rider's total time to complete all race stages

Does that mean students have to pick an individual rider and show these results for say Jane Smith etc. Or does it mean in general sense where all riders are shown.

Q6 Answer:
To produce an individual rider's time taken / total time, this is probably for a specific rider. This would probably be done by setting up a dynamic query to allow the parameter to change each time its run. Therefore they could type in Jane Smith to retrieve her data or they could run it again for a different rider.

Q7)

You have provided Templates and for Activity 3.

I am familiar with producing diagrams to show user interface but it uses a table structure. Could you give me an example of the use of Activity 3 template by populating it.

Q7 Answer:
I would use the table provided for each area. For example have a copy of the table for the form designs, query designs and the report designs. The table needs to be expanded so therefore the learners will need to decide what they should consider in a design.

Here is an example of a query design:

Query Name	Fields	Table	Sort	Visibility	Criteria
e.g. Riders	Rider First Name	Rider	Ascending Order	Visible	
	Rider Surname	Rider		Visible	[Enter Rider Surname]

Q8)

BTEC Nationals IT Unit 2.
In terms of manuals is the BTEC text book allowed in the exam? Would it possible then to make a guide showing different skills based on different scenario for them to use as a reference point? There will be no completed worked examples it there.

Q8 Answer:
For task based assessments, instructions will always be given inside the examination paper.
For unit 2 the following rules apply:
The set task should be carried out under supervised conditions.
Learners must not bring anything into the supervised environment or take anything out without your knowledge and approval.
Internet access is not permitted.

Given that the textbook has a worked solution and is specifically written for that unit I would say that this is not appropriate. You can however structure your time and it doesn't need to be done in a single 10 hour slot and therefore can be separated out. Therefore there is nothing stopping learners looking at the textbook outside of the high controlled sessions. use the table provided for each area. For example have a copy of the table for the form designs, query designs and the report designs. The table needs to be expanded so therefore the learners will need to decide.

Students can have access to manuals and user guides for reference, however these should not include worked examples of the actual assessment material. Therefore I cannot see any reason why these cannot be made by yourself as long as they have no connection to the same scenario or even a slightly similar scenario. I would also give out clean versions of these for each examination session and ensure learners don't take them out of the controlled conditions.

Q9)

With regards to what is stated in the specification for unit 2 and what appears in the sample assessment material, specifically relational algebra. The training informed us that students will be asked to complete the same tasks each year. None of the sample assessment material covers relational algebra but it is stated in the spec. May it appear in an exam?

Q9 Answer:

The unit content specifics what must be delivered but this is not necessarily what will be assessed.

I can see that relational algebra appears twice in the specification under A1 (symbols, union, intersect, join, select) and B1 (one to many, one to one, many to many, AND, OR, NOT, >, <, ≥, ≤). The mark scheme does not make direct reference to these however learners will use these without thinking about it. The most obvious use of these will be in their queries but learners will also use them in their ERD diagrams when discussing the relationships or they could use them as part of the query designs (e.g. SELECT xyz…).

Q10)

I read the specification and students are only required to have one "one to many" relationship. Is that correct? So the data does not have to be fully normalised - a candidate can achieve Mark Band 3 with only one relationship?

Q10 Answer:
The key to getting into the top mark band is having no data redundancy. The number of one-to-many relationships will depend on the scenario. If the scenario only requires the use of a single one-to-many relationship then that is fine however, if multiple uses are required then learners should use these multiple times in order to have no data redundancy. They cannot achieve the top mark band for simply using a single one-to-many relationship unless the scenario supports this, however I highly doubt that it will.

Q11)
If students get the ERD diagram wrong for Activity 1 can they still get full marks for other activities if they have meet the criteria?

Q11 Answer:
If the ERD is wrong, they would lose marks for activity 1. They would not lose any more on activity 2 unless their ERD is so poor that it doesn't allow for foreign keys to be setup. They would not lose marks for activity 3 as this is about the design and they would not lose marks for activity 4 as this is about testing. They may lose a couple of marks in activity 5 because their database has to have a logical structure and therefore they may lose marks for this but they can still get the in the top mark band. They may lose some marks in activity 6 as they need to have shown understanding of technical concepts throughout and therefore this may not be able to be awarded.

Q12)
I am using sample assessment material to run mocks for my students and I need to give them results that include what grade they have achieved? At very least I need to know what a Pass mark is. Can you help?

Q12 Answer:

Grade boundaries are only known after awarding of any live assessment, since the Sample Assessment Material (SAM) is never awarded, these will not have grade boundaries and it is not possible to provide them.

Q13)
What changed between Issue 1 and Issue 2 of the Unit 2 specification?

Q13 Answer:

Two things changed:
Subject content C1 bullet point; "applying security measures to control access to data: passwords, user access levels." was removed.
The trait in the mark grid for Activity 5; "The database provides appropriate access for defined user groups." was removed. The final Mark Grid can be found here.

Q14)

I have been working my way through the Additional Sam for Unit 2 and I have run into difficulties with the AddCleaner form.

A.   How do I lock the cleanerID? I have checked the property sheet and it isn't locked.

B.   How do I set up the hidden calculated fields?

 Q14 Answer:

Locking the CleanerID:

You can lock the clearnerID by:

1.   Opening the form in design view.
2.   Right-clicking on the clearnerID
3.   Under the Data tab, set the Locked property to Yes.

To keep users from trying to work with the field at all, you can set the control so that both the control's label and its data are dimmed and disabled.

Follow these steps:

1.   Open the form in design view.
2.   Right-click on the clearnerID
3.   Under the Data tab, set the Enabled property to No and then set the Locked property to No.

Setup Hidden Calculation Fields:

To setup the hidden calculations you need to use the expression builder.

1.   Open the form in design view
2.   Right click on the field
3.   Go to build event and this will take you to the expression builder.

Here you can use the functions to setup the calculation.

Q15)

I am looking at the sample database for the Bleach and Clean sample assignment and would like to know how to add the save and close buttons for the new cleaner form.
I see that the sample uses events but can the same thing be done using a macro.
I am very unsure on how to tackle this and would like some guidance please

Q15 Answer:

As long as the task is solved it does not matter how it Is done. You are right another way to achieve the same outcome would be to create macros to create save and close buttons. These Macros can then be attached to buttons using the Command Button Wizard shown here.
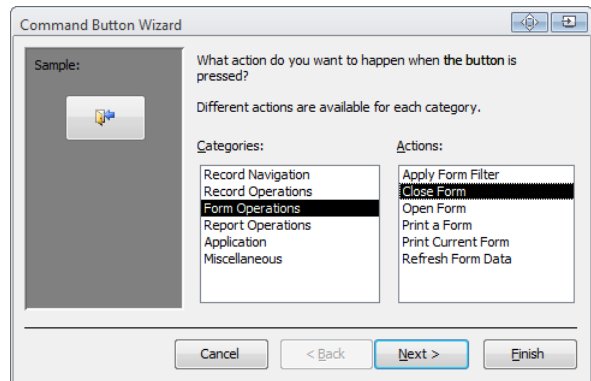
You could also use the 'Save Record' open in the 'Command Button Wizard' which will save the record you have just entered.
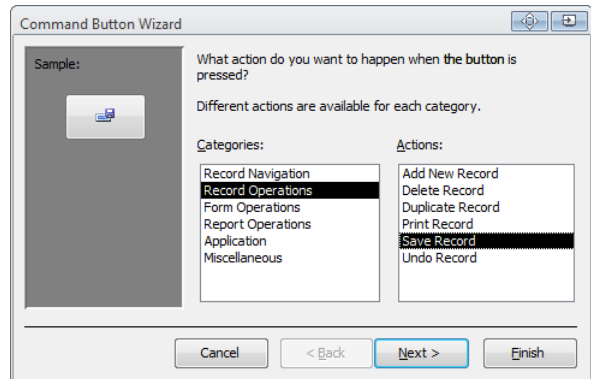
You can then use the 'Close Form' option to close the form.
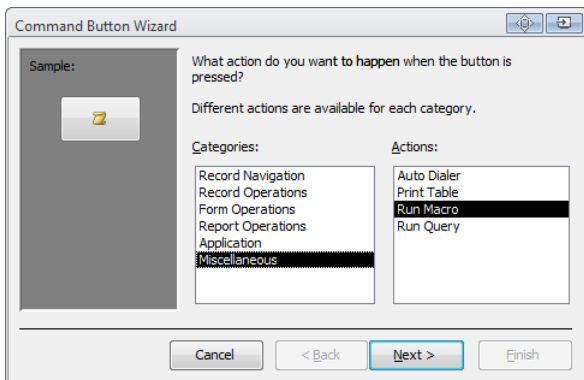
You can even create a macro that will save and close the form in one go. There are lots of different ways to do things and credit will be given as long as the task is solved.

Q16)

I have a query regarding the Sample Assessment Material 2 for Unit 2. The data file provided doesn't include a Job ID in the text file, and when I've read through the assignment brief, I can't find a requirement to add a Job ID as part of an activity. In fact Activity 1 says that the students must normalise the given data to third normal form.

Since there is no Job ID included, the outcome of normalisation is different to the sample marked learner work (SMLW) provided. In fact, it completely changes the structure of the database. Without the job ID, only 3 entities are needed, with the job ID 4 entities are needed.

Obviously I could instruct students to add a job ID, but which row of data gets which job ID???

Could you find out for me if this was an oversight in producing the data file for the SAM, or are students going to be expected to create attributes in the actual exam?

Q16 Answer:

For activity 1, learners are required to create an ERD diagram. However, before this can happen, they must first normalise the data. When you start to normalise the data you will then end up with more tables. Therefore, they will naturally be creating extra attributes because they will need to join the tables together using primary and foreign keys. If these are already in the data then they would be used, however if not then learners will need to set these up. Apart from the keys, they will not be required to setup other attributes unless the exam paper directly specifies so.

Q17)

For unit 2 - Activity 2 - Data Dictionary - For the validation section as the students have been already been provided with the data in the tables, to what extend do they need to validate the data? Also should they do the validation before they set up the relationships?

Q17 Answer:

It is always good practice to setup the tables fully, then setup the relationships and then enter the data. In terms of the extent of data validation, it doesn't specify how many fields. However for activity 5, it does specify in the top band of the mark scheme that the "Database uses accurate validation and checking procedures throughout, resulting in a robust system that minimises errors and handles unexpected events." Therefore I would say, if there is an opportunity for the user to enter something incorrectly, then they should add a data validation rule to it. Examples include: <Date() , NOT > 10 , BETWEEN 1 and 10 etc.

Q18)

1. The specification says 'devising and using SQL statements to extract, manipulate and modify data. How much SQL do we need to use? Can the SQL be written in Access- is this sufficient for all grade boundaries? What SQL skills should be taught, the spec is a little vague on this section?
2. In the marked example work the student doesn't appear to use SQL Is it possible to get an example of student work using SQL

Q18 Answer:

You can indeed write SQL in Access. When you setup a new query, you can choose to view it in SQL view. This will open a tab that will allow you to write your SQL (see screenshot below).
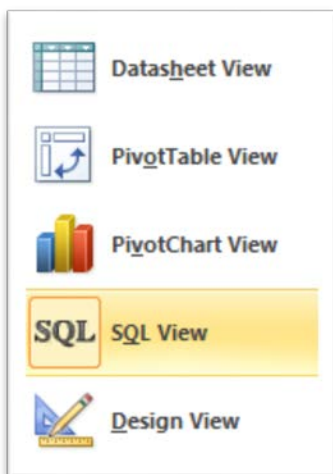
I would stick with the basics such as SELECT, FROM, WHERE, ORDER BY, GROUP BY, HAVING. This website may be of some use to you. https://support.office.com/en-gb/article/Introduction-to-Access-SQL-d5f21d10-cd73-4507-925e-bb26e377fe7e#bm1

It is however worth noting that SQL does not appear in the mark scheme for unit 2 but learners could still use this to show a greater / more advanced understanding to get into the top mark band.

Q19)

Do students need to be taught the following? I am not clear from the SAM the depth of response required.

- Append queries to put data input into a form into a table (an unbound form).
- Macro to automate the above process.

Q19 Answer:

Anything that does not appear on the specification does not need to be delivered. All of the content that is on the specification needs to be delivered but students will not be assessed on everything. Append queries and macros don't appear on the mark scheme however learners may still wish to use these as they show a greater and more advanced understanding.

Q20)

Please clarify an issue about 3rd Normal form and ERD, UNIT 2 requires pupils to design an ERD in 3rd normal form.

Is it the expectation of Pearson that if the data set which is supplied for the exam generates a many to many relationship the pupil would automatically create a new table with a new primary key and this would be reflected in their ERD?

Q20 Answer:

Thank you for your query. Databases should not have many to many relationships. This is because it creates redundant data, reduces data integrity and makes the database more difficult to maintain. Is it an expectation? Well, this depends what mark learners want.

If you look at the mark scheme for unit 2, activity 1, band 4, it states "with no data redundancy." Having a many to many relationship would therefore create redundant data and so therefore learners would be required to add extra link tables to get into the higher bands.

If you look at the mark scheme again for unit 2, activity 5, band 4 it states 'Database has a logical structure that fully enforces data integrity for relationships throughout.' This cannot be achieved if there are many to many relationships within the database.

Therefore if learners want to get into the higher bands they would need to add link tables where there are many to many relationships.

Q21)

Having reviewed the exemplar material, including the sample material and the previous controlled assessment task.
- I have seen that students have evidenced the creation of macros – however this does not seem to be a unit requirement in the specification?
- Do students need to be able to create macros, or is using the built in wizard okay?

Q21 Answer:

Learners are not required to use macros. Macros can be really useful but as with a lot of things in this unit, there are multiple ways of doing things. The key is that the database that learners produce meet the requirements in the exam paper. They are therefore required to choose the tools that they have been taught to be able to meet these requirements.

The key here is that any tools they use:
- Can be maintained by a third party easily
- Work correctly / are fully functional
- Meet the given criteria

Whether they use macros or something else, as long as the list above is met they will be fine. To answer your second question, yes they can use the wizard. We don't want to complicate things when the same outcome can be achieved using a simple wizard.