

Pearson BTEC Level 3 Nationals Certificate, Extended Certificate,
Foundation Diploma, Diploma, Extended Diploma

Wednesday 13 January 2021

Afternoon (Time: 3 hours)

Paper Reference **31761H**

Information Technology

Unit 2: Creating Systems to Manage Information

Part A

You must have:

activity2.rtf, activity3.rtf, activity4.rtf

Instructions

- **Part A** and **Part B** contain the material for the completion of the set tasks under supervised conditions.
- There are 40 marks for **Part A** and 26 marks for **Part B**, giving a total mark for the set tasks of 66.
- **Part A** and **Part B** are specific to each series and this material must be issued only to learners who have been entered to take the tasks in the specified series.
- Learners **must only** have access to **Part A** during this examination session.
- This booklet should be kept securely until the start of the 3-hour supervised assessment period.
- **Part B** materials **must not** be accessed during completion of **Part A**.
- **Part A** and **Part B** should be submitted together for each learner.
- This booklet should not be returned to Pearson.
- Answer **all** activities.

Information

- The total mark for this paper is 40.

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Instructions to Invigilators

This paper must be read in conjunction with the unit information in the specification and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document. See the Pearson website for details.

Refer carefully to the instructions in this task booklet and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document to ensure that the assessment is supervised correctly.

The 3-hour **Part A** set task must be carried out under examination conditions.

Electronic templates for Activities 2, 3 and 4 are available on the website for centres to download for candidate use.

Learners must complete this task on a computer using the templates provided and appropriate software. All work must be saved as PDF documents for submission.

Invigilators may clarify the wording that appears in this task but cannot provide any guidance in completion of the task.

Invigilators should note that they are responsible for maintaining security and for reporting issues to Pearson.

Maintaining Security

- Learners must not bring anything into the examination environment or take anything out.
- Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the examination environment.
- Internet access is **not** permitted.
- Learners' work must be regularly backed up. Learners should save their work to their folder using the naming instructions indicated in each activity.
- During any permitted break, and at the end of the examination, materials must be kept securely, and no items removed from the supervised environment.
- Learners can only access their work under supervision.
- User areas must only be accessible during the examination session and only by the individual learners.
- Any materials being used by learners must be collected in at the end of the examination.
- Following completion of **Part A** of the set task, all materials must be retained securely for submission to Pearson.
- **Part B** materials must not be accessed during the completion of **Part A**.

Outcomes for Submission

Each learner must create a folder to submit their work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

Each learner will need to submit 6 PDF documents **and** their final database within their folder.

The 6 PDF documents should use these file names:

- Activity 1:** activity1_[Registration number #]_[surname]_[first letter of first name]
- Activity 2:** activity2_[Registration number #]_[surname]_[first letter of first name]
- Activity 3:** activity3_[Registration number #]_[surname]_[first letter of first name]
- Activity 3d:** activity3d_[Registration number #]_[surname]_[first letter of first name]
- Activity 4:** activity4_[Registration number #]_[surname]_[first letter of first name]
- Activity 5:** activity5_[Registration number #]_[surname]_[first letter of first name]

The work should be submitted no later than 18 January 2021.

Instructions for Learners

Read the set task information carefully.

Plan your time carefully to allow for the preparation and completion of all the activities.

Internet access is **not** allowed.

You will complete this set task under supervision and your work will be kept securely at all times.

You must work independently throughout the examination and **must not** share your work with other learners.

Your invigilator may clarify the wording that appears in this task but cannot provide any guidance in completion of the task.

Part B materials **must not** be accessed during the completion of **Part A**.

Outcomes for Submission

You must create a folder to submit your work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

You will need to submit 6 PDF documents **and** your final database within this folder.

The 6 PDF documents should use these file names:

- Activity 1:** activity1_[Registration number #]_[surname]_[first letter of first name]
- Activity 2:** activity2_[Registration number #]_[surname]_[first letter of first name]
- Activity 3:** activity3_[Registration number #]_[surname]_[first letter of first name]
- Activity 3d:** activity3d_[Registration number #]_[surname]_[first letter of first name]
- Activity 4:** activity4_[Registration number #]_[surname]_[first letter of first name]
- Activity 5:** activity5_[Registration number #]_[surname]_[first letter of first name]

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Part A Set Task Brief

You are advised to spend 10 minutes reading the Task Scenario and the activities you are to complete.

You may make notes and/or highlight information to use in the completion of the documents you need to produce for your task.

Task Scenario

You have been asked to create a database for Smart Art.

The company runs exhibitions in art galleries.

Galleries are either combo or commercial.

A combo gallery is a gallery in the premises of another company. For example a furniture store that displays the art.

Artists show their work at exhibitions in the galleries.

The database will record information about:

- galleries
- artists
- exhibitions.

An exhibition runs for at least three days and no more than ten days.

An exhibition is for a single artist and held in a single gallery.

Data kept about the artist includes their surname and the initial of their first name. The initial must be uppercase.

An extract of the data the company would like to record is shown in **Figure 1**.

| Exhibition ID | Num Days | Artist ID | Gallery | Artist Surname | Gallery ID | Gallery Type ID | Artist Initial | Gallery Type | Exhibition Start Date | Predicted Sales |
|---------------|----------|-----------|--------------------|----------------|------------|-----------------|----------------|--------------|-----------------------|-----------------|
| 1 | 7 | 7 | Kingdom Works | Magyar | 7 | 1 | P | Commercial | 05/12/2020 | £3695.00 |
| 2 | 4 | 1 | Hauser & Bodega | Andreasson | 6 | 1 | Q | Commercial | 14/12/2020 | £1112.00 |
| 3 | 4 | 3 | Neue Brand Haus | Coumans | 2 | 1 | H | Commercial | 20/12/2020 | £3639.00 |
| 4 | 3 | 6 | Brand Arts | Fuentes | 4 | 1 | P | Commercial | 26/12/2020 | £1955.00 |
| 5 | 10 | 2 | Neu Gallery | Atteberry | 5 | 1 | J | Commercial | 31/12/2020 | £2093.00 |
| 6 | 5 | 4 | Decadent Furniture | Robinson | 1 | 2 | J | Combo | 12/01/2021 | £1612.00 |
| 7 | 5 | 2 | Neue Brand Haus | Atteberry | 2 | 1 | J | Commercial | 19/01/2021 | £3427.00 |
| 8 | 4 | 3 | Neu Gallery | Coumans | 5 | 1 | H | Commercial | 26/01/2021 | £3705.00 |
| 9 | 3 | 2 | Brand Arts | Atteberry | 4 | 1 | J | Commercial | 01/02/2021 | £3071.00 |
| 10 | 8 | 6 | Hauser & Bodega | Fuentes | 6 | 1 | P | Commercial | 06/02/2021 | £2042.00 |

Figure 1

Part A Set Task

You must complete ALL activities within the set task.

Produce your documents using a computer.

Save your documents in your folder ready for submission using the formats and naming conventions indicated.

Activity 1: Database relationships screenprint (45 minutes)

Study the data extract provided in **Figure 1**.

Create an efficient database structure that:

- minimises data duplication
- accepts the data provided
- uses recognised naming conventions
- ensures data integrity.

Ensure you use **all** and **only** the fields shown in **Figure 1**.

Screen print your database relationships.

Save your database relationships screenprint as a PDF in your folder for submission as **activity1_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 45 minutes on this activity.

(Total for Activity 1 = 8 marks)

Activity 2: Table structures and validation (45 minutes)

Create efficient table structures based on Activity 1 and the data shown in **Figure 1**.

The table structures must use suitable validation to meet these requirements:

- a record for an artist will not save without the artist's surname present
- a record for an artist will not save without the artist's initial in the correct format
- a record will not save if a gallery is assigned an invalid gallery type
- a record will not save if the exhibition is for an invalid artist
- a record will not save if the number of days is below the accepted range
- a record will not save if the number of days is above the accepted range.

Input the data given in **Figure 1** into your relational database.

Evidence your table structures and validation as screenprints using the given **activity2.rtf** template.

Display your screenprints to show:

- the design view of each table showing the structure, including the fields and data types
- validation including one suitable example for each of these:
 - presence check
 - length check
 - value lookup **or** range check
 - table lookup
 - format check.

Save your evidence of the table structures as a PDF in your folder for submission as **activity2_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 45 minutes on this activity.

(Total for Activity 2 = 8 marks)

Activity 3: Queries and Report (40 minutes)

Queries

- (a) Create a query to display an alphabetically sorted list of commercial galleries that have exhibitions running for at least five days. It must show the gallery name, gallery type and number of days only.
- (b) The gallery earns commission for every piece of art sold:
 - the basic commercial commission rate is 40%
 - the basic combo commission rate is 20%.

Create a query that will allow the user to enter a parameter value for an artist's surname when run. Calculate the:

- number of exhibitions
- predicted commission Smart Art will receive.

Display:

- the artist's surname
- the artist's initial
- the commission rate
- the predicted commission.

Evidence your queries as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the queries specified that you have created, including fields and criteria
- the **DATASHEET** view of the queries specified that you have created.

Report

(c) Create a report that shows a list of galleries and their exhibitions.

For each gallery, calculate:

- the end date for each exhibition
- the total number of exhibitions
- the total number of days that exhibitions will run.

Display:

- a suitable report title
- the gallery names
- the start date for each exhibition
- the end date for each exhibition
- the total number of exhibitions for each gallery
- the total number of days that exhibitions will run in each gallery.

The report must fit on one page.

Evidence your report as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the report you have created, including grouping and calculations
- the **DESIGN** view of any queries you have created and used with the report, including fields and criteria
- the **DATASHEET** view of any queries you have created and used with the report.

Save your query and report evidence as a PDF in your folder for submission as **activity3_[Registration number #]_[surname]_[first letter of first name]**

(d) Save your database report (not a screenprint) as a PDF in your folder for submission as **activity3d_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 40 minutes on this activity.

(Total for Activity 3 = 12 marks)

Activity 4: Structure Testing (20 minutes)

Test the structure and the validation of your relational database using suitable test data (normal, erroneous and extreme as appropriate).

You must provide evidence of table level testing that proves:

1. a record for an artist will not save without the artist's surname present
2. a record for an artist will not save without the artist's initial in the correct format
3. a record will not save if a gallery is assigned an invalid gallery type
4. a record will not save if the exhibition is for an invalid artist
5. a record will not save if the number of days is below the accepted range
6. a record will not save if the number of days is above the accepted range.

Complete the test log to show how you have tested the structure and validation of your database using the given **activity4.rtf** template.

Save your test log as a PDF in your folder for submission as
activity4_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 4 = 6 marks)

Activity 5: Structure Evaluation (20 minutes)

Evaluate your database structure and validation.

You should consider:

- how well your database structure has minimised data duplication
- how well your database structure meets these requirements:
 - an exhibition runs for at least three days and no more than ten days
 - an exhibition is for a single artist and held in a single gallery
 - galleries are either combo or commercial.

Save your evaluation as a PDF in your folder for submission as
activity5_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 5 = 6 marks)

TOTAL FOR PART A = 40 MARKS