T Level Technical Qualification in Digital Support Services (603/6901/2)

Route Core and Pathway

Paper B

Paper number: P00XXXXX

Specimen 2020   **Morning/Afternoon**

Time allowed: 2 hours 30 minutes

To be completed by the Examiner			
Question	Mark	Question	Mark
1		18	
2		19	
3		20	
4		21	
5		22	
6		23	
7		24	
8		25	
9		26	
10		27	
11		28	
12		29	
13		30	
14		31	
15		32	
16		33	
17			
		TOTAL MARK	

Student instructions
- Use black or blue ink.
- Fill in the boxes at the bottom of this page.
- Answer **all** questions.
- Read each question carefully.
- You **must** write your responses in the spaces provided. There may be more space than you need.
- You may do rough work in this answer book.
- Cross through any work you do not wish to be marked.

Student information
- The marks available for each question are shown in brackets. This is to help you decide how long to spend on each question.
- The maximum mark for this paper is 131 (including 6 for quality of written communication (QWC) and use of specialist terminology).
- In questions **23** and **33**, you will be assessed on your QWC and use of specialist terminology.
- You may use a calculator.

Please complete the details below clearly and in BLOCK CAPITALS.

Student name _____

Provider name _____

Student number [_____]   Provider number [_____]

Do not turn over until the invigilator tells you to do so.

BARCODE - TQ/EC/CKU/PAPERB

NCFE

Section A: Digital Support Services pathway

This section is worth 25 marks.

Answer **all** questions in the spaces provided.

1   Describe **one** way organisations can use instant messaging (IM) applications to improve **external** communication.

[2 marks]

2   Describe **two** reasons why it is important for a digital support professional to maintain an asset register.

[2 marks]

3   Describe **three** routes that an individual may take if they want to become a digital support worker.

[3 marks]

4 Users of a networked colour printer have reported that it is not working for the third time in two weeks.

A support technician has completed all routine checks and troubleshooting steps recommended by the manual. The printer is still not working.

Select an appropriate root cause analysis approach and describe how this could be used to solve the printer problem.

[3 marks]

5 A support desk manager has been reviewing customer feedback. The manager has noticed that many customers feel the agents answering their call do not listen to their problems fully.

The manager has now arranged training for the agents on active listening.

Discuss **three** ways that active listening could benefit the business.

[3 marks]

6   A consultant has created the following infographic to be distributed to local schools:

7 Internet Safety Tips EVERY Parent Must Show Their Child!

FIRST EDUCATE YOURSELF, THEN YOUR FAMILY AND FRIENDS

1. **Keep your information private**
Never reveal personal info online.
This includes your last name, address and phone number

2. **Be careful what you share online**
Posts can be found and tied back to you (and posting derogatory comments can lead to arrests.)

3. **Always log off**
Make it a habit to always sign out of your social media accounts after using them

4. **Check your settings**
Be sure to use your privacy settings on social networks

5. **Don't forget your antivirus and antispyware**
Make sure your computer is protected from outside threats

6. **Never agree to meet someone you've only talked to online**
Don't agree to meet someone you "met" on the internet

7. **Wait to download**
Don't download anything without checking with your parents first

Discuss why the infographic would be effective in helping children to stay safe online.

[4 marks]

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7   A helpdesk has received the following message from a customer:

"A few minutes after logging into my computer, it starts running really slow. Lots of windows keep opening even though I am not opening any new programs up. Could you help me please?"

The helpdesk has decided to use screen share to resolve the situation.

Explain **four** reasons why using screen share would be effective.

[4 marks]

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8 A technical support company noticed that some of their customers had started to use rival services. The company surveyed past customers to find out why. The most common reasons were 'slow response times to incidents' and 'poor security standards'.

The company is considering the use of monitoring tools as a possible solution for this.

Describe each of the following system monitoring tools:

- system alarms
- logs.

Explain how each of these tools could be used to improve the performance of the support company.

[4 marks]

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Section B: Tools and testing

This section is worth 21 marks.

Answer **all** questions in the spaces provided.

9 Identify **two** project management methods that can be used to manage digital projects.

[2 marks]

10 A car manufacturer is launching a new model. They plan to brief staff on the specification, price and projected sales of the new model, at a training conference.

Describe **two** digital tools or methods that could be used to support this communication.

[2 marks]

11   A haulage firm is based in the North West of England. They are looking to increase their share of the UK market and have started a nationwide marketing campaign to attract new visitors to their website.

Below are the statistics of the marketing campaign:

Region	Visitors	Bounce Rate (%)
North East	122	60%
North West	250	87%
Midlands	34	80%
London	546	67%
South West	120	84%
South East	211	56%
Scotland	87	86%
Wales	17	91%

Explain **one** way in which the haulage company can use the statistics to target new customers.

[2 marks]

Date	Issue	Resolved	Escalated	Time Taken (Hrs)
02/02/2020	Application crash due to operating system update	N	Yes	00:30
02/02/2020	Application crash due to operating system update	N	Yes	00:30
02/02/2020	Application crash due to operating system update	N	Yes	00:30
02/02/2020	Application crash due to operating system update	N	Yes	00:30
02/02/2020	Application crash due to operating system update	N	Yes	00:30
02/02/2020	Application crash due to operating system update	N	Yes	00:30
02/02/2020	Printer toner empty	Y	N/A	00:45
02/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Server restart	Y	N/A	01:00
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30
03/02/2020	Application crash due to operating system update	N	Yes	00:30

Figure 1 shows an extract from a tier 1 technician's support request. You can see that a lot of calls to the helpdesk are about a recent operating system update.

Describe the possible benefits to the helpdesk of using a root cause analysis.

[3 marks]

13 A new app has been designed.

Describe **three** recognised methods of testing this app that can lead to a successful launch.

[3 marks]

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14 A theme park has introduced a new interactive app. This app allows visitors to access additional information and educational videos as they walk around the park. The visitor numbers were extremely high in the week that the app was released.

Many visitors gave feedback to say they were unhappy that at peak times the application crashed several times and performance was sluggish.

Explain **two** ways in which stress testing could have improved the performance of the application when it was released.

[4 marks]

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15   A business has recently completed a company-wide survey on staff efficiency and wellbeing. The business has six sites spread across the UK and several workers who are home-based.

Feedback from the survey suggested that communication within the business was ineffective and that staff felt they lacked access to organisational news and updates. Home-based workers complained they sometimes felt isolated.

a) Discuss **three** ways that digital collaborative communication tools could tackle the staff concerns and improve their efficiency and wellbeing.

[3 marks]

b) Describe **two** possible digital collaborative communication tools and technologies that the business could use.

[2 marks]

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Please turn over for the next section.

Section C: Security and legislation

This section is worth 35 marks, plus 3 marks for QWC and use of specialist terminology.

Answer **all** questions in the spaces provided.

16 State **one** industry standard that must be considered when processing card payments.

[1 mark]

17 A small law firm has recently been the subject of a successful external cyber attack, during which sensitive information was stolen and leaked online.

What is an 'intrusion detection system'?

Explain how this kind of system can be used to defend against further attacks.

[2 marks]

18 You have been employed as a security consultant for a firm of accountants. The firm have asked you to investigate the security of their HR system that stores all their employee data. In your investigation, you have found several vulnerabilities within the system.

Below is an example report that can be generated from the company's HR database:

Employee			
Name		Address	
Contact Number			
D.O.B.		Email	
NI Number			

Emergency Contact			
Name		Address	
Contact Number			
2nd Contact Number		Email	

Contact Details			
Job Title		Start Date	
Salary		Termination Reason	

An attacker has gained unauthorised access to the confidential data.

Describe **three** ways in which the attacker could use this data inappropriately.

[3 marks]

19   A company wants to check that they are complying with the Freedom of Information Act 2000.

The company has had problems with staff leaving unprofessional notes about customers on the customer management system.

Evaluate how the business could be impacted if a customer requested a copy of their records under the Freedom of Information Act 2000.

[4 marks]

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20   A clothing brand has expanded their sales operation. They now have a website so they can sell to customers outside of the local area. The website is heavily promoted through the social channels of their brand influencer.

Describe the following two IT security threats and explain how each threat could affect the clothing brand:

- distributed denial-of-service (DDoS)
- spear phishing.

[4 marks]

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21 A gaming retailer specialising in PCs and consoles only sells online and has built an excellent reputation with their customers.

Confidentiality and integrity are two principles of network security.

Describe each principle.

Explain how each principle applies to this gaming retailer business:

- confidentiality
- integrity.

[4 marks]

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Please turn over for the next question.

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22 A software business wants to make sure that its latest security product meets the required industry minimum security standards.

a) Explain why it is important to the business that their product can meet these standards.

[2 marks]

b) Evaluate the potential reputational impact of not being able to comply with the security standards.

[3 marks]

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23 A local school is planning an upgrade of their IT systems. Their current network OS and client OS is over 10 years old.

The school plans to migrate the classroom register from a shared spreadsheet to a system hosted on a database in the cloud. Recently, there have been several successful unauthorised access attempts on the shared drives due to teacher passwords being guessed.

All teacher passwords have now been reset to a random word and distributed to each teacher individually.

Evaluate the school's digital security. You **must** comment on:

- **one** technical and **one** non-technical vulnerability
- potential impacts of these vulnerabilities
- potential components that can be put in place to make unauthorised access less successful.

[12 marks plus 3 for QWC]

Please turn over for the next section.

Section D: Data and digital analysis

This section is worth 44 marks, plus 3 marks for QWC and use of specialist terminology.

Answer **all** questions in the spaces provided.

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24 State **one** possible purpose of an algorithm.
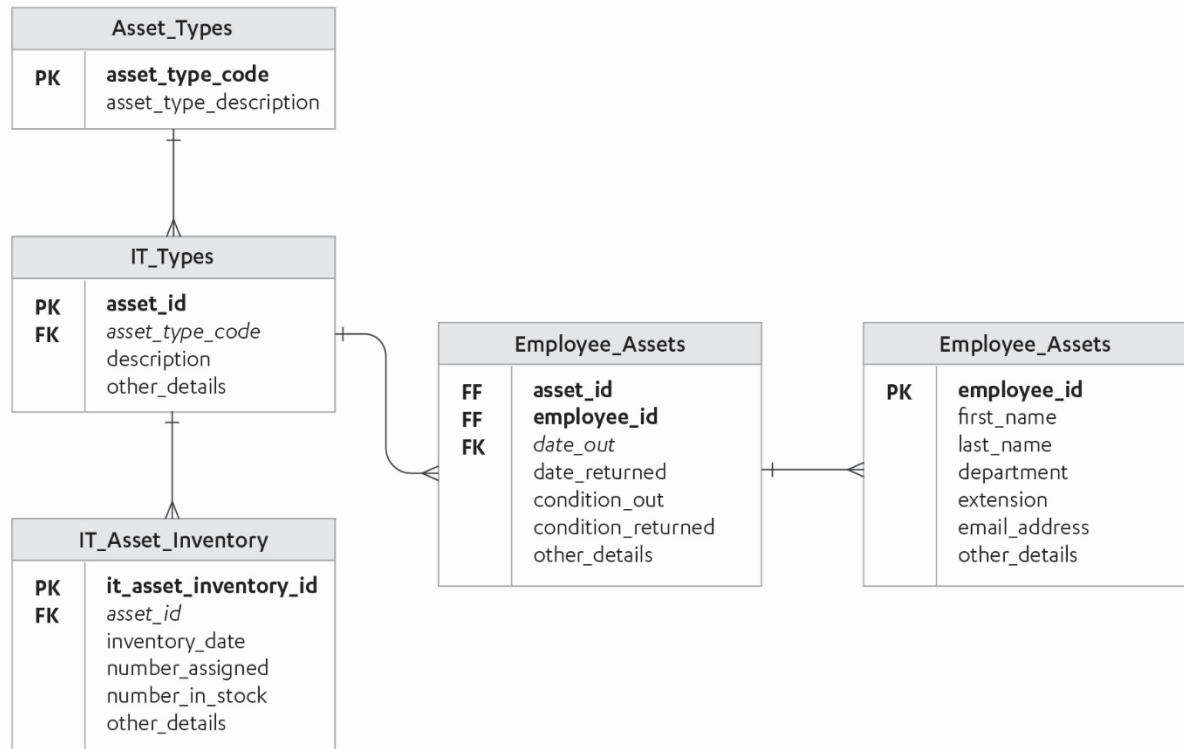
[1 mark]

25 Describe an iterative algorithm.

[2 marks]

The data modelling for a company is shown in the diagram above.

Describe how this entity relationship diagram can improve the control and monitoring of the company's IT assets.

[2 marks]

27 A junior developer is creating a piece of software for a non-technical client. The client has asked for an overview of how the software will work.

Explain **three** benefits of using pseudocode to give this overview.

[3 marks]

28   A large organisation with 1000 users has reviewed its current access control policies. The organisation has found that many users can access files and folders on the network that they should not be able to access.

The organisation currently uses a mandatory access control system where administrators are responsible for assigning access rights to users. The administrator has suggested that a role-based access control system might be better.

Explain why replacing the current access control system with a role-based access control system would be beneficial to the organisation.

[4 marks]

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29   A business has recently seen a large increase in demand for their services. The business currently operates from their original premises, which are small and cannot physically expand. The business also currently struggles to store and process their customers' data on a small on-premises server.

Identify **two** benefits of cloud storage and describe **two** reasons why cloud storage would be suitable for this business.

[4 marks]

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Please turn over for the next question.

30 A large technology solutions provider operates in the UK. The business uses call logging and statistics to monitor the performance of their sales operators. Every call that an operator makes or receives is logged. The duration of calls is also logged. Each operator is expected to log around 60 calls per day.

Below is an extract of yesterday's call log:

Sales Operative	Origin of Call	Time of Call	Duration
Joanne Jones	England	09:01	01:00
Frank Smith	Scotland	09:01	06:00
Ben Harrison	Scotland	09:02	02:30
Carl Cooper	Wales	09:03	02:48
Mark Teasdale	Unknown	09:10	00:05
Rachel Kirby	Unknown	09:10	00:05
Pauline Craik	Unknown	09:10	00:05
James Clark	Unknown	09:10	00:05
Shelby Thomas	Unknown	09:10	00:05
Frank Smith	England	09:15	08:00
Joanne Jones	Scotland	09:15	00:47
Ben Harrison	Wales	09:15	02:27
Joanne Jones	Wales	09:20	00:58
Carl Cooper	Wales	09:25	02:22
Joanne Jones	England	09:26	00:15
Frank Smith	England	09:27	11:44
Joanne Jones	England	09:28	00:08
Ben Harrison	England	09:28	03:45
James Clark	England	09:29	01:58
Carl Cooper	Scotland	09:30	02:16
Ben Harrison	Scotland	09:31	04:15
Rachel Kirby	England	09:33	03:16

The business uses digital analysis to inform their decisions.

Describe **two** methods of abstraction. Explain how **each** method could be used with the data set provided.

[4 marks]

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Please turn over for the next question.

31   Your company is part of a movie streaming service. The company collects large amounts of data on viewing habits of customers and operational performance data. This data includes:

- most-watched genre
- most-watched actors
- keywords associated with watched items.

When they register, new customers select viewing preferences. The system also monitors how many people are streaming at the same time, streaming speeds and new subscriptions per month.

The movie streaming service wants to identify trends and patterns to support marketing and operational activities.

Discuss **three** ways that the service could use the collected data to do this.

In **each** case, explain the benefit to the business of using this data.

[6 marks]

Please turn over for the next question.

32 Your organisation wants to automate processes to save cost, categorise customer complaints about packaging and reduce their carbon footprint. As a result, some of the packaging decisions will now be made by an algorithm. All products must be packaged based on number of items and weight and dimensions of those items.

Analyse how pattern recognition and decomposition could help design an effective algorithm to make this packaging process effective.

[6 marks]

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33   A small local bakery has decided to digitalise their business. The bakery will offer online ordering, payment and delivery service to customers.

Recommend usable relational database systems and evaluate your decisions.

Your response must include:

- **two** resource considerations of data entry and maintenance
- **two** key functions that the relational database should perform
- considerations of validation and verification of data entry.

[12 marks plus 3 for QWC]

This is the end of Paper B.

Document information

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Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Published.		December 2020
v1.1	NCFE rebrand.		September 2021