OCR
Oxford Cambridge and RSA
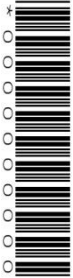
SAMPLE ASSESSMENT MATERIAL

Level 3 Cambridge Technical in IT
05838/ 05839/ 05840/ 05841/ 05842
Unit 1 Fundamentals of IT

Date – Morning/Afternoon

Time Allowed: 1 hour 30 minutes

You may use:
- a calculator

First Name		Last Name	
Centre Number		Candidate Number	
Date of Birth			

INSTRUCTIONS
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided.
- Do **not** write in the bar codes.

INFORMATION
- The total mark for this paper is **80**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document consists of **16** pages.

Answer **all** the questions.

Section A

1   For each question, put a tick in the righthand column of the table to show the correct answer.

(a) Which of these items is ordered correctly, smallest to largest?

Item	Tick
giga, kilo, mega, tera	
kilo, giga, mega, tera	
kilo, mega, giga, tera	
tera, giga, kilo, mega	

[1]

(b) How many bits in 1 kibibit?

Number of bits	Tick
1000	
1024	
2000	
2048	

[1]

(c) Which of these items is a biometric security method?

Item	Tick
Iris	
Password	
RFID	
Token	

[1]

(d) Which of these items is an advantage of a teleconference?

Item	Tick
Can hear how something is said	
Can remove communication barriers	
Can see visual queues	
Can send documents electronically	

[1]

(e) Which of these items is **not** a function of an operating system?

Item	Tick
Checking memory before the device boots	
Displaying data on a screen	
Handling what has been typed in on a keyboard	
Memory management	

[1]

(f) Which of these items are examples of whistle blowing?

Item	Tick
Informing a manager that the backup of the computer system has not completed to schedule	
Sharing your password to the computer system with a colleague	
Talking about something that happened at work with family at home	
Telling a manager about an employee's serious breach of health and safety procedures	

[1]

(g)
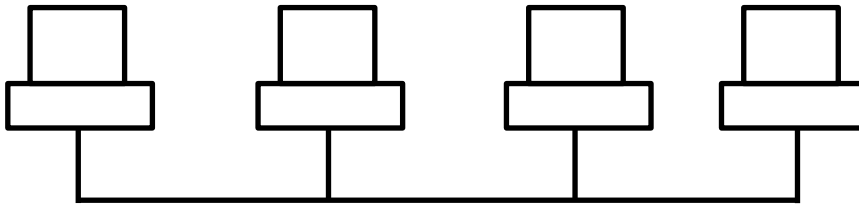
Which topology is shown in the diagram above?

Topology	Tick
Bus	
Mesh	
Ring	
Star	

[1]

(h) Which device is needed to connect a computer to an ADSL line?

Device	Tick
Hub	
Modem	
Router	
Switch	

[1]

(i) Which of these is **not** a characteristic of a token ring network?

Characteristic	Tick
Device must seize token to communicate	
Every device on network inspects the token	
Token moves between devices in a random order	
Token moves one way around the ring	

[1]

(j) Which protocol is used to transfer email from server to server?

Protocol	Tick
FTP	
POP	
SMTP	
SNMP	

[1]

(k) Convert 66 in decimal to 8 bit binary.

Item	Tick
01000000	
01000010	
10001000	
10111101	

[1]

(l) Convert 100 in decimal to hexadecimal.

Item	Tick
24	
25	
64	
65	

[1]

(m) Which of these does **not** need configuring to allow a device to communicate on the Internet?

Item	Tick
Default gateway	
DNS server	
IP address	
Subnet mask	

[1]

(n) Which of these is **not** a wireless technology?

Item	Tick
Bluetooth	
Fibre	
Infrared	
Laser	

[1]

(o) Which of these communication methods would be most appropriate for tendering your resignation?

Communication method	Tick
Letter	
Social networking post	
Text message	
Video chat	

[1]

Section B

Progress Mutual is a bank with eight branches, based in the West Midlands. Its main business is to provide savings accounts to local people.

The bank has been open for nearly 100 years and has over 500 000 customers. Many of these customers use a passbook that lists all of their transactions and is updated every time they visit a branch. A new online banking system has recently been launched and a number of customers have started to use this.

As well as a mainframe, the bank has a number of other servers housed in a data centre in its head office. It also has a back-up data centre in an off-site location.

2   Progress Mutual uses an open source operating system on some of its devices.

Explain **two** advantages and **one** disadvantage of using an open source operating system.

1. _____

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2. _____

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Disadvantage _____

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[6]

3

(a) Progress Mutual is opening a new branch 50 miles away. It wants to create a network to connect the new branch to its IT systems. It could use ADSL or a leased line.

Compare the use of ADSL with a leased line for connecting the two locations.

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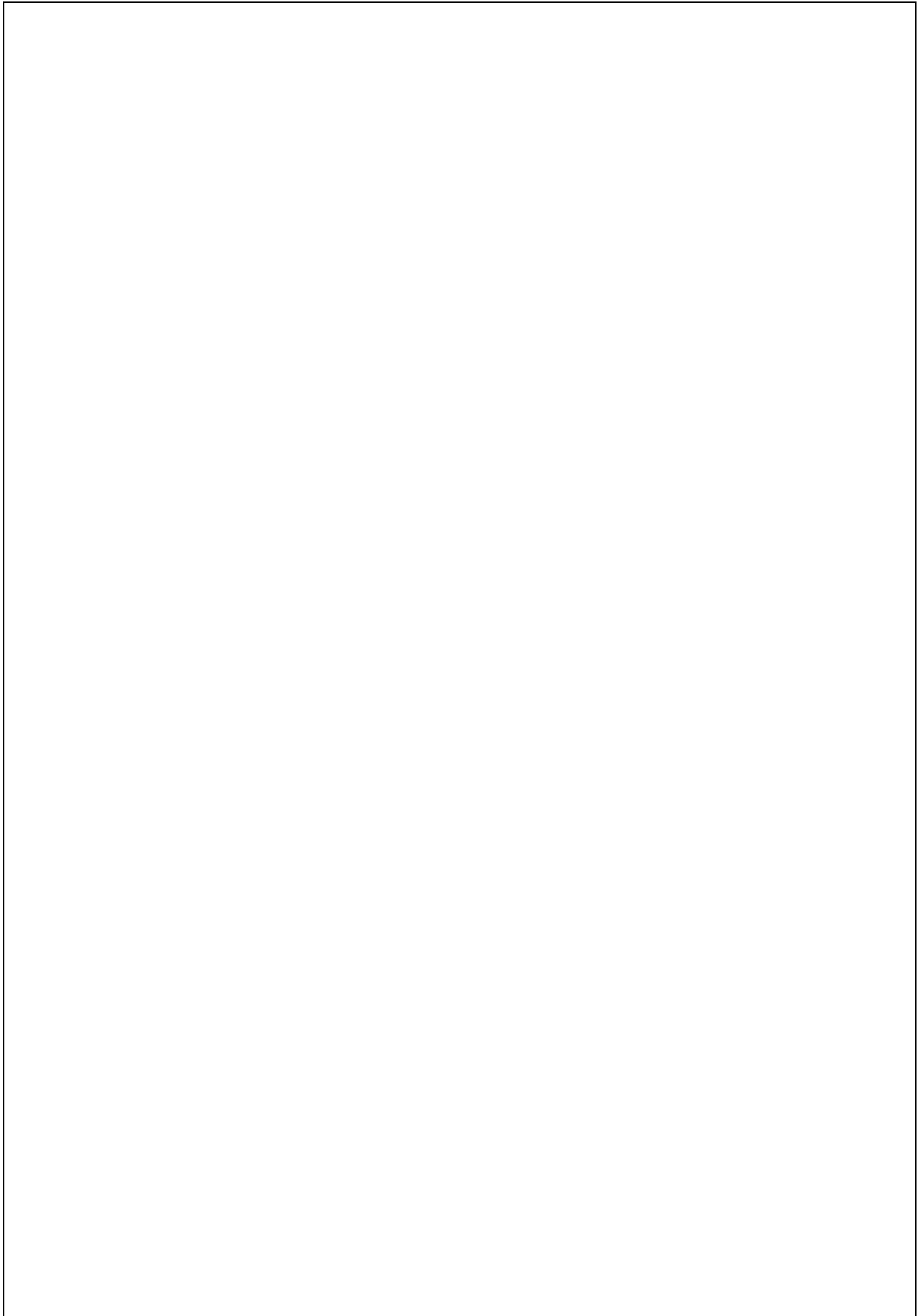
_____[6]

(b) Draw a diagram to show how the new branch would be connected to the data centre. You should clearly identify any hardware, communication and security technologies as appropriate.

[8]

4   Explain **one** reason why Progress Mutual uses a mainframe to process customer information.

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_____ **[3]**

5   Progress Mutual wants to employ a new network manager.

(a)   Describe **two** personal attributes that the new network manager should have and why they are needed.

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2._____

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[6]

(b) Progress Mutual has stated that the new network manager must work towards obtaining industry certifications.

Describe **one** benefit of the network manager having industry certifications.

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_____ **[2]**

6 * Progress Mutual uses virtualisation technology.

Evaluate the use of virtualisation technology to Progress Mutual.

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_____**[10]**

7   Staff at Progress Mutual must sign an Acceptable Use Policy (AUP)

Describe two items that could be included in the AUP.

1. _____

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2. _____

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[4]

8   Progress Mutual sends marketing information to customers using email.

Explain **two** benefits to Progress Mutual of using email to send marketing information to customers.

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2. _____

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[4]

9 *   Explain the measures Progress Mutual should consider when securing customers' data.

Your answer should include physical and digital security measures.

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_____[10]

10 Progress Mutual uses an MIS to help it run the bank.

Explain, using examples, how Progress Mutual could use an MIS.

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_____**[6]**

END OF QUESTION PAPER

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SAMPLE ASSESSMENT MATERIAL

LEVEL 3 CAMBRIDGE TECHNICALS IN IT

Unit 1 Fundamentals of IT

MARK SCHEME

Duration: 1 hour 30 minutes

MAXIMUM MARK   80

SPECIMEN

Version: 1 **Date:** 30/07/2015

This document consists of 9 pages
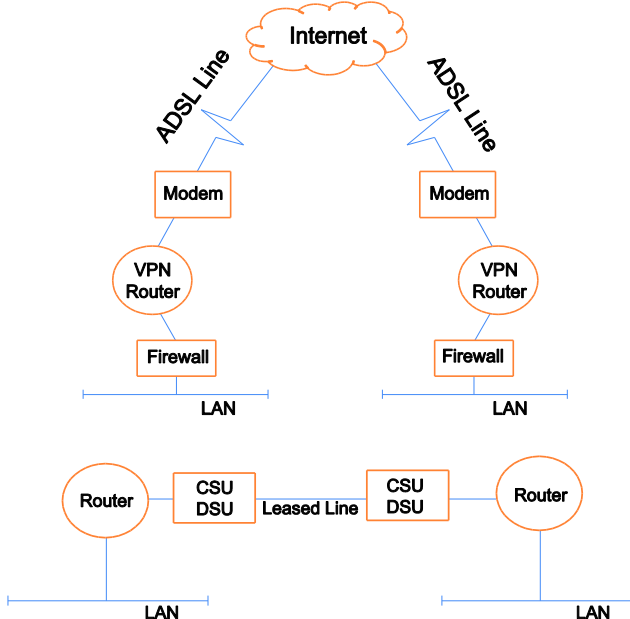
Section A

Question			Answer	Marks	Guidance
1	(a)		kilo, mega, giga, tera (1)	**[1]**	*For one mark:*
	(b)		1024 (1)	**[1]**	*For one mark:*
	(c)		Iris (1)	**[1]**	*For one mark:*
	(d)		Can hear how something is said (1)	**[1]**	*For one mark:*
	(e)		Checking memory before the device boots (1)	**[1]**	*For one mark:*
	(f)		Telling a manager about an employee's serious breach of health and safety procedures (1)	**[1]**	*For one mark:*
	(g)		Bus (1)	**[1]**	*For one mark:*
	(h)		Modem (1)	**[1]**	*For one mark:*
	(i)		Token moves between devices in a random order (1)	**[1]**	*For one mark:*
	(j)		SMTP (1)	**[1]**	*For one mark:*
	(k)		01000010 (1)	**[1]**	*For one mark:*
	(l)		64 (1)	**[1]**	*For one mark:*
	(m)		DNS server (1)	**[1]**	*For one mark:*
	(n)		Fibre (1)	**[1]**	*For one mark:*
	(o)		Letter (1)	**[1]**	*For one mark:*
			Total Section A	**[15]**	

Section B

Question			Answer	Marks	Guidance
2			**Advantages** • Source code available (1) so can be customised to the bank's needs (1). • Unnecessary features can be removed (1) which makes the product run faster/more secure (1). • Any other valid suggestion. **Disadvantage** • Support may be difficult to obtain (1) as development is often distributed (1). • May be prone to errors/bugs (1) as may not have been tested fully (1). • Any other valid suggestion.	**[6]**	*Points marking approach.* *Advantage:* *One mark for each correct identification up to a maximum of two identifications plus up to a further one mark for each of two valid explanations.* *Disadvantage:* *One mark for correct identification plus an additional one mark for valid explanation.*
3	(a)		**Indicative content:** • Leased line is a dedicated connection while ADSL is not. Both ADSL and leased line are high bandwidth. • Leased line is uncontended while ADSL is contended. • ADSL will need a VPN for security while leased line will not. • Any other valid suggestion.	**[6]**	*Levels of response marking approach.* <table><tr><td>4 - 6 marks</td><td>Has made two complete comparisons. At the bottom of the band, may be one complete comparison **and** a list of individual points.</td></tr><tr><td>1 - 3 marks</td><td>Has made one complete comparison or a list of individual points.</td></tr><tr><td>0</td><td>Nothing worthy of credit.</td></tr></table>

Question			Answer	Marks	Guidance
	(b)		**Marks to be allocated as follows:** • Any suitable diagram (1). • Router (1) at both ends of link (1). • Correctly identified WAN link(s) (1). • Modem/CSU/DSU (1) at both ends of link (1). • Labels identifying devices (1). • Diagram clear and well laid out (1). • Firewall (if using ADSL connection) (1). • Indication of VPN (if using ADSL connection) (1).	**[8]**	*Points marking approach to be applied to diagram.* *One mark for each correct identification up to a maximum of eight identifications.*
4			• Mainframes are reliable (1) and have been around for a long time (1). Customers expect to have access to their money (1). • Can process many transactions at the same time (1). Bank has a lot of customers (1) so mainframe provides the performance needed (1). • Any other valid suggestion.	**[3]**	*Points marking approach.* *One mark for correct identification plus up to a further two marks for a valid explanation.*

Question			Answer	Marks	Guidance
5	**(a)**		• Strong leadership (1) to set vision for team (1) to encourage the team to meet objectives. • Self-motivated (1), completed jobs without monitoring (1) as they need to work independently. • Dependable (1), can be trusted to complete tasks (1) + expansion. • Time management (1), able to prioritise tasks (1) + expansion. • Any other valid suggestion.	**[6]**	*Points marking approach.* *For each personal attribute:* *One mark for correct identification, one mark for valid description and one mark for valid explanation.*
	(b)		• Has necessary skills (1) to do the job properly (1). • Demonstrates technical proficiency (1) in the specific area (1). • Any other valid suggestion.	**[2]**	*Points marking approach.* *One mark for correct identification plus an additional one mark for valid description.*

Question	Answer	Marks	Guidance
6*	**Indicative content:** • Reduced longterm costs. • Adds complexity. • Physical host consolidation. • Increased use of devices. • Simplified disaster recovery. • Increased impact if system fails. • Significant up front/replacement cost. • End users unaware of technology. • Additional IT skills needed. • Any other valid suggestion.	**[10]**	*Levels of response marking approach.*

Marks	Guidance
7 - 10 marks	Has shown a detailed level of understanding by evaluating the use of virtualisation technology to Progress Mutual. The learner is able to provide a clear explanation of more than one use and the likely impact on Progress Mutual of using this technology. Relevant examples will be used to support evaluation and ideas will be expressed clearly and fluently. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.*
4 - 6 marks	Has shown a good level of understanding by explaining how virtualisation technology can be used by Progress Mutual. Explanations may concentrate on either the use of the technology or the impact on the organisation with limited depth in the expansions. Some examples used to support explanation may not be relevant and may at times detract from fluency of narrative. *There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.*
1 - 3 marks	Has identified points relevant to an organisation's use of virtualisation technology. Limited use of examples to accompany description and ideas will be poorly expressed. *The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.*
0 marks	Nothing worthy of credit

Question			Answer	Marks	Guidance
7			• Philosophy (1) of the bank (1). • Personal use (1) of IT resources (1). • Consequences (1) of breaching the policy (1). • Any other valid suggestion.	**[4]**	*Points marking approach.* *One mark for each correct identification up to a maximum of two identifications plus an additional one mark for each of two valid descriptions.*
8			• Can send information to many customers at once (1) which reduces the cost (1). • Can include multimedia elements (1) to make communication more interesting (1). • Any other valid suggestion.	**[4]**	*Points marking approach.* *One mark for each correct identification up to a maximum of two identifications plus an additional one mark for each of two valid explanations.*

Question	Answer	Marks	Guidance
9*	**Indicative content:** **Digital Security** • Installing and regularly updating anti-virus software. • Having firewalls to secure external lines. • Ensuring users have complex passwords and change them regularly. • Encrypting data on volumes so can't be read if lost/stolen. • Any other valid suggestion. **Physical Security** • Privacy screens to stop customers seeing sensitive data. • Keeping server room/data centre locked to prevent unauthorised access. • Having a fire monitoring system and non-destructive fire suppression system. • Any other valid suggestion.	**[10]**	*Levels of response marking approach.* **7–10 marks** Has shown a detailed level of understanding by explaining physical and digital measures Progress Mutual could implement to keep customers data secure. The learner is able to provide a clear explanation of both physical and digital security measures. Relevant examples will be used to support explanation and ideas will be expressed clearly and fluently. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **4–6 marks** Has shown some understanding by describing physical and digital measure(s) Progress Mutual could implement to keep customers data secure. Some examples used to support description may not be relevant and may at times detract from fluency of narrative. *There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.* **1–3 marks** Has identified points relevant to physical and digital measures. Limited use of examples to accompany description and ideas will be poorly expressed. *The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.* **0 marks** Nothing worthy of credit

Question			Answer	Marks	Guidance
10			**Indicative content:** • MIS – a system to collect, analyse, store and present data. • Looking at numbers of customers that visit each branch. • Forecasting takings based on historical data. • Profiling customers. • Identifying customers who haven't saved recently to target them for email. • Any other valid suggestion.	[6]	*Levels of response marking approach.* <table><tr><td>5-6 marks</td><td>Has explained what an MIS is and given two or more examples.</td></tr><tr><td>3–4 marks</td><td>Has described what an MIS is and given at least one example or has explained what an MIS is and given no examples.</td></tr><tr><td>1–2 marks</td><td>Has identified what an MIS is. May be no example</td></tr><tr><td>0 marks</td><td>Nothing worth of credit.</td></tr></table>
			Total Section B	**[65]**	
			Paper Total	**[80]**	