

EXAMINATION		NATIONAL SENIOR CERTIFICATE	
GRADE		12	
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SUBJECT		COMPUTER APPLICATIONS TECHNOLOGY	
PAPER		2	
MARK TOTAL		150	
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INFORMATION AND INSTRUCTIONS

1. This question paper consists of:
SECTION A (25 marks)
SECTION B (75 marks)
SECTION C (50 marks)
2. Answer **ALL** the questions in the answer book.
3. Number the questions correctly according to the numbering system used in this question paper.
4. Start **EACH** question on a **NEW** page.
5. Leave a line open between **EACH** sub question.
6. Read each question carefully before answering and do **NOT** give more information than the question requires as this will **NOT** be marked.
7. One mark is awarded per fact; therefore, a 2-mark question would require **TWO** facts, etc.
8. Answers such as 'slower/faster' and 'cheaper' etc. will **ONLY** be accepted if they are motivated.
9. All answers **MUST** be related to Computer Applications Technology. Do **NOT** use brand names in your answers, unless specifically required.
10. Write neatly and legibly.

SECTION A

QUESTION 1: MATCHING ITEMS

Choose an appropriate term/concept from **COLUMN B** to match the description in **COLUMN A**. Write down **ONLY** the letter next to the question number in the **ANSWER BOOK**, e.g., 1.11 W.

COLUMN A		COLUMN B	
1.1	Used to process transactions, manage inventory and generate receipts or invoices	A	switch
		B	aspect ratio
1.2	Designed to enhance user convenience and connectivity, this device can interact with other devices and the internet	C	server
		D	AUP
1.3	The proportional relationship between the width and height of an image or a screen	E	thesaurus
		F	locate
1.4	A common computer technique to enhance performance by speeding up access to frequently needed data	G	VPN
		H	ethernet
1.5	A word processing feature that suggests similar words to the one currently in use	I	caching
		J	point-of-sale device
1.6	Technology that creates a secure and encrypted connection over a less secure network	K	screen orientation
		L	empty
1.7	A device that connects multiple computers to the same wired network	M	processing
		N	internet enabled device
1.8	Policy to outline what employees may and may not do while using company equipment	O	smart device
		P	EULA
1.9	An Excel function that locates and returns the position of a specified substring within a text	Q	null
		R	ISP
1.10	Criteria that can be entered in an Access query to determine if a field does not contain any data	S	FIND
		T	spell checker

[10]

**QUESTION 2: MULTIPLE-CHOICE**

Various options are given as possible answers to the following questions. Choose the most appropriate answer and write only the letter (A–D) next to the question number (2.1–2.5) in the **ANSWER BOOK**, for example 2.6 E.

- 2.1 A port used for display purposes is sometimes included for legacy compatibility.
- A HDMI
 - B Display
 - C VGA
 - D Micro USB (1)
- 2.2 This resolution is typically used on scanners for scanning documents containing small fonts.
- A 240 DPI
 - B 360 DPI
 - C 600 DPI
 - D 720 DPI (1)
- 2.3 An address that uniquely identifies a computer on the internet.
- A SMTP
 - B FTP
 - C VoIP
 - D IP (1)
- 2.4 The following calculation in an Access report will determine the number of items entered in the *Vehicle* field.
- A =Sum([Vehicle])
 - B =Sum(Vehicle)
 - C =Count([Vehicle])
 - D =Count(Vehicle) (1)
- 2.5 The line between two tab stops is called a ...
- A leader.
 - B contour.
 - C arrow.
 - D link. (1)

[5]



QUESTION 3: TRUE OR FALSE ITEMS

Indicate whether the following statements are **TRUE** or **FALSE**. Write 'true' or 'false' next to the question numbers (3.1 to 3.10) in the ANSWER BOOK. Correct the statement if it is FALSE by changing the underlined word(s) to make the statement TRUE.

NOTE:

- You may **NOT** only use the word 'not' to change the statement.
- No mark will be awarded if only FALSE is written.

- 3.1 Storage involves creating copies of data for recovery purposes. (1)
- 3.2 RAM stores essential instructions for system startup. (1)
- 3.3 Cars with computers and video displays for parking is an example of convergence. (1)
- 3.4 Miracast technology is used to wirelessly identify and track objects and assets. (1)
- 3.5 Online storage uses websites and online portals to store information on server farms. (1)
- 3.6 Hotspots provide wireless internet access in public places. (1)
- 3.7 A page section break will allow the text to remain on the same page yet be a separate section. (1)
- 3.8 A hyperlink in a document will automatically update when the content it refers to changes. (1)
- 3.9 In Excel, if the data type is set to currency, the contents of a cell are automatically multiplied by 100. (1)
- 3.10 HTML uses tags to describe the structure of a web page. (1)

[10]

TOTAL SECTION A: [25]



SECTION B

QUESTION 4: SYSTEM TECHNOLOGIES

- 4.1 RAM and storage both play an important role in storing data. When will a file be copied from RAM to a permanent storage device? (1)
- 4.2 Besides security and being faster than typing a password, name ONE advantage of using biometric input devices for authentication. (1)
- 4.3 Solve the following problem:
You printed an essay for school, but you did not save it. The teacher asked you to send a soft/digital copy via email, but you do not have access to a scanner to scan the printed essay. (2)
- 4.4 Several factors must be considered when you purchase a printer. Briefly explain why the duty cycle of a printer is an important factor to consider. (1)
- 4.5 Wireless headphones are usually connected via Bluetooth. Name ONE reason why you would rather connect wireless headphones using WiFi and not Bluetooth. (1)
- 4.6 The resolution setting is one factor influencing the quality of a photograph. Differentiate between lens aperture and resolution concerning their impact on an image. Clearly indicate lens aperture and resolution followed by your answer. (2)
- 4.7 Below is an advert of computer specifications. Study the extract and answer the questions that follow:

Intel Core i9-12900K, 12-core, 24-thread, 5.2GHz
64GB DDR4 4000MHz
NVIDIA GeForce RTX 4090, 24GB GDDR6X VRAM
2TB NVMe SSD + 4TB HDD
32-inch 4K Ultra HD IPS Panel
Wi-Fi 6E
Bluetooth 5.2
Gigabit Ethernet

Ports:
4 x USB-C
6 x USB 3.2 Gen 2
2 x HDMI 2.1
2 x DisplayPort 1.4
SD Card Reader



- 4.7.1 Which type of computer user might benefit from using a computer that has the specifications listed above? (1)
- 4.7.2 What is the total amount of memory in this computer? (1)
- 4.7.3 Consider the resolution of the monitor listed in the advert and name the connection that this monitor will most likely be using. Motivate your answer. (2)
- 4.7.4 The connection shown below will be used in the computer in the advert. Identify the connection shown in the image below. (1)



- 4.8 Answer the following questions regarding software compatibility.
- 4.8.1 Briefly describe TWO problems when programs are incompatible. (2)
- 4.8.2 Explain what causes incompatibility in software? (1)
- 4.9 What is metadata and give ONE example of the metadata of a file. (2)
- 4.10 Discuss the advantages of using Google G Suite to create a document compared to traditional word processing programs installed on a computer. (2)
- 4.11 It is extremely important to keep documents safe, regardless of where they are stored. Name TWO features used by document management software to protect electronic documents. (2)
- 4.12 Customisation is one of the benefits for smartphone manufacturers when using open-source software like Android. Which feature of open-source software makes customisation of software possible? (1)
- 4.13 Display specifications vary according to the requirements of different users. Will the response time of a monitor have an impact on general office tasks? Motivate your answer. (2)

[25]



QUESTION 5: NETWORK AND INTERNET TECHNOLOGIES

- 5.1 There are a variety of ways that a device can connect to a network. Study the picture below and answer the questions that follow.



- 5.1.1 Identify the connector. (1)
- 5.1.2 Identify the type of cable that this connector will use. (1)
- 5.1.3 Suggest TWO devices that can be connected using this particular type of connector. (2)
- 5.2 Briefly explain how the Internet of Things (IoT) can be used in a 'smart home'? (2)
- 5.3 Social media forms an integral part of businesses as well as personal lives. What is the 'social media bubble'? (2)
- 5.4 Many types of connections exist for smart devices. Where in a shopping mall would you use NFC? (1)
- 5.5 Client-server networks and peer-to-peer networks are commonly used in LANs. Two computers (computer A and computer B) are connected to each other for the purpose of playing games. Some games are installed on computer A and some on computer B. Will they use a client-server network or a peer-to-peer network? Motivate your answer. (2)
- 5.6 Protocols play an important role when using any type of network. Answer the questions that follow.
- 5.6.1 Give a brief description of a protocol. (2)
- 5.6.2 Name the protocol used in e-commerce transactions. (1)
- 5.7 Briefly explain how grid computing ensures system reliability in case of computer failures. (1)

[15]



QUESTION 6: INFORMATION MANAGEMENT

- 6.1 The information management process involves several steps. Which step occurs between providing input to a computer and receiving output? (1)
- 6.2 When analysing data, it is important to find similarities and differences. Briefly explain what a correlation trend is. (2)
- 6.3 Surveys and questionnaires are both part of the information management process. When will questionnaires replace traditional research methods? (1)
- 6.4 A MS Word questionnaire with both open-ended and closed-ended questions is used as part of your research. Answer the following questions:
- 6.4.1 You use the numbers 1 to 5 in your questionnaire to indicate how strongly the respondent will agree/disagree with a statement. Name the best control to use to get the response from the respondent? (1)
- 6.4.2 What option can be included in a multiple-choice question to allow the user to give additional information? Motivate your answer. (2)
- 6.4.3 One can use various criteria to evaluate information. What is meant by the currency of information? (1)
- 6.4.4 While conducting your research, you noticed that the website's author is sponsored by a company. Explain why this could be a problem when using the website for research. (1)
- 6.5 A bar chart was used to illustrate the relationship between the individuals who responded 'yes' and those who responded 'no' in a questionnaire. Which type of graph will be more suitable for illustrating the comparison? (1)

[10]



QUESTION 7: SOCIAL IMPLICATIONS

- 7.1 The image displayed below depicts certain keys on a keyboard. Identify the specific type of user who would use this keyboard. (1)



- 7.2 Authentication is an important part of securing data. Name and describe ONE authentication method used on smart phones other than biometric security. (2)
- 7.3 Backup is an integral part of computer security and maintenance. Discuss TWO disadvantages of manually creating backups. (2)
- 7.4 Name TWO advantages that the following have in common: online shopping, online banking, ordering food online, providing traffic information (with an app like Waze, Google Maps and Apple Maps). (2)
- 7.5 How does subscription-based software, where you pay for the software on a monthly basis, help prevent software piracy? (1)
- 7.6 Green computing reduces the environmental impact of computer technology. How can recycling old computer parts contribute to green computing? (2)

[10]



QUESTION 8: SOLUTION DEVELOPMENT

8.1 You created a report, but the page number appears on the cover page.

8.1.1 Which option in the Header and Footer tab should you select to ensure that the page numbering starts on the second page? (1)

8.1.2 The page number on the second page should start with 1. Describe the options to be set to start the page numbering at 1. (2)

8.2 Briefly explain what information is by default included in the table of figures for each figure/object. (3)

8.3 Study the spreadsheet of games played by an e-sport-team below and answer the questions that follow:

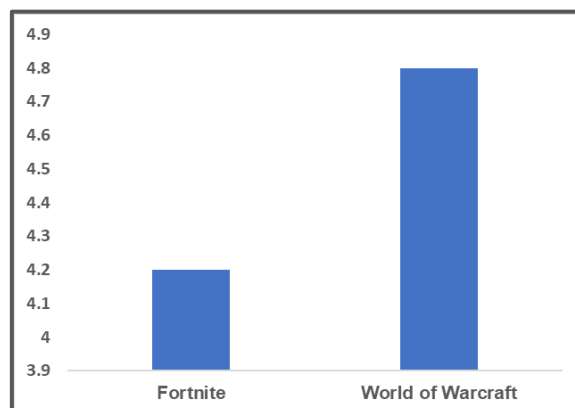
	A	B	C	D	E	F
1	GameTitle	GameCode	ReleaseYear	Genre	Rating	Number of Players (M)
2	Fortnite	Fe13	26-09-2017	Battle Royale	4.2	230
3	World of Warcraft	Wt16	23-11-2003	MMORPG	4.8	129
4	Rocket League	Re20	07-08-2015	sport-based	4.4	60
5	Minecraft	Mt11	18-11-2011	Sandbox First-Person	4.7	140
6	Counter-strike	Ce19	01-11-2015	Shooter	4.3	2

8.3.1 The game code is made up of the first and last character of the game title and a random number between 10 and 20. Give ONE function and ONE operator that can be used to merge the different parts of the code. (2)

8.3.2 Which date/result would be returned by the following function:
=MIN(C2:C6). (1)

8.3.3 Redraw the chart below and insert data labels and a data table to show the difference between them. Clearly indicate data labels and data table in your drawing.

NOTE: Your chart does not have to be an exact replica of the one in the picture and the values you use can be approximate. The correct representation of data labels and a data table is important. (2)





8.4 When adding an image to a webpage it is advised to include the pictures in the same folder as the webpage that will display the image. Briefly explain TWO advantages of including the pictures in the same folder as the webpage coding. (2)

8.5 The following expression is added in a database query.
TotalSales: [QuantitySold] * [UnitPrice]

Explain this expression. (2)

[15]

TOTAL SECTION B: [75]



SECTION C: INTEGRATED SCENARIO

Consider the following scenario when you answer Questions 9 and 10.

SCENARIO

A centre for physically disabled learners is setting up a computer lab with 10 computers connected to a network. To raise additional funds, they will make the lab available to members of the public at an hourly rate to use the lab. Every computer will have internet access.

QUESTION 9: INTEGRATION

- 9.1 OCR scanning is much more complex than just scanning a photo. The scanning program used by the centre has OCR capabilities. Answer the questions that follow:
- 9.1.1 Explain how optical character recognition (OCR) technology is more advanced than traditional scanning methods e.g., scanning a photo. (1)
- 9.1.2 Name TWO factors that may cause OCR scanning to be inaccurate. (2)
- 9.2 Defragmentation is an important part of computer maintenance. Answer the following questions:
- 9.2.1 On which computer component will you perform defragmentation? (1)
- 9.2.2 Briefly explain why defragmentation can increase computer performance. (2)
- 9.3 Graphic cards are installed on the centre's computers. Answer the questions that follow.
- 9.3.1 What does GPU stand for? (1)
- 9.3.2 Distinguish between a CPU and a GPU in terms of the main purpose of each one. Clearly state CPU and GPU followed by its purpose. (2)
- 9.4 The cooling fan on one of the computer's CPU stopped working and the CPU was damaged and must be replaced. Besides the physical connection to the motherboard suggest TWO specifications to consider when buying a CPU? (2)
- 9.5 The screen connected to the server is only displaying black on the screen. Name TWO possible factors you could investigate to solve the problem. Assume that both the server and screen are switched on, and that the cable connecting them is in working order. (2)



- 9.6 Consider the specifications of the computers used in the centre below when answering the following questions:

Intel Core i5-11400, 6-core, 12-thread, 4.2GHz Turbo Boost
 4GB DDR4 3200MHz
 NVIDIA GeForce GTX 1660 Super, 6GB GDDR5 VRAM
 512GB NVMe SSD + 1TB HDD
 24-inch Full HD IPS Panel
 802.11ac
 Bluetooth 4.2
 Gigabit Ethernet Ports
 4 x USB 3.2 Gen 1
 2 x USB 2.0
 1 x HDMI
 1 x Display Port
 SD Card Reader
 Windows 11 Pro

- 9.6.1 Name ONE component in the specifications that will most likely need to be upgraded. Motivate your answer. (2)
- 9.6.2 Two storage devices are installed on the listed computer. Name each storage device and give a description of what will most likely be stored/installed on each device to increase computer performance. (4)
- NOTE:** Do not mention specific programs.
- 9.6.3 Read the following statement and discuss the necessity of installing a web browser. (1)
- The manager of the centre asks that web browsers be installed on all the computers to enable users to browse the internet.
- 9.7 Suggest the type of software that enables hands-free calling or using voice as a form of authentication. Do **NOT** mention a specific brand. (1)
- 9.8 Name **ONE** example of communication software that makes use of VoIP that can be used by the centre. (1)
- 9.9 Can the centre use Google Docs or other similar online word processing programs as their main program to create documents instead of using proprietary software and always obtain the same output? Motivate your answer. (2)
- 9.10 What is the main reason for using CSS when creating websites? (1)

[25]



QUESTION 10: INTEGRATION

NOTE: The scenario of Question 9 also applies to Question 10.

- 10.1 The staff of the centre requested to have access to the centre's information e.g., contact details of staff and details of the learners being cared for from home. Answer the following questions.
- 10.1.1 What type of network should be set up to give staff access to the centre's information from home? (1)
- 10.1.2 Name the kind of connection that the staff will need to be able to connect to the centre's network from home. (1)
- 10.1.3 Briefly describe the authentication needed before staff can get access to the centre's network. (2)
- 10.2 E-mail is still a preferred means of communication by the centre. Explain why the subject line of an email is important when the staff sends e-mails to parents. (1)
- 10.3 Some learners browse the internet using Incognito or InPrivate browsing modes. Name TWO items that are kept/saved when using InPrivate or Incognito mode. (2)
- 10.4 The centre's management uses vlogging and vodcasts to create awareness for the centre. Briefly explain what vlogging and vodcasting have in common? (1)
- 10.5 Virtual Reality (VR) can be used by disabled people for entertainment and rehabilitation purposes. Give ONE example of a physical side effect of VR use, especially over a continuous extended length of time without taking a break. (1)
- 10.6 Provide TWO reasons why an antivirus installed on a server fails to protect devices when they are out of the network's range. (2)
- 10.7 Theft of time and/or services by employees is a growing concern at the centre. Distinguish between the theft of time and the theft of services. (2)
- 10.8 The management at the centre wants to use crowdfunding to raise funds. What is crowdfunding? (2)
- 10.9 Fake news can influence people's opinion about the centre positively or negatively. Give a brief description of fake news. (2)



- 10.10 The administrative staff wants to use hyperlinks in their word processing documents to allow easy navigation to other locations. Besides a web page, name TWO other locations that a hyperlink can navigate to. (2)
- 10.11 To get more exposure, the centre's management decided to create a webpage. Write down the basic structure of a webpage. (2)
- 10.12 The webpage designer for the centre incorporated both row span and col span in the webpage layout. Differentiate between the purposes of row span and col span. Clearly indicate row span and col span followed by your answer. (2)
- 10.13 One of the administrative personnel wants to create a query in the database. Explain the difference between criteria A and criteria B. Clearly indicate criteria A and criteria B followed by your answer. (2)
- Criteria A: Like "*"town"
- Criteria B: = "town"

[25]

TOTAL SECTION C: [50]

GRAND TOTAL: [150]