Province of the
EASTERN CAPE
EDUCATION

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NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2026

INFORMATION TECHNOLOGY P2

MARKS: **150**

TIME: **3 hours**

This question paper consists of 13 pages.

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INSTRUCTIONS AND INFORMATION

1. This paper consists of SIX sections:

SECTION A: Short questions	(15)
SECTION B: System Technologies	(26)
SECTION C: Communication and Network Technologies	(25)
SECTION D: Data and Information Management	(24)
SECTION E: Solution Development	(25)
SECTION F: Integrated Scenario	(35)

2. Read ALL the questions carefully.

3. Answer ALL the questions.

4. The mark allocation generally gives an indication of the number of facts/reasons required.

5. Number the answers correctly according to the numbering system used in this question paper.

6. Write neatly and legibly.

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SECTION A: SHORT QUESTIONS

QUESTION 1

1.1 Give the correct term for each of the following descriptions. Write only the term next to the question numbers (1.1.1 to 1.1.10) in the ANSWER BOOK.

1.1.1 The amount of data an ISP allows a person to upload and download in a month. (1)

1.1.2 Utility software designed to free up storage space by searching for redundant files and programs that are no longer in use and giving the user options to delete them. (1)

1.1.3 Data that has been processed into a meaningful and useful form. (1)

1.1.4 A type of network that connects devices within a single residence so that they can share data and resources. (1)

1.1.5 A small update to fix a specific software bug or security weakness in software. (1)

1.1.6 The unnecessary duplication of data in a database. (1)

1.1.7 The main page of a website that provides navigation and key information. (1)

1.1.8 A set of electrical paths etched onto a motherboard, used to transmit data between its various components. (1)

1.1.9 Software designed to accomplish specific tasks. (1)

1.1.10 The integration of computer-generated content with the real world, allowing users to see virtual elements added to their physical surroundings. (1)

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1.2 Various options are provided as possible answers to the following questions. Choose the correct answer and write only the letter (A–D) next to the question numbers (1.2.1 to 1.2.5) in the ANSWER BOOK, for example 1.2.6 D.

1.2.1 Trunc(Round(5*4/3) + 0.10) =

A 7
B 10.10
C 5
D 7.10 (1)

1.2.2 The data type returned by the *DIV* operator in Delphi programming.

A String
B Integer
C Real
D Boolean (1)

1.2.3 A start-up test performed by the BIOS to ensure that all essential hardware is present and functioning properly.

A CMOS check
B Firmware self-diagnostic
C Power-on self-test
D System-integrity check (1)

1.2.4 Storing compressed files that remain unchanged on secondary storage.

A Archiving
B Caching
C Backup
D Synchronisation (1)

1.2.5 The number system that uses digits 0–9 and letters A–F.

A Hexa
B Hexadecimal
C Decimal
D Binary (1)

TOTAL SECTION A: 15

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SECTION B: SYSTEMS TECHNOLOGIES

QUESTION 2

The IT department is evaluating memory capacity, motherboard components, software options and QR code applications to ensure efficiency in both office operations and customer interactions.

2.1 Memory management in a computer system is critical for optimal performance.

2.1.1 Briefly explain how virtual memory works. (2)

2.1.2 Define the term *thrashing*. (1)

2.1.3 List TWO strategies that can be applied to prevent thrashing. (2)

2.2 The company uses QR codes to access digital content.

2.2.1 Briefly explain what a *QR code* is. (1)

2.2.2 State TWO other possible uses of a QR code. (2)

2.3 The IT department is considering installing free and open-source software (FOSS) on some of the new systems. State TWO advantages of FOSS. (2)

2.4 The technicians use plug-and-play devices and hot-swappable components. Differentiate between *plug-and-play* and *hot swappable*. (2)

2.5 While configuring the new systems, the IT department compares different types of memory. Tabulate TWO differences between *RAM* and *ROM*. (2)

2.6 The new computer's multicore processor exchanges data with the RAM through a high-speed system bus.

2.6.1 Name the slot on the motherboard that connects the RAM. (1)

2.6.2 Briefly explain what a *core* is and name the term used to describe a CPU with eight cores. (2)

2.6.3 Define the term *bus.* (1)

2.7 The IT technician carefully inspected the point-to-point connections on the motherboard and noted the placement of the VRAM during system assembly.

2.7.1 Give TWO components found on the motherboard that use point-to-point connections. (2)

2.7.2 State TWO functions of VRAM. (2)

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2.8 After installing the hardware, the IT technician configured system settings stored in CMOS memory through the BIOS.

2.8.1 Write out the acronym CMOS. (1)

2.8.2 Name the component that provides power to the CMOS memory, allowing it to retain data when the computer is switched off. (1)

2.8.3 Give TWO examples of settings that can be changed in the CMOS setup of a computer system. (2)

TOTAL SECTION B: 26

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SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES

QUESTION 3

The company is upgrading its network systems to improve performance.

3.1 The IT department wants to implement location-based computing to track office resources.

3.1.1 State TWO advantages of location-based computing from a consumer's viewpoint. (2)

3.1.2 List TWO negative social effects of location-based computing. (2)

3.2 The company's network administrator discovered that several employees are using BitTorrent software during office hours.

3.2.1 Define the term *BitTorrent*. (2)

3.2.2 State TWO disadvantages of using BitTorrent. (2)

3.2.3 Discuss TWO measures that the IT company can implement to effectively control or manage BitTorrent usage on their network. (2)

3.3 Employees can efficiently locate documents through the use of metadata.

3.3.1 Briefly explain what *metadata* is. (1)

3.3.2 Explain how employees can use metadata to locate documents. (2)

3.4 Digital certificates are used to encrypt sensitive company data.
Identify TWO pieces of information that are typically found on a digital certificate. (2)

3.5 Employees and technicians frequently use VPNs and remote desktop access. Explain the difference between a *VPN* and *remote desktop access*. (2)

3.6 Inside the office buildings, computers are connected to the network using UTP cables.

3.6.1 Name TWO weaknesses of UTP. (2)

3.6.2 State TWO advantages of UTP cables over Wi-Fi. (2)

3.7 The IT department has discovered unauthorised access to the network by someone piggybacking

3.7.1 Define *piggybacking*. (2)

3.7.2 Give TWO prevention measures that can be implemented to avoid piggybacking. (2)

TOTAL SECTION C: 25

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SECTION D: DATA AND INFORMATION MANAGEMENT

QUESTION 4

The company is involved in the design and implementation of pay point systems.

4.1 A payment system is used to record beneficiaries who qualify to receive government assistance. The system consists of two tables: **tblBeneficiaries**, which stores beneficiary details, and **tblPaypoints**, which contains a list of pay points.
Each beneficiary may register at only one pay point.

tblBeneficiaries

ID	Title	Surname	Name	Gender	Married	PaypointNo	Payment
1201252549059	MRS	Twissell	Tarryn	F	☑	15	3900
1201252549064	MRS	Burns	Tarryn	F	☑	19	3500
1213055207054	MR	Holmes	Michael	M	☐	15	3600
1213055207059	MR	De Beer	Michael	M	☐	16	3670
1807182134032	MS	Butler	Roxanne	F	☐	17	3789
1807182134037	MS	Nonkewuse	Roxanne	F	☐	5	6789

ID
Title
Surname
Name
Gender
Married
PaypointNo
Payment

tblPaypoints

PaypointNo	Paypoint	Telephone	OpenFrom	Close	Cash	SmartCard
1	ALICEDALE	0423478141	08:00	15:00	☑	☐
2	ALIWAL NORTH	051478234	09:00	16:00	☑	☐
3	BURGERSDORP	0515621672	09:00	16:00	☑	☐
4	COFFEE BAY	047367821	09:00	13:00	☑	☐
5	CRADOCK	0483726721	08:00	16:30	☑	☐
6	EAST LONDON	0433561245	08:00	15:00	☑	☑
7	FLAGSTAFF	0392672345	10:00	13:00	☑	☐

PaypointNo
Paypoint
Telephone
OpenFrom
Close
Cash
SmartCard

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4.1.1 Give the name of the table that contains a foreign key field and state the name of the field that serves as the foreign key. (2)

4.1.2 For EACH of the following fields, indicate the most appropriate data type:

(a) Cash (1)

(b) OpenFrom (1)

(c) Payment (1)

4.1.3 Draw an entity-relationship diagram (ERD) illustrating the relationship between the two tables. (5)

4.2 Indicate whether the following statements are TRUE or FALSE. Write only 'true' or 'false' next to the question numbers (4.2.1 to 4.2.4) in the ANSWER BOOK. Correct the statement if it is FALSE by writing down the correct term.

4.2.1 A **table** is a collection of fields that contain details on a specific entity. (1)

4.2.2 A **composite** key is a field that could be used to uniquely identify a record in a table but is not set as the primary key. (1)

4.2.3 **AutoNumber** is a data type that automatically generates unique sequential values for each record. (1)

4.2.4 **Blockchain** is a distributed database consisting of an ever-growing list of records which are linked together using cryptographic principles. (1)

4.3 It is important to enforce referential integrity in a relational database.

4.3.1 Define a *relational database*. (2)

4.3.2 Briefly explain the consequences of enforcing referential integrity in a relational database. (2)

4.4 The company prioritises data synchronisation across its distributed database systems.

4.4.1 Explain what is meant by *data synchronisation* in this context. (2)

4.4.2 Define a *distributed database.* (2)

4.4.3 Discuss TWO advantages of using a distributed database system. (2)

TOTAL SECTION D: 24

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SECTION E: SOLUTION DEVELOPMENT

QUESTION 5

5.1 The company uses text files to store system data.

5.1.1 An employee accidentally used the *rewrite* procedure on an existing text file. Explain the effect of this action. (2)

5.1.2 Give the name of the text file procedure which is used to link a file variable to an actual file on disk. (1)

5.1.3 Briefly explain the purpose of the *Reset* procedure. (2)

5.2 State the result of the following Delphi statement:
iAnswer := Ceil(10.2) + Floor(18.5); (1)

5.3 Consider the following Delphi statement and answer the questions that follow:

Output := (Sqrt(144) + Sqr(5)) MOD 6;

5.3.1 State the purpose of the MOD function in Delphi. (1)

5.3.2 Identify and explain the error in the statement. (2)

5.3.3 Suggest ONE change that can be made to the statement to correct the error. (1)

5.4 Analyse the class diagram used in the company's music management application and answer the questions that follow:

TAlbum
fAlbumTitle :String
fArtist : String
fHighRanking : String
fPoints : Integer
getPoints: Integer
updatePoints(iAlbumsSold, iSongsDownloaded, iSongsStreamed:
Integer)
toString : String
determineStatus : String

5.4.1 Write a code to declare an object called *objAlbum*, based on the class name above. (1)

5.4.2 Identify and write down the name of one mutator method from the class diagram above. (1)

5.4.3 Write the code for the accessor method. Do not include the method header in your answer. (2)

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5.4.4 Write the *constructor method header* that will receive the following information as parameters:
- the title of the album
- the name of the artist (2)

5.4.5 Write code to *instantiate* an object called *objAlbum*, using the title of the album and the name of the artist as arguments. (3)

5.5 Study the Delphi code below and answer the questions that follow:

```
Var cLetter : Char;
    iNum, iVal : Integer;
    sNum : string;

Begin
  iNum := 9;
  cLetter := 'F';
  sNum := Concat(cLetter, IntToStr(iNum));          {1}
  iVal := Ord(Chr(iNum))*2;                         {2}
  Dec(iNum);                                        {3}
  Dec(iNum, 5);                                     {4}
  Inc(cLetter, 2);                                  {5}
End;
```

5.5.1 Redraw the trace table structure below into your ANSWER BOOK and complete it to determine the values of the variables.

Line no	iNum	cLetter	sNum	iVal
	9	**F**		
1				
2				
3				
4				
5				

(4)

5.5.2 Rewrite the code segment in line 4 using an alternative statement that produces the same result. (1)

5.5.3 Which symbol can be used instead of the Concat function in Delphi? (1)

TOTAL SECTION D: 25

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SECTION F: INTEGRATED SCENARIO

QUESTION 6

The company uses Information and Communication Technology (ICT) to enhance employee learning, communication, customer support and professional development. Employees use company networks, online services, and digital tools to collaborate with colleagues and assist clients. However, ICT also introduces ethical challenges and risks that must be managed responsibly.

6.1 The use of ICT in the company has contributed to the growth and expansion of social media.

6.1.1 Define *social media*. (1)

6.1.2 Discuss TWO disadvantages of social media for an employee in the company. (2)

6.1.3 A company study highlights how employees are affected by FOMO when using social media, noting that many keep checking their phones during working hours.

Write out the acronym FOMO. (1)

6.2 Many employees experience information overload.

6.2.1 Define *information overload*. (1)

6.2.2 State TWO prevention measures that can be implemented to control information overload. (2)

6.3 The computer uses intranets and extranets to share information with employees and clients. Differentiate between *intranet* and *extranet*. (2)

6.4 Employees working outside the office can use mobile hotspots.

6.4.1 Define a *hotspot.* (1)

6.4.2 State TWO dangers that may be experienced by users when they use a hotspot. (2)

6.5 The advancement of mobile computing and the appification of business systems now enable employees to access company resources and information through smartphones and tablets.

6.5.1 Define *appification.* (1)

6.5.2 State TWO advantages of appification from the employee's viewpoint. (2)

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6.6 ICT has played a significant role in e-learning.

6.6.1 Briefly explain what *e-learning* is. (1)

6.6.2 Describe TWO benefits of e-learning. (2)

6.7 Globalisation and big data enable the computer company to collaborate with international clients.

6.7.1 Briefly explain what *globalisation* is. (1)

6.7.2 State TWO advantages of globalisation for the computer company. (2)

6.7.3 State TWO challenges of managing big data in the company. (2)

6.8 The company uses VOD to deliver training and promotional content to employees and customers.

6.8.1 What does VOD stand for? (1)

6.8.2 Explain TWO challenges a company might face when implementing VOD. (2)

6.9 The company network relies on communication protocols to transfer data securely between devices.

State the function of encoding in communication protocols. (1)

6.10 Web security is one of the most important aspects a company must manage to protect both company and client data.

6.10.1 Briefly explain what a *GUID* is. (1)

6.10.2 Write out the acronym GUID. (1)

6.10.3 Briefly explain the use of a GUID in the company's systems. (2)

6.10.4 State ONE disadvantage of using a GUID. (1)

6.10.5 Briefly explain what *online anonymity* is. (1)

6.10.6 State TWO advantages of online anonymity. (2)

TOTAL SECTION F: 35
GRAND TOTAL: 150

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