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INFORMATION TECHNOLOGY

9626/31

Paper 3 Advanced Theory

May/June 2026

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.
- Calculators must **not** be used in this paper.

INFORMATION

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages. Any blank pages are indicated.



- 1 An Operating System (OS) will be downloaded by File Transfer Protocol (FTP) from a server. The OS is in a single computer file.

(a) Describe how FTP is used to download the file from the server.

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..... [4]

The file can also be downloaded using Hypertext Transfer Protocols (HTTP and HTTPS).

(b) Explain why some users prefer to use HTTP to download the file instead of FTP.

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..... [2]





- 2** The topology of a network shows how the connected devices (nodes) in the network are arranged.

Explain why a physical topology and a logical topology are both used to describe the same network.

[4]

- 3** A network administrator has used switches to connect together several sections of a computer network into one local area network (LAN).

Justify the use of switches for the connections.

..... [6



4 Data mining is used to extract useful information from very large repositories of data.

The process of data mining is divided into six stages. Several stages occur before the actual data mining for information starts.

(a) The first stage is business understanding.

Describe the business understanding stage of the data mining process.

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(b) The second stage is data understanding.

Describe the activities that occur during the data understanding stage of data mining.

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- 5 Virtual reality (VR) can be used in healthcare to help people when they are recovering from sickness or injury.

Explain why virtual reality (VR) is used in this scenario.

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- 6 A Gantt chart is required to show the project schedule for the creation of a new database.

The project tasks required to create the Gantt chart are shown in the table.

task number	name of task	duration of task (weeks)	predecessor task(s)
1	designing the database	1	
2	creating tables, relationships and queries	2	1
3	inputting test data and testing	2	2
4	evaluating the database	2	3
5	writing documentation for the database	4	1
6	deploy the database for use	1	4,5

- (a) Complete the Gantt chart for this project.

Clearly show the longest path through the project on your chart.

task number								

[4]



(b) Project managers can use Gantt charts to monitor the progress of a project.

(i) Describe **one** other benefit to a project manager of using Gantt charts.

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..... [1]

(ii) Describe **one** drawback to a project manager of using Gantt charts.

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..... [1]





7 Evaluate the incremental method of software development.

[8]

[8]





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9 A new app for a smartphone is being developed. The app is ready to be beta tested.

(a) Describe beta testing.

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(b) Describe the drawbacks of using beta testing.

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10 Data may have to be transformed and cleaned before meaningful information can be extracted by analysis.

(a) Describe ways in which data can be transformed.

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(b) One characteristic of data that has been cleaned is that it is valid.

(i) Describe what is meant by valid data in this context.

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(ii) Describe **three** other characteristics of cleaned data.

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