



Cambridge International AS & A Level

CANDIDATE
NAME

--

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--



INFORMATION TECHNOLOGY

9626/32

Paper 3 Advanced Theory

February/March 2021

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 or correction fluid.
- 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 90.
- 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 Fig. 1.1 shows three interconnected networks (numbered 1 to 3) that use internet protocol (IP) and packet switching when transmitting files.

Network 1 has a server that is used for video streaming.

Network 2 has servers that provide a company with a website used for selling DVDs online.

Network 3 is a network in a home.

There are routers on the internet that can be used to connect the networks.

A user on the home network is watching a video that is being streamed from the server on network 1. At the same time a shopper on the home network is using a web browser to access the company website on network 2 to buy some DVDs online.

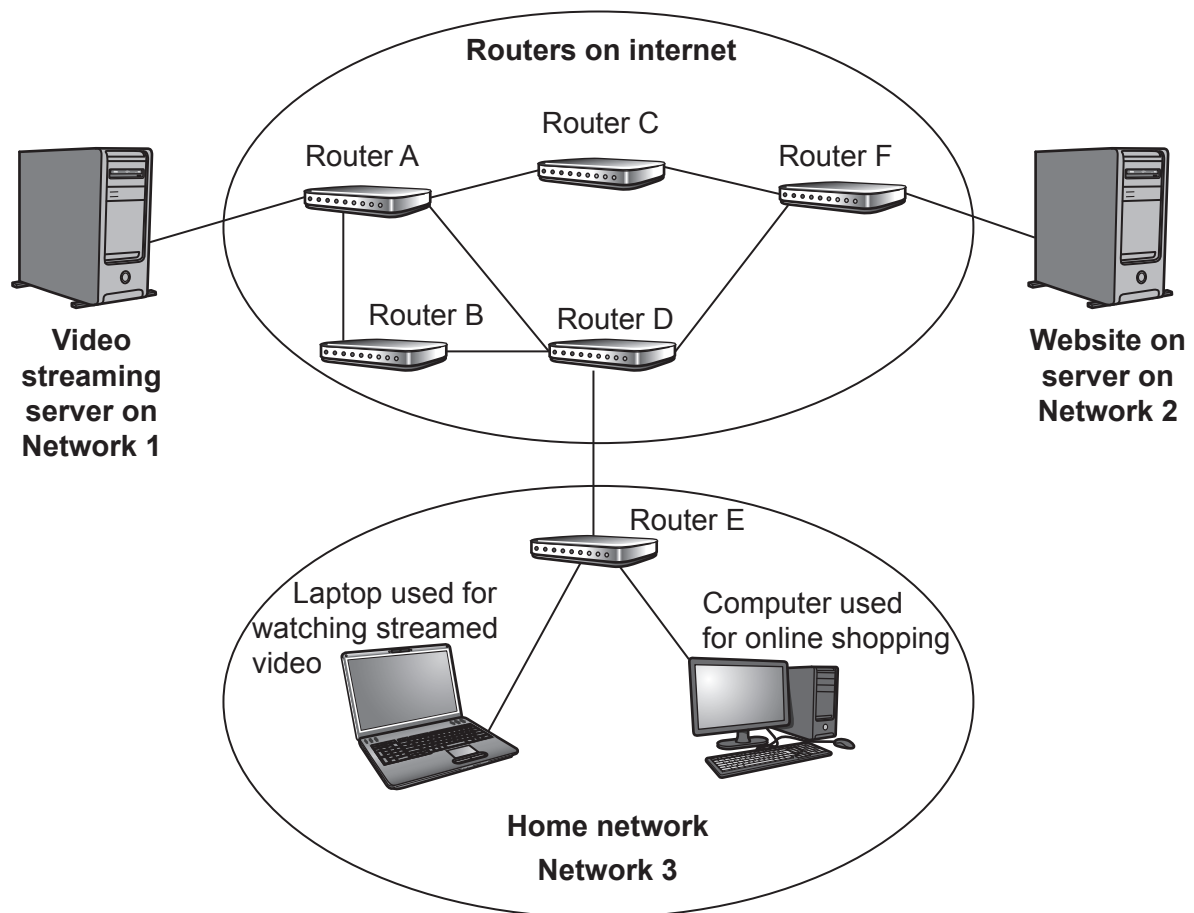


Fig. 1.1

- (a) Describe how the video stream is transferred from the server on network 1 to the user on network 3.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

- (b) The viewing experience can sometimes be spoiled by the online shopping affecting the video streaming.

Describe how router E on the home network can be configured to ensure that this does not happen.

.....

.....

.....

.....

.....

.....

.....

.....

..... [2]

(c) Explain why HTTPS is used for communication between the shopper's web browser and the company website.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

..... [6]

2 Virtual reality and augmented reality are used when training firefighters.

(a) Describe the differences between virtual reality and augmented reality.

.....
.....
.....
.....
.....
..... [2]

(b) Describe the advantages of using virtual reality when training firefighters.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [6]

3 QR codes are two-dimensional barcodes (matrix barcodes) which store information. The codes can be used to contain links to a website.

(a) Describe **three** other uses of information that can be contained in QR codes.

.....
.....
.....
.....
.....
.....
..... [3]

(b) QR codes can often be found on products in supermarkets.

Evaluate, by weighing up the advantages and disadvantages, the use of QR codes for holding information about the products.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [6]

- 4 Describe the differences between chat rooms and instant messaging as methods of social networking.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [6]

5 A software company uses the waterfall method to create its products.

(a) Describe the main phases in the waterfall method of developing software.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

[6]

(b) The new software products have to be tested.

Describe the differences between alpha and beta testing.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

.....
.....
.....
..... [6]

(c) During the creation and testing of the products, some developers are allowed to telework.

(i) Describe what is meant by teleworking.

.....
.....
.....
.....
.....
..... [2]

(ii) Describe **two** possible effects of teleworking on the developers.

.....
.....
.....
.....
.....
..... [2]

6 Holographic imaging is used in industrial applications.

Describe, in detail, how holographic imaging could be used in each of the following scenarios:

(a) an astronaut in a spacecraft

.....
.....
.....
.....
.....
..... [2]

(b) a car manufacturing process

.....
.....
.....
.....
..... [2]

(c) a doctor in a hospital.

.....
.....
.....
..... [2]

9 A new house is to be built and a project has been set up to oversee its construction. Project management software will be used to estimate the costs.

(a) Describe **three** costs that should be considered for inclusion in the project management software.

.....
.....
.....
.....
.....
.....
..... [3]

(b) Explain how project management software tools could be used to estimate the costs of building the new house.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [6]

- 10** Describe how a device fitted to an aircraft can use a Global Positioning System (GPS) to determine its location.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

BLANK PAGE

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.