Cambridge International AS & A Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

8720876560

INFORMATION TECHNOLOGY **9626/32**

Paper 3 Advanced Theory **February/March 2017**

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Any businesses described in this paper are entirely fictitious.

This document consists of **14** printed pages and **2** blank pages.

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CAMBRIDGE International Examinations

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1 A software application has been fully tested so that it is error-free and has been implemented. There are no new situations likely to arise but the management wants to ensure that the software is working as well as it should.

Explain, with reasons, how you would maintain the software application.

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2 Wearable, or body-borne, computers are miniature electronic devices worn by the bearer.

Analyse the use of wearable computers by the police.

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3 Fig. 1 shows a sequence of tasks that are required to complete a project.

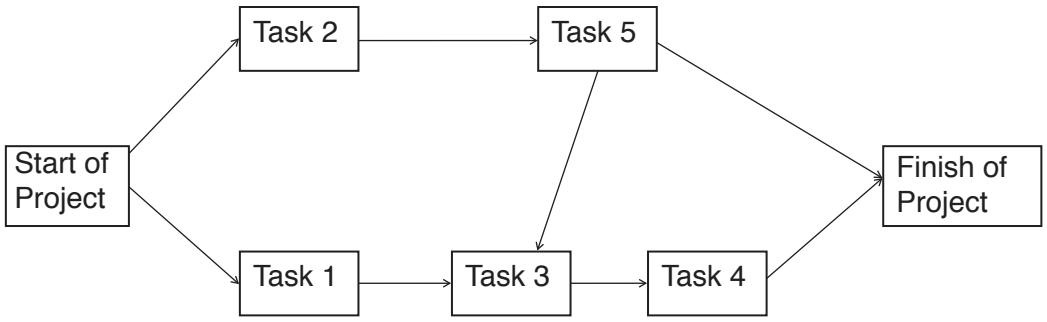

Fig. 1

The duration of each task is shown in this table:

Task	1	2	3	4	5
Duration (days)	3	5	7	2	4

There are three paths through this set of tasks.

(a) Use the information given in Fig. 1 and in the table to determine the critical path through the sequence of tasks.

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(b) Each task can have an extra amount of time allowed over its stated duration before it causes the project to be delayed. This is the 'float'.

Explain how you would calculate the float for each of the tasks in the project.

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4 A website advertising a tourist resort uses both bitmap and vector graphics.

Evaluate the suitability of these types of graphics for use on the website.

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5 Global positioning systems (GPS) are used by navigation devices to allow drivers of cars to find locations and destinations.

(a) Describe how GPS signals from satellites are used by navigation devices to determine a location.

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(b) Describe the factors that could degrade a GPS signal, when it is transmitted to a navigation device, and affect the accuracy of the location found by that device.

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6 A customer in a restaurant can pay the bill with a credit card using a mobile chip and pin reader carried by a waiter.

Describe the computer processing involved in the payment of the bill by credit card using the mobile chip and pin reader.

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7 Electronic data exchange is often called electronic data interchange. An online retailer and its trading partners use electronic data interchange (EDI).

(a) Define EDI.

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(b) The retailer has prepared an order that has to go to a supplier. When the supplier has received the order, an invoice asking for payment for the goods has to go back to the retailer.

Explain how you would use EDI for these transactions.

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8 Packet switching is used to transfer data around networks.

Discuss the benefits and drawbacks of packet switching.

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9 JavaScript can be embedded in the code of web pages to add interactivity to a page.

Jonas uses JavaScript code to store, list and display the names of cities on a web page.

(a) Two methods of storing the names are shown below.

Method 1:

```
var city1 = "London";
var city2 = "Cambridge";
var city3 = "Oxford";
var city4 = "Manchester";
```

Method 2:

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var city = ["London", "Cambridge", "Oxford", "Manchester"];
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Explain why storing the names using Method 2 is more suitable for storing large numbers of cities.

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(b) Jonas has added some lines to the JavaScript code:

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/*
The code below stores the list of cities.
*/
var city = ["London", "Cambridge", "Oxford", "Manchester"];
```

Explain why Jonas would have added the new code to the script.

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(c) Jonas wants to extract 'Oxford' from the list in the code below to display it on the web page.

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var city = ["London", "Cambridge", "Oxford", "Manchester"];
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Write a line of JavaScript code to access the list and store the city name.

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(d) Write a loop in JavaScript code to extract and display the first three city names.

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10 A new computer system is to be developed for a factory. You have been asked to gather information from the managers, assembly-line workers and clerical staff about the current system. The managers can be available at any time, the assembly-line workers must not be interrupted at any time and do not like taking work home, and the clerical staff are very busy during their working hours and do not like being watched.

Describe, with reasons, the method of research you would use to gather information from each group.

(i) Managers:

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(ii) Assembly-line workers:

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(iii) Clerical staff:

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