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INFORMATION TECHNOLOGY

Paper 3 Advanced Theory

9626/31

May/June 2018

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** questions.

Calculators are not allowed on this paper.

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 **16** printed pages.

2 JavaScript defines a number of primitive data types.

(a) Explain the term 'primitive' when used in this context.

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..... [2]

(b) Describe **three** primitive data types used in JavaScript.

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3 Variables are used in JavaScript to hold values.

Explain how a variable is created in JavaScript code.

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..... [4]

4 As part of a project to create a new software application, a system analyst will produce a software requirements specification and a user requirements specification.

(a) Describe the contents of a software requirements specification for the new software application.

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(b) Describe the purpose of a user requirements specification for the new software application.

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..... [4]

(c) Give **one** reason why the user requirements specification might prove to be inaccurate.

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8 Discuss the advantages and disadvantages of carrying out research into an existing computerised stock control system using the analysis of existing documents.

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- 10 A large school is creating a relational database to store details of pupils and teachers. Examples of the data to be stored are shown:

Pupils: Orlando Albert Sockett
 Born: 22 October 1999
 Studies: English, Mathematics, Science

Teachers: Christopher Wallace
 Based in Room 27
 Teaches English

Using the information given, create a data dictionary in the table to list the entities and attributes of the new database:

| Entity | Attribute | Data type | Field size |
|--------|-----------|-----------|------------|
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[8]

- 11 An automatic washing machine has a number of wash cycles controlled by an embedded computer system. The system can accept inputs to vary the temperature and spin speed. It also has 'start' and 'stop/cancel' buttons.

When the 'start' button is pressed the system checks, in this order:

- that the door is properly closed
- the temperature has been set by the user
- the spin speed has been set by the user
- if the load is either a 'full load' or 'half load' of washing.

The washing cycle will automatically stop if the set time has been reached or the 'stop/cancel' cycle button is pressed.

A section of the control sequence is shown in the flowchart in Fig. 4. Some flowchart labels are missing.

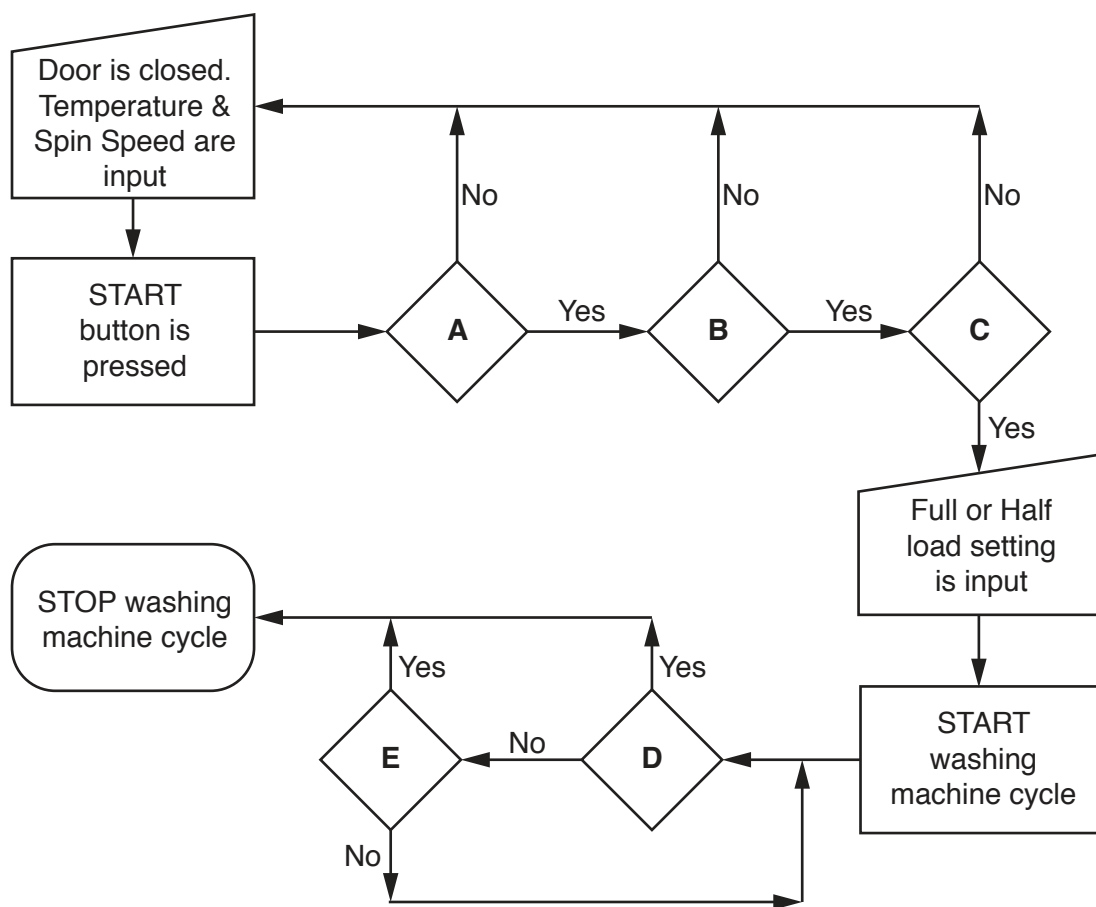


Fig. 4

Complete the table below to describe how the embedded computer system controls the washing machine at **A**, **B**, **C**, **D** and **E**.

| Position in flowchart | What is happening at the position |
|------------------------------|--|
| A | |
| B | |
| C | |
| D | |
| E | |

[5]

(c) ARP spoofing.

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PLEASE TURN OVER FOR QUESTION 13.

