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**INFORMATION TECHNOLOGY**

**9626/33**

Paper 3 Advanced Theory

**October/November 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 must not be used 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 **17** printed pages and **3** blank pages.

1 The photograph shown in Fig. 1 was taken and manipulated into the JPEG image shown in Fig. 2.



**Fig. 1**



**Fig. 2**

(a) Describe all the software features used to change the image in Fig. 1 to produce the image in Fig. 2.

.....

.....

.....

.....

.....

.....

..... [2]



- 2 An office area has an air conditioning system. The user guide for the system contains a troubleshooting flowchart that users can follow if the air conditioning is not working properly. The flowchart is shown in Fig. 3.

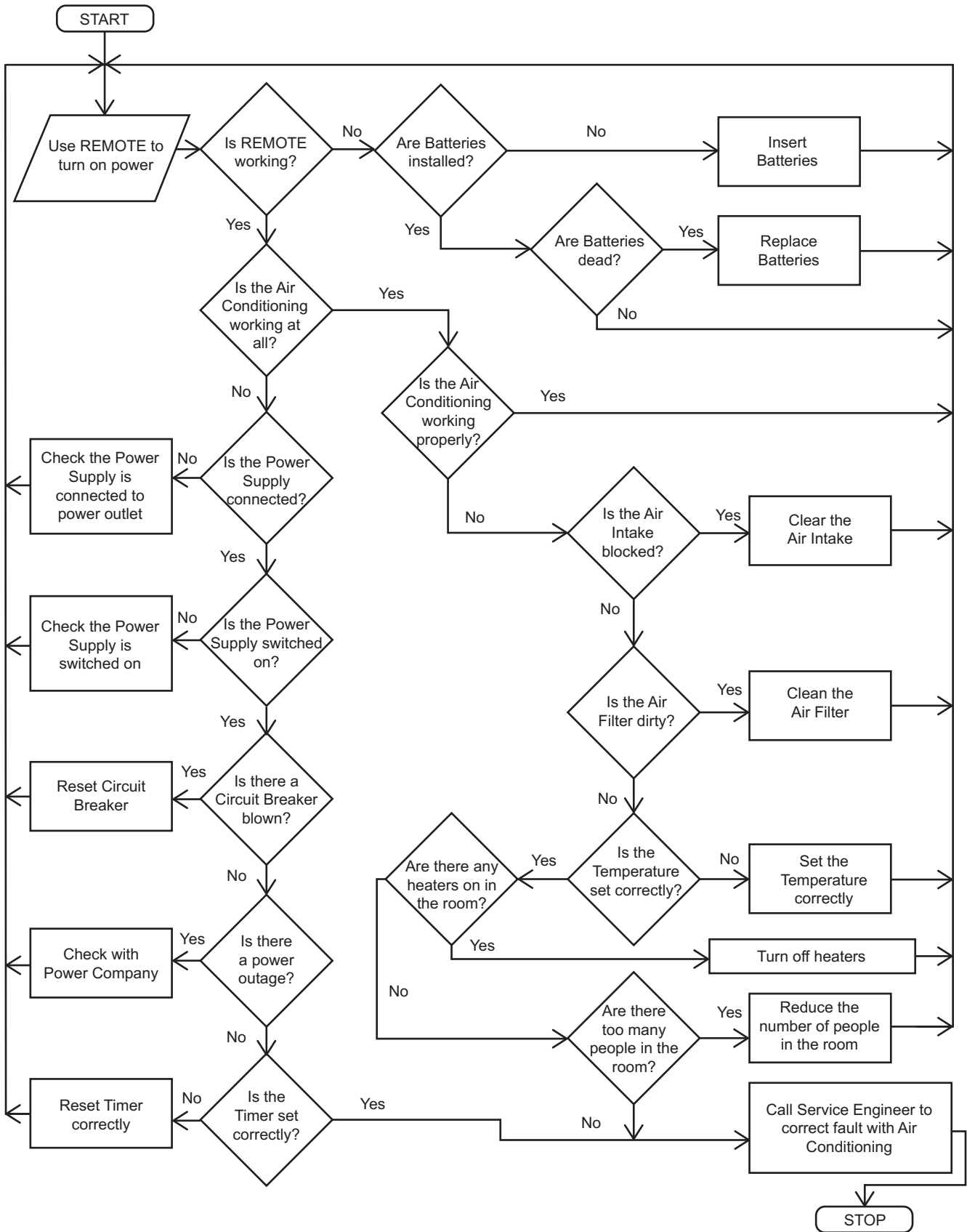


Fig. 3







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

Explain what is meant by the following terms when they are used in JavaScript:

(a) an array.

.....  
.....  
.....[1]

(b) a variable.

.....  
.....  
.....[1]

(c) a function.

.....  
.....  
.....[1]

(d) a comment.

.....  
.....  
.....[1]

(e) an object.

.....  
.....  
.....[1]

(f) an expression.

.....  
.....  
.....[1]



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- 8 A research and development (R&D) department of a company develops expensive goods. The development process has to be kept secret. The biometrics of all staff of the company are to be measured and used to restrict entry via the doors to the department.

A comparison of the suitability of various biometric methods that are available for use to identify staff has been compiled and is shown in Fig. 6. Each aspect of the biometric method has been rated High (H), Medium (M) or Low (L).

Biometric method used to identify a member of staff	How universal amongst staff members?	How unique is the measurement amongst staff members?	How permanent is the measurement to staff members?	How easy to collect at door from staff?	How acceptable to staff?	How resistant is the method to circumvent by staff?	Performance rating of the biometric method
Face	H	L	M	H	H	L	L
Fingerprint	M	H	H	M	M	H	H
Hand shape/ geometry	M	M	M	H	M	M	M
Veins in hand	M	M	M	H	H	H	M
Iris	H	H	H	H	H	H	H
Retina	H	H	M	L	L	H	H
Voice of staff member	M	L	L	M	H	L	L
Facial thermogram of staff member	H	H	L	H	H	H	H
DNA of staff member	H	H	H	L	L	H	H

Key: H = High    M = Medium    L = Low

Fig. 6













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