Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME			
CENTRE NUMBER		CANDIDATE NUMBER	

INFORMATION TECHNOLOGY **9626/32**

Paper 3 Advanced Theory **October/November 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** 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 **15** printed pages and **1** blank page.

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[Turn over

1 A company pays its workers weekly. The payroll department collects the data about the workers and stores it in a transaction file. At the end of the week, the transaction file is used to update the master file.

Draw a system flowchart which shows how the transaction file and master file are used to produce the payslips for the workers.

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2 Virtual reality and augmented reality are technologies used in medicine.

Explain the difference between virtual reality and augmented reality.

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3 An artist has sketched some of the shapes to use in a cartoon image of a snail.

The pre-drawn shapes are shown in Fig. 1.

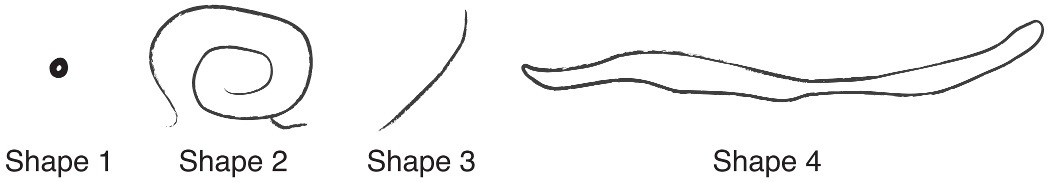
Shape 1
Shape 2
Shape 3
Shape 4

Fig. 1

The final image is then composed and completed using image-editing tools on a computer. It is shown in Fig. 2.

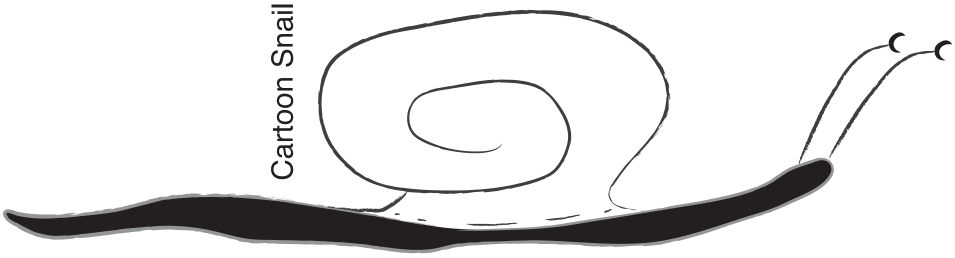
Cartoon Snail

Fig. 2

Explain, in detail, how you would use image-editing tools to create the final image from the components.

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4 A new online supermarket will have a very large amount of data about its customers, products and services that has to be kept safe. Complete back-ups of all its data are to be created at regular intervals. Jaswinder, the IT manager, is considering the options of using tape-based systems, hard disk-based systems or back-ups to the 'cloud' for storing the back-ups.

Evaluate the three options for storing the back-ups.

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5 A software developer has decided to use a conventional ‘waterfall’ method of development to produce a new game application.

(a) Describe the stages of the ‘waterfall’ method that should be followed.

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(b) Discuss the benefits and drawbacks to the developer of using the 'waterfall' method for developing the game application.

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6 Audio files can be digitised with different bit rates.

The bit rate of an audio file can appear to affect the quality of the sound when it is listened to.

Explain how you can affect the perceived quality of the sound stored in the audio file by changing the bit rate.

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7 A new operating system for smartphones has been developed and is now ready for testing to begin.

Discuss the benefits and drawbacks of white box testing.

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8 A data protection act can contain principles that create rights for those people who have their data stored and processed by companies.

(a) Describe the rights that could be created by a data protection act.

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(b) Data controllers are appointed by companies to safeguard the rights of individuals whose data is stored.

Describe **two** criminal offences that may be committed by data controllers if they fail to abide by the principles of a data protection act.

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9 WiFi is often used to connect devices to the internet. In some buildings, WiFi signals may be degraded so that data transfer appears to be ‘slow’.

Explain how you could try to ensure that the WiFi system suffers minimal signal degradation.

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10 A new software application has been developed. A programmer has been brought in to make further developments. This programmer will need documentation specific to her needs.

Describe, giving reasons, the elements of the documentation that she will need.

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11 A shop is open between 12 noon and 10 pm.

While the shop is closed in the morning, a message saying “Sorry, we are closed” is displayed. After the shop has closed in the evening a message saying “Please try again tomorrow” is displayed. At all other times, a message saying, “Hello, we are open now” is displayed.

JavaScript code can be used to alter web pages in real time.

Complete the code in the function below that will allow a user to find out if the shop is open or closed.

```
function OpenTimesFunction() {
var welcome;
var timenow = new Date().getHours();
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document.getElementById(“open”).innerHTML = welcome;
//This line displays the result of the code
}
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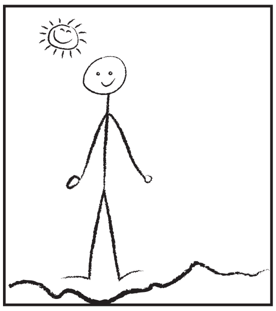
12 An animator is producing a digital cartoon showing a dancer in action on a beach. She has produced four frames of her cartoon and digitised them.



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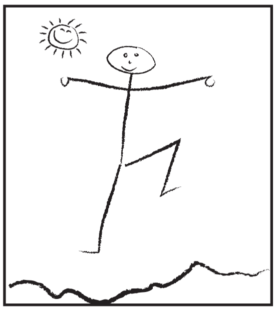

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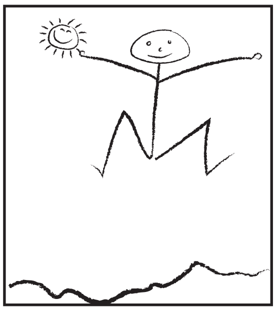
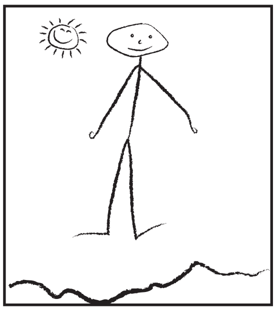


3



4

Explain how you would create the illusion of movement between frames 1 and 4.

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