cea

Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2019

Centre Number

Candidate Number

Digital Technology

Assessment Unit AS 1
assessing
Approaches to
System Development

[SDT11]

TUESDAY 21 MAY, MORNING

SDT11

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page or on blank pages.
Complete in black ink only. **Do not write with a gel pen.**
Answer **all five** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Quality of written communication will be assessed in Questions **3(a)(ii)** and **3(b)**.

12018

20SDT1101

1 **(a)** A computer system includes a user interface and it can carry out a number of processes.

Explain each of the following terms.

User interface

_____

_____

_____

_____

Process

_____

_____

_____

_____ [4]

(b) During systems development, programmers are responsible for writing the source code.

(i) Define the term source code.

_____

_____

_____

_____ [2]

20SDT1102

(ii) Describe three other responsibilities of programmers during systems development.

1. _____

_____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____ [6]

[Turn over

12018

(c) Describe the main features of the following methods of fact-finding.

Observation

_____

_____

_____

_____

_____

_____

Interviews

_____

_____

_____

_____

_____

_____ [6]

12018

20SDT1104

(d) The following context level Data Flow Diagram (DFD) shows how home insurance claims are processed.

Claim → Home Insurance Claims Processing

Receipt ←

Customer

Rejection ←

Acceptance ←
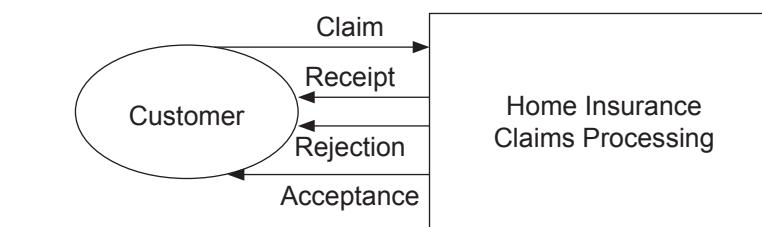
Each claim is processed as follows:

• The claim is logged and a receipt sent to the customer
• The claim is reviewed and is accepted or rejected

Details of claims are held in the Claims file.

In the box below, produce a level 1 DFD for this system as described above.

[6]

[Turn over

12018

20SDT1105

2 **(a)** Explain the purpose of each of the following stages in creating a new computer system.

Design

_____

_____

_____

_____

Development

_____

_____

_____

_____ **[4]**

(b) Describe how storyboarding can be used in the design of a computer system.

_____

_____

_____

_____

_____

_____

_____

_____ **[4]**

(c) Testing ensures the quality of a computer system.

    (i) Identify two ways in which the suitability of a computer system can be measured.

        1. _____

        _____

        2. _____

        _____ **[2]**

    (ii) Identify two ways in which the usability of a computer system can be measured.

        1. _____

        _____

        2. _____

        _____ **[2]**

[Turn over

12018

20SDT1107

(iii) Explain what is meant by each of the following.

Alpha testing _____

_____

_____

_____

_____

_____

Beta testing _____

_____

_____

_____

_____

_____ **[6]**

20SDT1108

(d) A computer system requires software maintenance to ensure it complies with new legislation.

(i) Name and describe this type of maintenance.

Name _____

Description _____

_____

_____

_____

_____ [4]

(ii) Identify two components of technical documentation and state how each will be used during software maintenance.

Component _____

How used _____

_____

_____

_____

Component _____

How used _____

_____

_____

_____ [6]

[Turn over

20SDT1109

3 **(a)** Rapid Application Development (RAD), Agile and the waterfall model are different approaches to system development.

(i) Explain why RAD can be described as an incremental approach.

_____

_____

_____

_____ [2]

(ii) Compare the Agile approach and the waterfall model with respect to how they involve the end user.

Quality of written communication will be assessed in this question.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ [6]

12018

(b) A company's backup procedure is as follows:

- An incremental backup is performed daily
- A full backup is performed every month

Describe how the company's data will be recovered.

Quality of written communication will be assessed in this question.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ [6]

[Turn over

12018

4 **(a)** A program written in a high level language can be translated using an interpreter or a compiler.

(i) Explain two differences between an interpreter and a compiler.

1. _____

_____

_____

_____

2. _____

_____

_____

_____ [4]

(ii) State one advantage of using an interpreter instead of a compiler.

_____

_____ [1]

(iii) State one advantage of using a compiler instead of an interpreter.

_____

_____ [1]

(b) Describe each of the following data types.

Character

_____

_____

_____

_____

String

_____

_____

_____

_____

Boolean

_____

_____

_____

_____ [6]

[Turn over

20SDT1113

(c) In a factory, a machine part is accepted if its radius is between **9.8 mm** and **10.2 mm** (inclusive of both values), otherwise it is rejected.

Complete the following flowchart to describe this process.

Start

Input
radius

radius
<9.8?

Output
'Reject'

Output
'Accept'

End

[6]

12018

20SDT1114
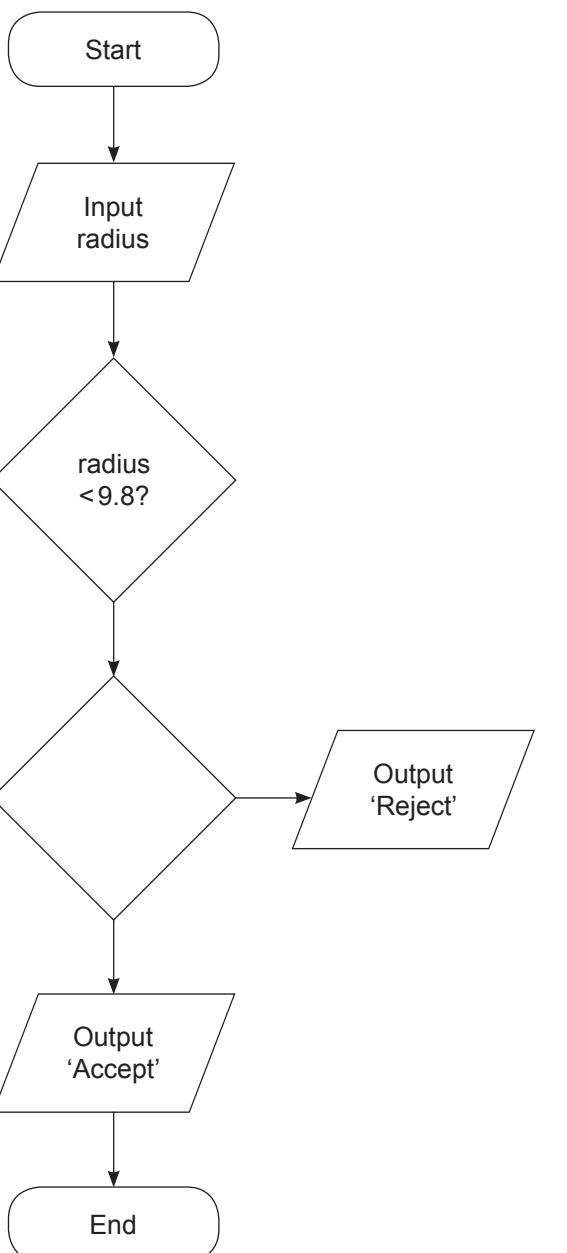
(d) By completing the decision box below, show how the two decisions in the flowchart in part **(c)** could be replaced by a single decision.

[2]

12018

20SDT1115
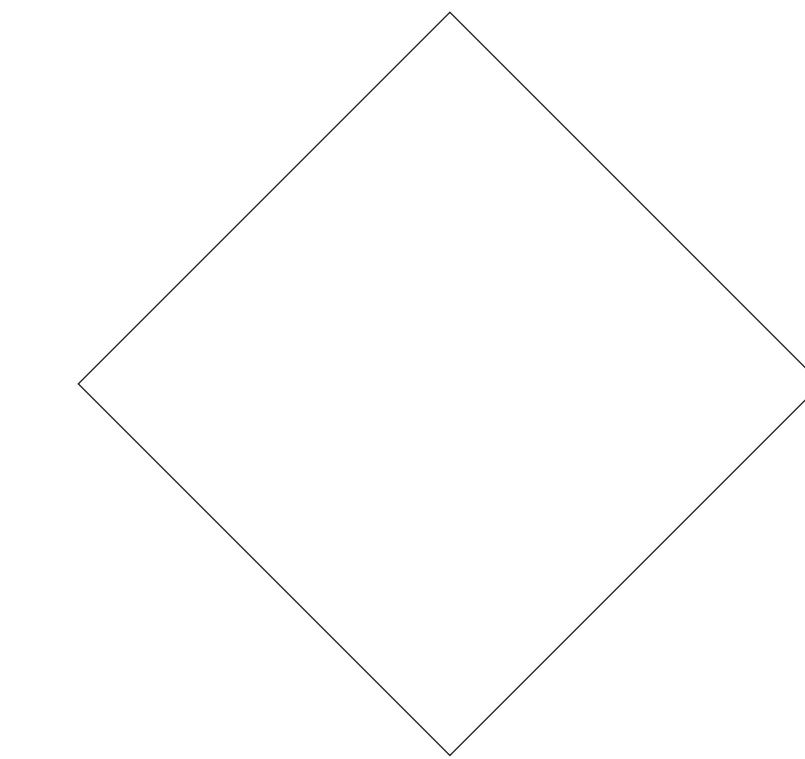
5 The following diagram shows how three classes are related by inheritance.
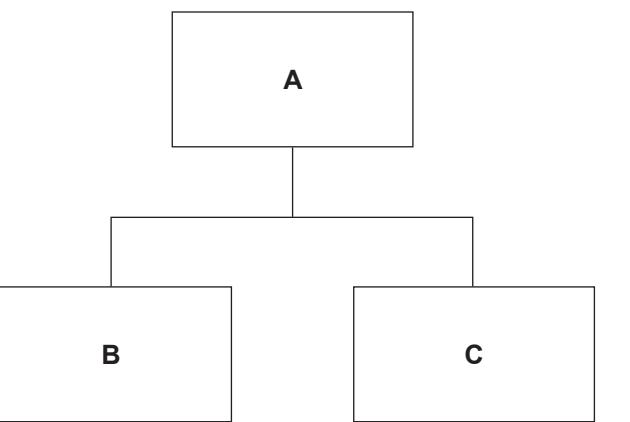
(a) By referring to the diagram, explain each of the following terms.

Base class

_____

_____

_____

_____

Derived class

_____

_____

_____

_____ [4]

12018

(b) Explain how each of the following is implemented in a class in an object-oriented program.

An attribute

_____

_____

_____

_____

A behaviour

_____

_____

_____

_____ **[4]**

[Turn over

12018

20SDT1117

(c) Describe two benefits of inheritance.

1. _____

_____

_____

_____

_____

_____

2. _____

_____

_____

_____

_____

_____ [6]

12018

20SDT1118

THIS IS THE END OF THE QUESTION PAPER

DO NOT WRITE ON THIS PAGE

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
QWC	

Total Marks	

Examiner Number

244248

20SDT1120