



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2022

Centre Number

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Candidate Number

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Digital Technology

Assessment Unit AS 1

assessing

Approaches to
System Development



[SDT11]

SDT11

FRIDAY 27 MAY, MORNING

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 **2(d)**, and **4(c)**.



1 A project manager must consider a number of factors when organising a software project.

(a) Explain, with the aid of an example, what is meant by a constraint.

[2]

(b) Identify four risks which a project manager must consider.

1. _____

2. _____

3. _____

4. _____

[4]

Gantt charts and critical path analysis are two of the tools a project manager can use.

(c) Describe the main features of a Gantt chart.

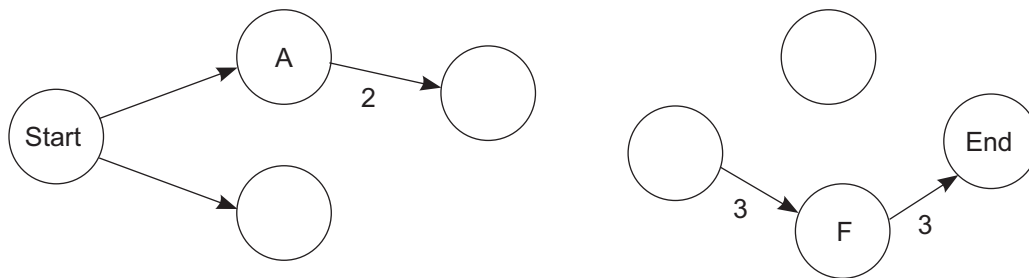
[4]



(d) The project manager for a particular project produces the following Activity Dependency Table.

Activity	Duration (weeks)	Preceding activities
A	2	-
B	4	-
C	4	A
D	3	C , B
E	2	D
F	3	D

Complete the following diagram by inserting the missing activities, arrows and durations.



[8]



2 Rapid Application Development (RAD) is one approach to systems development.

(a) Describe the following stages of RAD.

Data modelling

Process modelling

[4]



(b) Explain each of the following terms used in RAD.

Build

Time frame

[4]

(c) Explain why version management is important during systems development.

[4]

[Turn over





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(Questions continue overleaf)

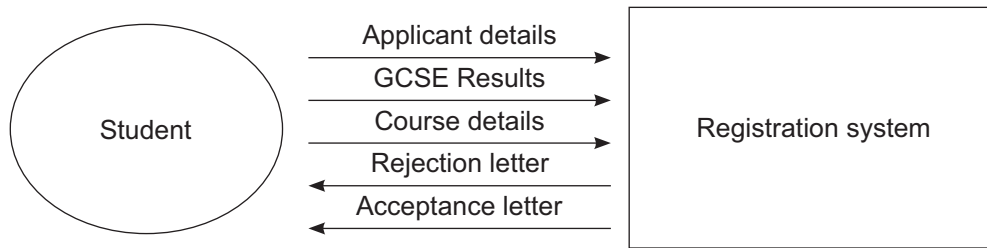
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[Turn over



20SDT1107

The following is the context level Data Flow Diagram (DFD) for a Sixth Form College's Registration system.



Students provide the College with their personal details, their GCSE results and details of the course being applied for.

The College validates each application.

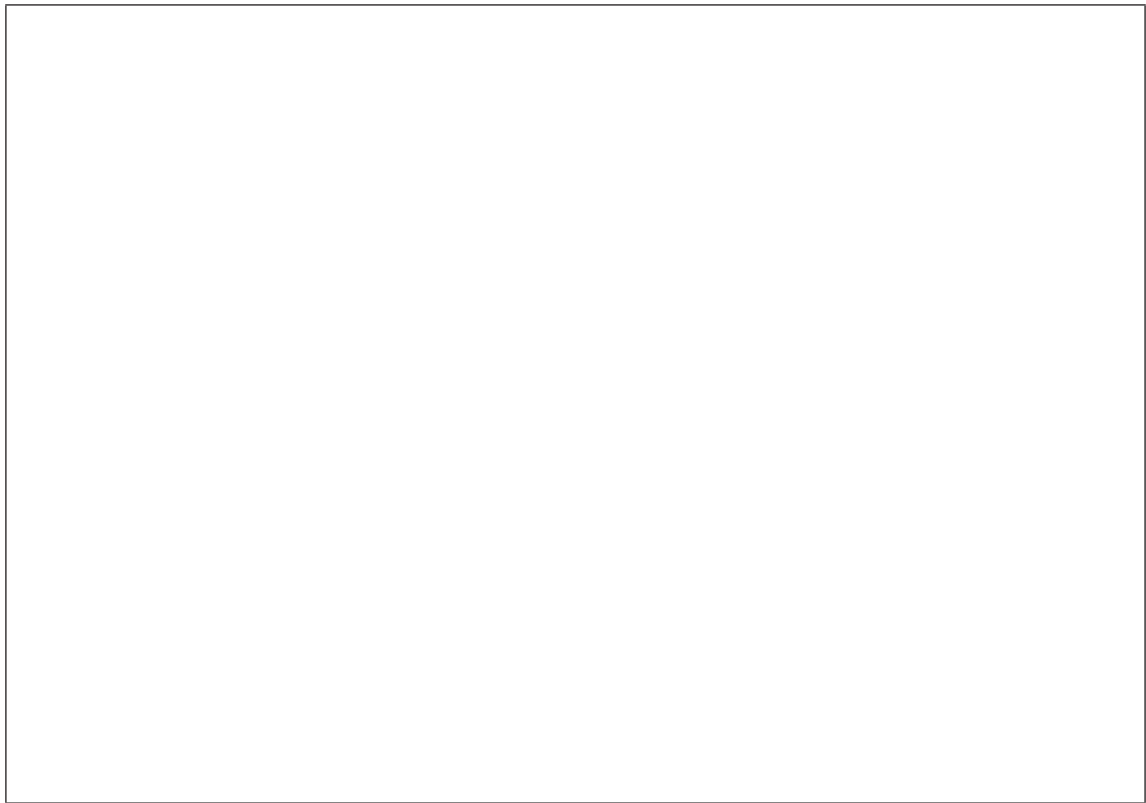
If the application is invalid, a rejection letter is sent out. If the application is valid, an acceptance letter is sent out and the applicant is registered as a student and enrolled on the course.

Data about each registered student and the courses he or she is enrolled on is stored in a file called **Student**.

Data about each course is stored in a file called **Course**.



(d) In the box below, produce a level 1 DFD for this validation process.



[9]

(e) Implementation of a new system can be done in a number of ways.

Describe how a new system is implemented using the parallel changeover method.

[3]

[Turn over



4 (a) Explain what is meant by each of the following terms.

Variable

Algorithm

Syntax

[9]



(b) Describe the following program concepts.

Sequence

Selection

[4]



The following algorithm uses a **for** loop.

The variable 'number' is the loop counter, the initial value is 1, the final value is 5, and the increment is 2.

```
begin  
    total = 0  
    for number = 1 to 5 step 2  
        total = total + number  
    next number  
    output total  
end
```

(d) Describe the purpose and output of the algorithm.

[2]

(e) Explain the effect of moving the **output** statement to immediately before the **next** statement.

[2]

[Turn over



5 A software house develops an application for a client. The developer provides the client with the object code, but not the source code.

(a) Describe how each of the following translates source code.

Interpreter

Compiler

[6]

(b) Explain why the client is not provided with the source code.

[2]



(c) Object-oriented programming was used in the development of the application.

Fill in the blank cells in the following table of object-oriented programming terms.

Term	Description
Class	[3]
[1]	A data value within an object
[1]	A program routine within an object
Inheritance	[3]
[1]	An existing class whose properties and methods are inherited
[1]	A class resulting from the inheritance process



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Question Number	Marks
1	
2	
3	
4	
5	

Total Marks	
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Examiner Number

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