

Rewarding Learning

ADVANCED General Certificate of Education

20	4	Q
\sim U		O

Centre Number					
Can	didat	e Nu	mber		
Can	didat	e Nu	mber		

Software Systems Development

Unit AS 1

Introduction to Object Oriented Development



[SDV11] **THURSDAY 24 MAY, AFTERNOON**

TIME

2 hours.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page. Write your answers in the spaces provided in this

question paper.

Answer all six 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.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time.

For Examiner's use only					
Question	Marks available	Marks	Remark		
1	10				
2	22				
3	14				
4	20				
5	23				
6	11				

Insert the Object Oriented **term** or **detailed definition** in the relevant spaces of the table below.

Object Oriented Ferm	Object Oriented Definition		
emi	The creation of an object.		
		[1]	
	The creation of a new class that reuses, extends and modifies the behaviour that is defined in another class.		
lerived / sub / child		[1]	
		[2]	
olymorphism			
ata Diadiaa		[3]	
ate Binding			
		[3]	

A CI	A class Client holds basic data about a company's clients.							
(a)	Co	mplete the clas	ss definition for C	Client with:				
	(i)	Appropriate f	ield types;					
		class Client {						
		private _		clientNo;				
		private _		companyName;				
		private _		dateJoined;				
		private _		telNo;				
		private _		passWord;				
		private	char	rating;	[5]			
					[5]			
					[0]			

			_	
			_	
			_	
			_	
			_	
			_	
			_	
			_	
			_	
		[4	4]	

(b) Given the rating details in the table below, write code for a method MaximumCredit that will return the maximum credit amount a client may accumulate;

Examiner Only

Marks Remark

Rating	Maximum Credit Amount £
A	2500.00
В	7500.00
С	10000.00
X	0
	[8]

3 (a)	met	imple of such a class. Format is an example of a method within this	Only emark
		(i)	Used in the context of a method, give a brief description of the meaning of each word in bold.	
			public	
			static	
			[2]	
		(ii)	Provide an example of a call to a public method from a class other than String.	
(b)	sys min cha Wri the doe (Hir	eswords are commonly used to ensure legitimate access to a tem. A common recommendation is that a password must have a simum of seven alphanumeric characters where at least one tracter is an upper case letter and at least two characters are digits. It is a method validPassword that will return a boolean value true if password passed to the method is valid and false if the string is not meet this requirement. Int: Character methods – isLetter, isDigit, isWhiteSpace. Ascii code A is 65)	

	Examin Marks	er Only Remark
[11]		

	ception Handling is a feature used to trap errors and prevent a system sh during runtime.	Examiner Only Marks Remark
(a)	Give an example of a specific error trapping class provided in C# / Java and indicate the type of error which will be caught.	
		_
		[2]
(b)	Exception Handling can also be implemented in a class to ensure th an object cannot be instantiated or updated if the data is invalid.	at
	The customised class ClientException, given below, can be used to facilitate the trapping of errors in a class Client.	
	<pre>Java class ClientException extends Exception{ //constructor public clientException(String message) { super(message); } }</pre> C#	
	<pre>class ClientException : Exception{ //constructor public ClientException(String message) : base(message) { } }</pre>	
	(i) Indicate what you understand by the term Exception .	
		[2]

i)	Implement error trapping for an invalid telephone number in the class Client. Write the body of code for the SET that will throw back any error found or assign a valid telephone number to the class field telNo.							
	Call a prewritten validation method validTelNo as given below							
	C# Java		validTelNo (String telNo) validTelNo (String telNo)					
	Do not	write validation c	ode for a telephone number					
	{							
				-				
				-				
				-				
				-				
				-				
				_				
				_				
				_				
				_				
				_				
				_				
	}							
	,		[8]					

	considered for the field / parameterised constructor. Indicate how	Marks
	you would implement it.	
	[2]	
	[2]	
A pı	rogram which allows a client's telephone number to be changed	
	lements the modified Client class. Describe how a new telephone aber could be handled to ensure the program will not crash.	
	[6]	

BLANK PAGE

(Questions continue overleaf)

A country house, Blackstone Nook, hires out its converted stables for events such as conferences, promotions, parties and wedding receptions. Accommodation, comprising three superior and four deluxe rooms, is available in the main house. A stipulation for weddings is that a minimum of three rooms must be hired. Prices are shown in the table below.

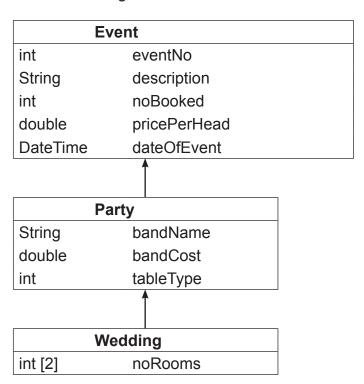
Examiner Only

Marks Remark

Room	Price per room per night (£)
Superior	175.00
Deluxe	130.00

Classes **Event** and **Party** have been designed for the structure detailed below with methods **income()** and **ToString()** available in both.

Inheritance diagram for Blackstone Nook.



		at qualifier is required for the methods income() and ToString() in class Party when they support polymorphism?	Examiner Only Marks Rema
		[1]	
)	(i)	Write the code for the derived class Wedding giving the following:	
		 class header; field definitions; field / parameterised constructor; 	
		 field / parameterised constructor; GET and SET (Properties / Methods). 	
		[11]	

ii)	Write the method costOfRooms() that will return the cost of rooms booked for a wedding. For example the one dimensional array noRooms with the contents 2 and 4 denotes 2 superior rooms and 4 deluxe rooms booked.	Examin Marks	er Only Remark
		_	
		_	
		_	
		_	
		_	
		_	
		_	
		_	
	[8	- B]	
ii)	Write the method income() that will calculate and return the cost for a wedding. The cost is calculated as the party cost plus the cost of the rooms booked.		
		_	
		_	
		_	
		_	
	[3	3]	

()	Given the following array of events held for Blackstone Nook, write the section of code that will calculate and output the total income for the seventy events.	Examiner Marks F
	Event [] arrayEvent = new Event[70];	
	[6]	
D)	The owner would like to compile statistical data about wedding events at Blackstone Nook. What additional code should be included to output the number of weddings and the total income generated from weddings?	

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.