

Paper 2

Section A

1. – The Organizer of a senior citizens' club has arranged outings for the members. For each of these outings a coach is hired, meals at a restaurant are reserved and tickets for the theater have been booked. A program is required to work out the costs and provide a printed list showing everyone on the outing.
- Write and test a program for the club organizer.
 - Your program must include appropriate prompts for the entry of data.
 - Error message and other output need to be set out clearly.
 - All variables, constants and other identifiers must have meaningful names.

You will need to complete these three tasks. Each task must be fully tested.

- Work out the total cost of the outing.

TASK 1

The organizer finds out how many senior citizens are interested in the outing. The program for Task 1 works out the cost for the information.

Number of People	Hire of Couch	Cost of a Meal	Cost of a theatre ticket
12-16	150	14.00	21.00
17-26	190	13.50	20.00
27-39	225	13.00	19.00

The minimum number of senior citizens needed for the outing to go ahead is 10; there cannot be more than 36 senior citizens on the outing. A minimum of two carers go on the outing. With an additional carer needed if more than 24 citizens go on the outing. Carers do not have to pay anything for the outing. Work out the total cost per person for the senior citizens.

Task 2

- Record who is going on the outing and how much has been paid.

Using your results from Task 1, record the names of the people on the outing and the amount they have paid; include the carers on the outing. If there are spare places on the coach then extra people can be added; they are charged the same price as the other citizens. Calculate the total amount of money collected. Print out the list of the people on the outing.

Task 3

- Identify the break-even point or profit that will be made on the outing.

Show whether the outing has made a profit or has broken even using the estimated cost from the Task 1 and money collected from Task 2.

(a) All variables, constants and other identifiers should have meaningful names.

- (i) Declare a constant that can be used in Task 1. [1]

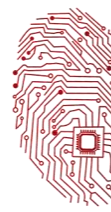
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- (ii) Declare any two variables that are used in Task 2. [2]

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SECTION B

1. The design for a computer program contains the following algorithm shown in pseudocode.

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01 INPUT A
02 INPUT B
03 C = 0
04 IF A = B THEN
05     B = 1
06 ELSE
07     WHILE B > A
08         B = B - A
09         C = C + 1
10     END WHILE
11     A = B
12 END IF
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- (a) Define the following terms. For each, give an example from the algorithm.

(i) Selection

[2]

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(ii) Iteration

[2]

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- (b) What is nesting? Explain with an example.

[3]

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(c) Explain the difference between the use of $A = B$ on line 4 and line 11, by referring to the type of operation. [4]

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2. Write an algorithm/pseudocode or otherwise to declare an array of size 10, and runs a counter loop from 1 to 20. If the counter is an odd number then save it to the array. [7]

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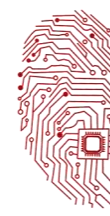
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3. A database, ZAKATHON, was set up to show the workshop dates, prices and number of students for a course at an auditorium specialising in Computer Science workshops.

WORKSHOP	WORKSHOP DATE	NUMBER OF VIP SEATS	NUMBER OF GENERAL SEATS	PRICE OF VIP SEAT (RS)	PRICE OF GENERAL SEAT (RS)
O-Level (P1)	4 – May – 2016	40	80	2500	2000
O-Level (P2)	8 – May - 2016	30	90	2700	2300
AS-Level (P1)	6 – May – 2016	45	50	3500	3000
AS-Level (P2)	11 – May – 2016	35	65	3700	3300
A2-Level (P3)	20 – May - 2016	40	45	4500	4000
A2-Level(P4)	24 – May - 2016	30	60	4700	4300

- (a) Give the number of fields that are in each record.

[1]

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- (b) State the data type you would choose for each of the following fields.

Workshop

Number of VIP Seats

Price of General Seats [3]

- (c) The query-by-example grid below selects all the workshops with more than 35 seats in VIP and more than 45 seats in the general.

Field:	Workshop	Workshop Date	Number of VIP Seats	Number of General Seats
Table:	ZAKATHON	ZAKATHON	ZAKATHON	ZAKATHON
Sort:	Ascending			
Show:	✓	✓		
Criteria:			>35	>45
or:				

Show what would be output from the query-by-example using WORKSHOP only.

[3]

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(d) Complete the query-by-example grid below to select all the workshops with at least fifty seats In general and show the Workshop, Workshop Date and Price of General Seats Rs in Workshop Date Order.

Field:				
Table:				
Sort:				
Show:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:				
or:				

[5]