NATIONAL EVALUATION & TESTING SERVICE
DEPARTMENT OF EXAMINATION - SRI LANKA

G.C.E. (A/L) EXAMINATION - 2012
MARKING SCHEME

20 - Information & Communication Technology

GCE AL Examination, August 2012 (AL/2012/20/E-II) – MCQs

(Model Answers)

Question Number	Answer	Question Number	Answer	Question Number	Answer	Question Number	Answer	Question Number	Answer
1	4	11	5	21	5	31	3	41	2
2	1	12	2	22	5	32	4	42	3
3	3	13	2	23	3	33	1	43	5
4	3	14	1	24	3	34	2	44	3
5	1	15	2	25	5	35	5	45	3
6	2	16	2	26	1	36	1	46	4
7	4	17	4	27	3/2	37	4	47	3
8	2	18	3	28	3	38	4	48	1
9	4	19	2	29	1	39	2	49	4
10	1	20	4	30	2	40	1	50	2

GCE AL Examination, August 2012 (AL/2012/20/E-II) – Part A

(Model Answers)

Q. No	Section	Model Answer	Marks Break-down	Total Marks
1	(a)			4
		Multiprogramming	2	
		Time sharing	2	
	(b) i	Round trip delay time (RTD)/(RTT) or Explanation		1
	(b) ii	131.111.8.46		1
	(b) iii	Class B		1
	(b) iv	0%		1
	(C)			2
		Running	1	
		Swapped out and blocked	1	
2	(a)	A system is a group of <u>interrelated, interacting</u> resources forming a <u>common goal (specific task)</u>. Or A <u>purposeful collection</u> of <u>inter related components working together</u> to <u>achieve common objective</u>		2 or 0
	(b)			2
		Resource	1	
		Interrelated		
		Interacting		
		(All three with at least 2 resources)		
		Common goal - Communication (call)	1	
	(c)			2
		Open	1	
		Justification	1	
		Interacts with the outside world		
	(d) i			2
		Functional	1	
		Describe	1	

Q. No	Section	Model Answer	Marks Break-down	Total Marks
	(d) ii			2
		Non functional	1	
		Describe(Limitation/Constrain)	1	
3	(a) i	If the remainder of the division of the number by 2 is 1, then the number is odd, otherwise even		1
	(a) ii			2 Or 1

If the above method is acceptable and the flowchart implements it give 2 marks.
If the process is inside the Diamond symbol, give 1 mark

Q. No	Section	Model Answer	Marks Break-down	Total Marks

	(a) iii	If the pseudo code represents the flowchart, give 2 marks.
		
		Start/Begin
		      Read a positive integer
		      Divide the number by 2 and get the remainder
		      If the remainder equals 1
		      Then
		        Begin
		         display that the number is odd
		        End
		     Else
		        Begin
		         display the number is even
		        End
		Stop/End
		
		Note: it does not matter whether the flowchart is incorrect.
		Begin – End s are optional, If –Then-Endif is also acceptable.
				2

	(b)	$$15 \Rightarrow 00001111$$ $$5 \Rightarrow 00000101$$ $$-5 \Rightarrow 11111010 + 00000001$$ $$\Rightarrow 11111011$$
		
		       0000 1111 (15)
		+ 1111 1011 (-5)
		_____
		   1-0000 1010
		
		Ignore the carry
			1
			1
			1
			
			1
			
			1
				5

4	(a)	Privacy means <u>protection</u> of <u>personal information</u> in computer data bank from <u>abuse</u>. Piracy of software means making of <u>illegal copies</u> of software on which the user has no copyright or any other right	1 1	2

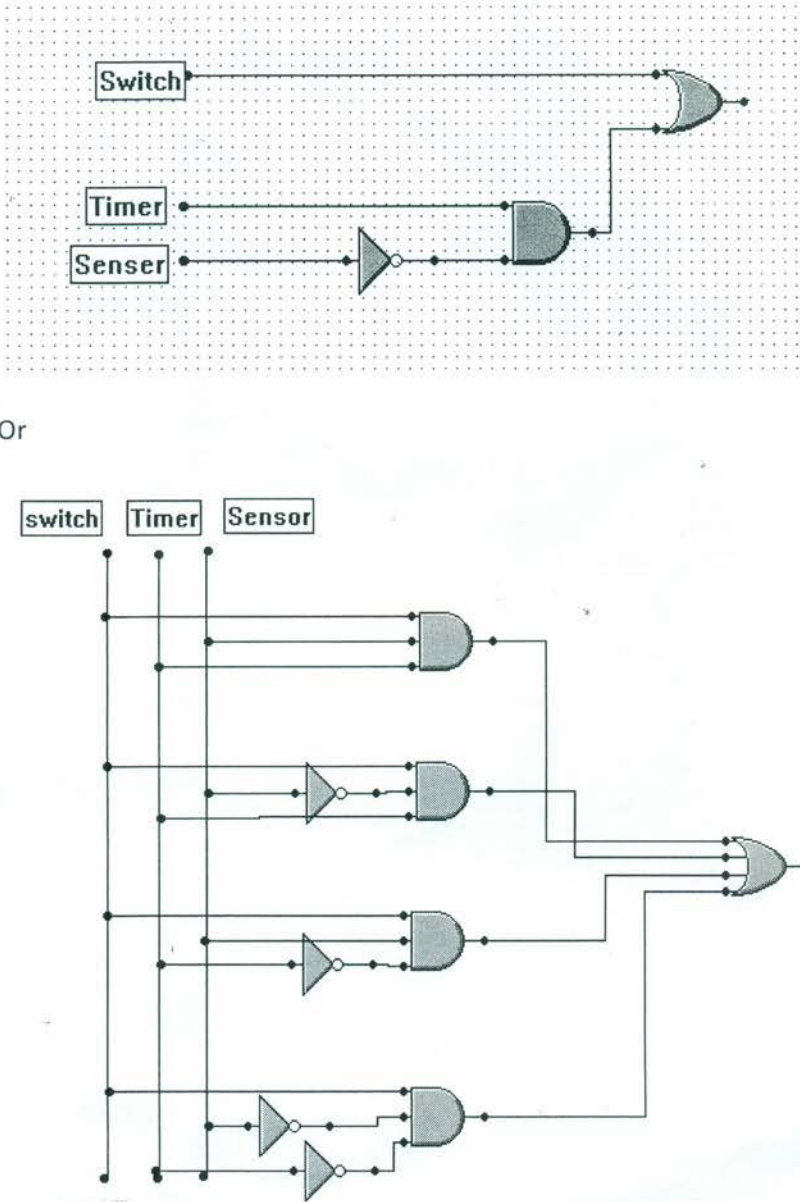| Q. No	Section	Model Answer	Marks Break-down	Total Marks
	(b)	Mobile computing refers to the <u>use of small and portable computing devices</u> in	1	3
		<u>wireless enabled networks</u>	1	
		that provide <u>wireless connections</u> to a central main server.	1	
	(c) i	Video conferencing		2
	(c) ii	Network devices Any Audio/Video devices Computer/Servers	1 1 1	3

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GCE AL Examination, August 2012 (AL/2012/20/E-II) – Part B

(Model Answers)

Q. No	Section	Model Answer	Marks Break-down	Total Marks
1	(a) i	Suitable System such as payroll system Difference – Process, data(input), information(output) Note: Data $\longrightarrow$ Process $\longrightarrow$ Information Any expression represents this idea (explanation or diagram)	1 1	2
	(a) ii	1. in-Accuracy 2. In-Efficiency 3. Data duplication 4. Need for large Physical space **Any three from above** or any other acceptable reason. Note: Additional marks should not be given for the duplicate meanings. Ex. In-Efficiency and slowness in searching should be treated the same.	1 1 1 1	3

	(a) iii	(1) Hardware
		    Any physical (tangible) objects in the computer.
		(2) Software
		    Instruction given to the computer.
		(3) Firmware
		    Program required for booting up a computer.
			1
			
			1
			
			1
				3

Q. No	Section	Model Answer	Marks Break-down	Total Marks
1	(b) i			3

Or

(b) ii							2

Manual/Switch (A)	Timer (B)	Sensor (C)	Not C	B and (Not C)	A or (B and (Not C))
1	1	1	0	0	1
1	1	0	1	1	1
1	0	1	0	0	1
1	0	0	1	0	1
0	1	1	0	0	0
0	1	0	1	1	1
0	0	1	0	0	0
0	0	0	1	0	0

(b) iii	Sum of products or Product of sums		2

2	(a)			2
		The paragraph tag inserts a blank line	1	
		but the break tag does not insert a blank line	1	
	(b)			3
		Our evergreen school days	1	
		will not come back again	1	
		....	1	
		From the nursery to high school we learnt the best		
	(c)			10

```
<html>
<head>
<title> AgriSL  </title>

</head>                                                                1
<body>
<h1> Agriculture in Sri Lanka </h1>
<img src="agriSL.jpg" ALT="Agri SL"  />                                1
                                                                       2

 <p>Sri Lanka is an agricultural country.  Agriculture is one of the
    main sectors of the Sri Lankan economy.</p>
<p>The main plantation crops are</p>
<ul>                                                                   1
        <li> tea</li>
        <li> rubber</li>
        <li> coconut </li>                                            2
</ul>
<p>Links to agricultural firms</p>
<a href = "http://www.jayagrotec.com">Jay Agro Technologies</a>
<br />                                                                 1
<a href = "http://www.lkagrisys.com">Lanka Agri Systems Pvt
Ltd.</a>
<br/>                                                                  1
</body>
</html>                                                                1
```

Q. No	Section	Model Answer	Marks Break-down	Total Marks
3	(a) i	2^{16} = 8, 192 Bytes = 8 KB (if machine is assumed to be bit addressable) or 2^{16} = 65536 Bytes = 64 KB (if machine is assumed to be byte addressable)		1
	(a) ii	0 to $(2^{16} -1)$		1
	(a)iii	8x8/4 = 16 4 bits are sufficient or 64*8/4 = 128 7 bits are sufficient	1 1	2
3	(b)	 (Each IP address – 1 mark , Gateway – 1 mark) Or		5

(c)				6
	i.	**firewall** A firewall is a computing devices that <u>enforces a set of rules to prevent unauthorized</u> access to an internal network while allowing legitimate communications to pass.	2	
	ii.	**proxy server** A proxy server is a computer system or an application that acts as an <u>intermediary</u> for requests from clients seeking resources from <u>other servers</u>.	2	
	iii.	**honey pots** A honeypot is a <u>trap set to detect, deflect or counteract</u> attempts at unauthorized use of information systems.	2	

Q. No	Section	Model Answer	Marks Break-down	Total Marks
4	(a)	Relationship "Obtain Marks for"		2
	(b)			4
		Class – Has – Student : One-to-many	1	
		One class has many student while one student belongs to a class	1	
		Student -- has – Desk: One-to-one	1	
		A student has a desk while one desk is for a single student		
		House –has—Student: One-to-many	1	
		A student should belong to a house while one or more student belong to the same house		
		Student—Obtains Marks for –Subject : Many-to-many	1	
		A student sit for multiple subjects and for a single subject is being taken by one or more students		
	(c)	Tables representing the following relations		6
		Desk(<u>DeskID</u>)	1	
		House(<u>HouseID</u>, Name)	1	
		Class(<u>ClassID</u>)	1	
		Student(<u>StudentID</u>,ClassID, DeskID, HouseID, NIC, Name)	1	
		Subject(<u>SubjectID</u>, Title)	1	
		Marks(<u>StudentID</u>, <u>SubjectID</u>, Marks)	1	
		Or		
		Desk(<u>DeskID</u>, StudentID)		
		House(<u>HouseID</u>, Name)		
		Class(<u>ClassID</u>)		
		Student(<u>StudentID</u>,ClassID, HouseID, NIC, Name)		
		Subject(<u>SubjectID</u>, Title)		
		Marks(<u>StudentID</u>, <u>SubjectID</u>, Marks)		
		Note: table 'Marks' and attribute 'Marks' can have any meaningful name		

	(d)	Desk – DeskID House-HouseID Class-ClassID Student – StudentID+DeskID+ClassID+HouseID Subject – SubjectID Marks – StudentID+SubjectID One of the above OR Desk – DeskID+StudentID House-HouseID Class-ClassID Student – StudentID+ClassID+HouseID Subject – SubjectID Marks – StudentID+SubjectID One of the above Note: table 'Marks' can have any meaningful name		1
	(e)	select Marks from Marks where StudentID='ST001' and SubjectID='AL001' Note: table 'Marks' and attribute 'Marks" can have any meaningful name	1 1	2

Q. No	Section	Model Answer	Marks Break-down	Total Marks
5	(a)	**Variable Name Data Type** datasummary Dictionary datakeys List Note –	1 1	2
	(b)	# example.py Note - 1) What is essential is the comment symbol # followed by the program name **example.py**. 2) The comment character # can start at any position in the line. 3) Character spaces in between these two parts have no effect. 4) In addition to these two parts any other words may have being included anywhere in the comment line for elaboration, but will not get any additional marks.		2
	(c)	**Open a file** named 'input.txt' **to read data and return a corresponding stream.** Open an a file named 'input.txt' for reading **Return** a file stream(file object …..) Note -	1 1	2

Q. No	Section	Model Answer	Marks Break-down	Total Marks
	(d)	readdata() :		6
		- Read the data from the input file named 'input.txt'. - Update the tally of numbers in the **datasummary** dictionary together with the number. - Gather the **distinct** values in the input file in the **datakey** list.	2	
		printdata() :		
		- Write the data in the **datasummary** dictionary to the file named 'output.txt' - In the order of data in the **datakey** list	1 1	
		processdata() :		
		sort the symbols in the datakey list - in the **ascending** order.	1 1	
		Note –		
	(e)			3
		a-3 b-2 d-2 n-2 x-1 Note :- 1)Characters should be in **alphabetic order**. 2)The numbers should represent the tally of characters- **at least three values must be correct.** 3)Character and the tally should be separated by the character –		

Q. No	Section	Model Answer	Marks Break-down	Total Marks
6	(a)	Does not need to visit the book shop physically Payments could be carried out on-line	3 3	6
	(b)	1. Does not have the facility to look at the book before it is selected 2. Needs to follow up to ensure the overall process has been completed 3. In-Secure payment mode 4. Needs credit card 5. Computer literacy **One of the above or any acceptable reason**		4 or 0
	(c)	1. By making e-books available on-line 2. By introducing a system to acknowledge each transaction 3. secure website with secure protocols 4. any acceptable alternative payment mechanism 5. Use help facility **One of the above related to the answer given in (b) or any acceptable method**		5 or 0