

GW
12/11/2012

NEW

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**NATIONAL EVALUATION & TESTING SERVICE
DEPARTMENT OF EXAMINATION - SRI LANKA**

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



20 - Information & Communication Technology

*THIS HAS BEEN PREPARED FOR THE USE OF MARKING EXAMINERS. SOME CHANGES WOULD BE MADE
ACCORDING TO THE VIEWS PRESENTED AT THE CHIEF EXAMINER'S MEETING. WE ARE OF THE VIEW THAT THIS COULD BE
USED AS A TEACHING AID IN THE CLASSROOM.*

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


Maths
q&A : com

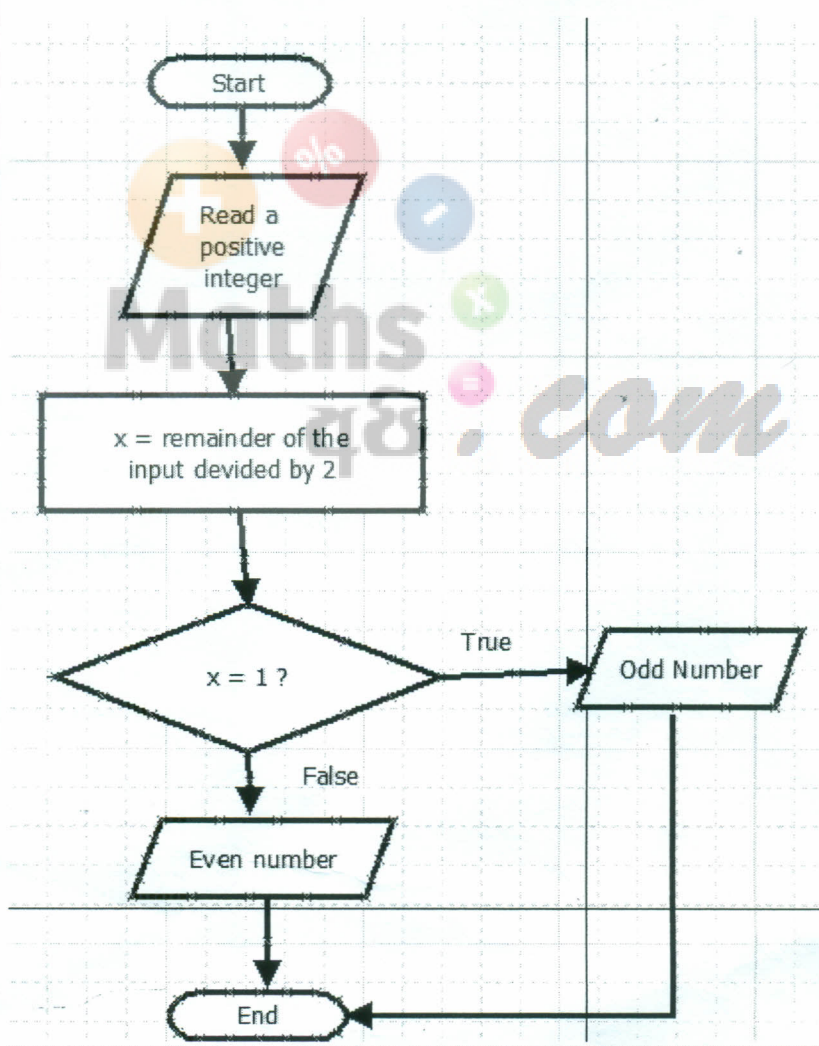
GCE AL Examination, August 2012 (AL/2012/20/E-II) – Part A

(Model Answers)

Q. No	Section	Model Answer	Marks Break-down	Total Marks
1	(a)	Multiprogramming Time sharing	2 2	4
	(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)	Running Swapped out and blocked	1 1	2
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 of inter related components working together</u> to <u>achieve common objective</u>		2 or 0
	(b)	Resource Interrelated Interacting (All three with at least 2 resources) Common goal - Communication (call)	1 1	2
	(c)	Open Justification Interacts with the outside world	1 1	2
	(d) i	Functional Describe	1 1	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
	(d) ii	Non functional Describe(Limitation/Constrain)	1 1	2
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	 <pre> graph TD Start([Start]) --> Read[/Read a positive integer/] Read --> Process[x = remainder of the input divided by 2] Process --> Decision{x = 1 ?} Decision -- True --> Odd[/Odd Number/] Decision -- False --> Even[/Even number/] Odd --> End([End]) Even --> End </pre> 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		2 Or 1

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

(Model Answers)

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 => 00001111 5 => 00000101 -5 => 11111010 + 00000001 => 11111011 0000 1111 (15) + 1111 1011 (-5) 1-0000 1010 Ignore the carry →	1 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

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

(Model Answers)

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 <u>wireless enabled networks</u> that provide <u>wireless connections</u> to a central main server.	1 1 1	3
	(c) i	Video conferencing		2
	(c) ii	Network devices Any Audio/Video devices Computer/Servers	1 1 1	3

Maths
q&A : com

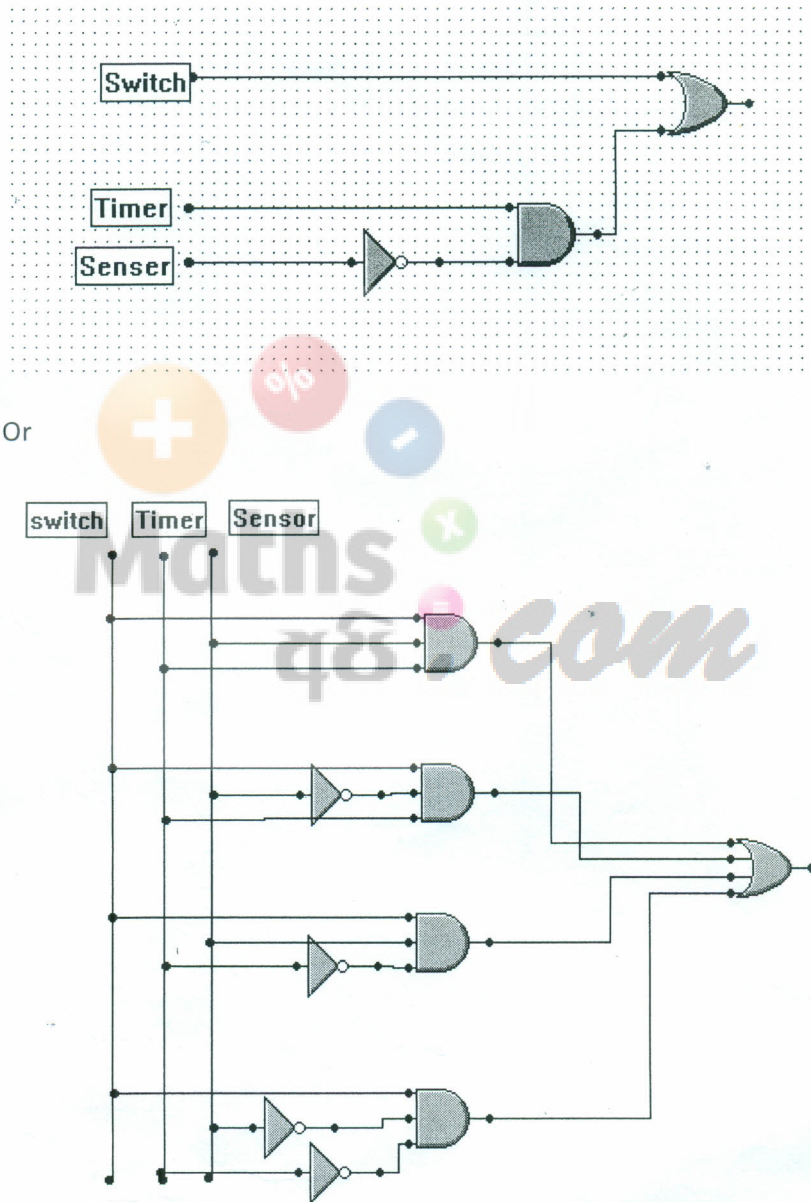
GCE AL Examination, August 2012 (AL/2012/20/E-II) – Part B

(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: <pre> graph LR Data --> Process Process --> Information </pre> 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

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	(b) i	 Or		3

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

(Model Answers)

(b) ii	<table><tr><th>Manual/Switch (A)</th><th>Timer (B)</th><th>Sensor (C)</th><th>Not C</th><th>B and (Not C)</th><th>A or (B and (Not C))</th></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td><td>1</td><td>1</td><td>1</td></tr><tr><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table>	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	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																																																			
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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																																																						

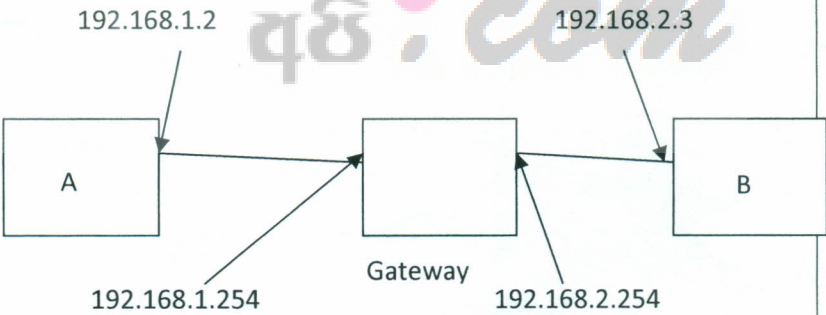
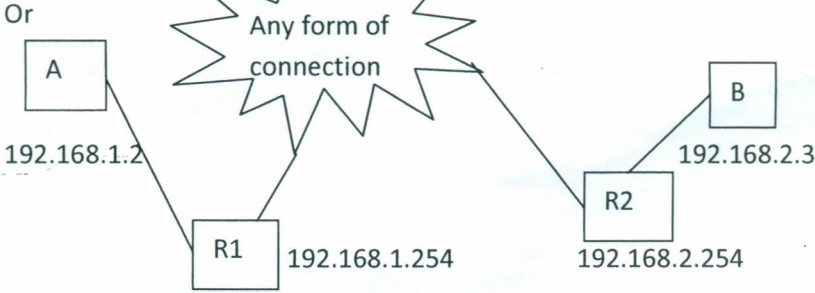
GCE AL Examination, August 2012 (AL/2012/20/E-II) – Part B

(Model Answers)

2	(a)	The paragraph tag inserts a blank line but the break tag does not insert a blank line	1 1	2
	(b)	Our evergreen school days will not come back again From the nursery to high school we learnt the best	1 1 1	3
	(c)	<pre> <html> <head> <title> AgriSL </title> </head> <body> <h1> Agriculture in Sri Lanka </h1> <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> tea rubber coconut <p>Links to agricultural firms</p> Jay Agro Technologies
 Lanka Agri Systems Pvt Ltd.
 </body> </html> </pre>	1 1 2 1 2 1 1 1	10

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

(Model Answers)

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

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

(Model Answers)

(c)	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. 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>. iii. honey pots A honeypot is a <u>trap set to detect, deflect or counteract</u> attempts at unauthorized use of information systems.	2 2 2	6
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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
4	(a)	Relationship "Obtain Marks for"		2
	(b)	Class – Has – Student : One-to-many One class has many student while one student belongs to a class Student -- has – Desk: One-to-one A student has a desk while one desk is for a single student House –has–Student: One-to-many 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 A student sit for multiple subjects and for a single subject is being taken by one or more students	1 1 1 1 1	4
	(c)	Tables representing the following relations Desk(<u>DeskID</u>) House(<u>HouseID</u>, Name) Class(<u>ClassID</u>) Student(<u>StudentID</u>, <u>ClassID</u>, <u>DeskID</u>, <u>HouseID</u>, NIC, Name) Subject(<u>SubjectID</u>, Title) Marks(<u>StudentID</u>, <u>SubjectID</u>, Marks) Or Desk(<u>DeskID</u>, <u>StudentID</u>) House(<u>HouseID</u>, Name) Class(<u>ClassID</u>) Student(<u>StudentID</u>, <u>ClassID</u>, <u>HouseID</u>, 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	1 1 1 1 1 1	6

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

(Model Answers)

(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

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

(Model Answers)

Q. No	Section	Model Answer	Marks Break-down	Total Marks
5	(a)	<u>Variable Name Data Type</u> 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. <u>Open</u> an a file named 'input.txt' for <u>reading</u> Return a file stream(file object) Note -	1 1	2

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

(Model Answers)

Q. No	Section	Model Answer	Marks Break-down	Total Marks
(d)		readdata() : - 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. printdata() : - Write the data in the datasummary dictionary to the file named 'output.txt' - In the order of data in the datakey list processdata() : sort the symbols in the datakey list - in the ascending order. Note –	2 1 1 1 1	6
(e)		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 –		3

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

(Model Answers)

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 <u>One of the above or any acceptable reason</u>		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 <u>One of the above related to the answer given in (b) or any acceptable method</u>		5 or 0