

G.C.E.(A/L) Examination - 2013

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

20 - Information & Communication Technology

Marking Scheme

R.M.K. Jayasinghe

AL/N/20/S/10

3423

ரஹ்ஸ்யம்

அந்தரங்கமானது

ஸ்ரீ லக்ஷ்மி விநாயக டேவாரவலீகை

இலங்கைப் பரீட்சைத் திணைக்களம்

சாதிக்க அருகிதி னா பரீக்ஷைக் கேட்க

தேசிய மதிப்பீட்டிற்கும் பரீட்சித்தலுக்குமான சேவை

அ.பொ.க. (உ.பெ) விநாயக 2013

க.பொ.த.(உ.தர)ப் பரீட்சை 2013

வினாக்கள் } ICT வினாக்கள் } 20
பாடம் } பரீட்சை இலக்கம் }

கேள்வித் தரவு - I பகுதி
புள்ளி வழங்கும் திட்டம் - பத்திரம் I

பிரச்சனை எண்	வினா விடை	பிரச்சனை எண்	வினா விடை	பிரச்சனை எண்	வினா விடை	பிரச்சனை எண்	வினா விடை	பிரச்சனை எண்	வினா விடை
01.	4	11.	3	21.	4	31.	2	41.	5
02.	1	12.	2	22.	4	32.	5	42.	2
03.	1	13.	4	23.	3	33.	1	43.	3
04.	4	14.	4	24.	4	34.	3	44.	2
05.	4	15.	3	25.	2	35.	5	45.	3
06.	2	16.	4	26.	5	36.	1	46.	4
07.	1	17.	2	27.	5	37.	2	47.	3
08.	2	18.	1	28.	2	38.	1	48.	2
09.	3	19.	2	29.	5	39.	2	49.	1
10.	2	20.	3	30.	2	40.	4	50.	4

வினாக்கள் } 01 வினாக்கள் }
வினாக்கள் அறிவுறுத்தல் } ஒரு சரியான விடைக்கு புள்ளி வீதம்

ஒவ்வொரு 01 X 50 = 50

GCE AL Examination, August 2013 (AL/2013/20/E-II) – MCQ

(Model Answers)

Q No.	Answer	Q No.	Answer	Q No.	Answer	Q No.	Answer	Q No.	Answer
1.	4	11.	3	21.	4	31.	2	41.	5
2.	1	12.	2	22.	4	32.	5	42.	2
3.	1	13.	4	23.	3	33.	1	43.	3
4.	4	14.	4	24.	4	34.	3	44.	2
5.	4	15.	3	25.	2	35.	5	45.	3
6.	2	16.	4	26.	5	36.	1	46.	4
7.	1	17.	2	27.	5	37.	2	47.	3
8.	2	18.	1	28.	2	38.	1	48.	2
9.	3	19.	2	29.	5	39.	2	49.	1
10.	2	20.	3	30.	2	40.	4	50.	4

(Model Answers)

Q No	Section	Model Answer	Marks																																									
			Break down	Total																																								
1	(a) i	Smoke detector: S1 Flame detector: S2 Heat detector: S3 Output: Q <table><tr><th>A</th><th>B</th><th>C</th><th>F</th></tr><tr><td>S1</td><td>S2</td><td>S3</td><td>Q</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td></tr></table> Note: 8 correct rows: 4 marks 7 or 6 correct rows: 3 marks 5 or 4 correct rows: 2 marks 3 or 2 correct rows: 1 mark $F = \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$ $F = AB + BC + CA$	A	B	C	F	S1	S2	S3	Q	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	1	1	0	0	0	1	0	1	1	1	1	0	1	1	1	1	1	4	4
A	B	C	F																																									
S1	S2	S3	Q																																									
0	0	0	0																																									
0	0	1	0																																									
0	1	0	0																																									
0	1	1	1																																									
1	0	0	0																																									
1	0	1	1																																									
1	1	0	1																																									
1	1	1	1																																									
	(a) ii	$Q = S1'.S2.S3 + S1.S2'.S3 + S1.S2.S3' + S1.S2.S3$ $Q = S1.S2 + S2.S3 + S3.S1 \leftarrow (K-map)$	1	1																																								
	(b) i	$Q = A.B.C. + A'.B.C + A.B.C'$ =working = B.[A + C] Mention of at least two algebraic rules Note: If the simplification is stopped one step above or gone one more step further, only 3 marks out of 4	1 4 2	7																																								

$$Q = (A + \bar{A})BC + AB\bar{C}$$

$$= 1 \cdot BC + AB\bar{C}$$

$$= B(C + A\bar{C})$$

$$= B \cdot (C + A) \cdot (C + \bar{C})$$

$$= B \cdot (C + A) \cdot 1$$

$$= B(A + C)$$

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$$Q = ABC + \bar{A}BC + AB\bar{C} \quad \text{Idempotent Law}$$

$$= ABC + \bar{A}BC + AB\bar{C} + ABC$$

$$= B[C(A + \bar{A}) + A(C + \bar{C})]$$

$$= B[(C \cdot 1) + (A \cdot 1)]$$

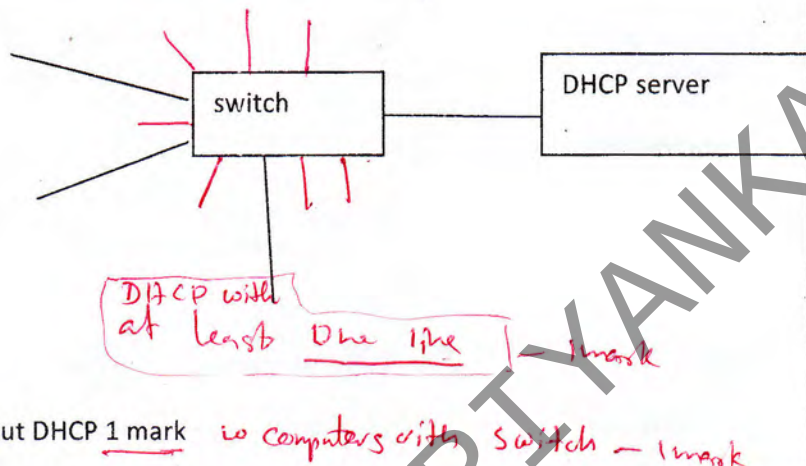
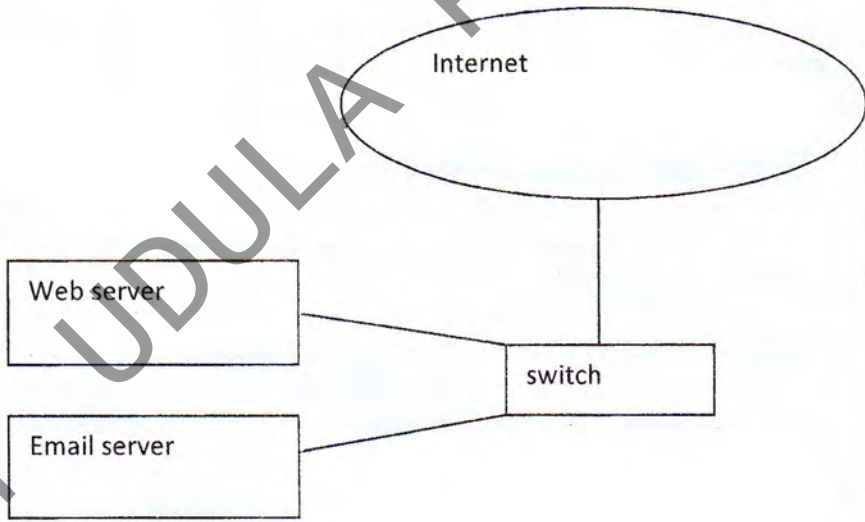
$$= B(A + C) \quad \text{Identity Law}$$

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
1.	(b) ii	A B C </		

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(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
2	(c) i	 Note: Without DHCP 1 mark 10 computers with switch - 1 mark	2	2
	(c) ii	 Note: Without internet 1 mark	2	2

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
2	(c) iii	Internet Web server Email server switch proxy server switch DHCP server 10 pc <i>1</i> <i>1</i> <i>1</i> <i>All connected - 1</i> Note: 1. Without proxy: no marks. 2. Proxy without two network connections: 2 marks only 3. Proxy server without two switches: 1 mark only (two network connections)	3	3

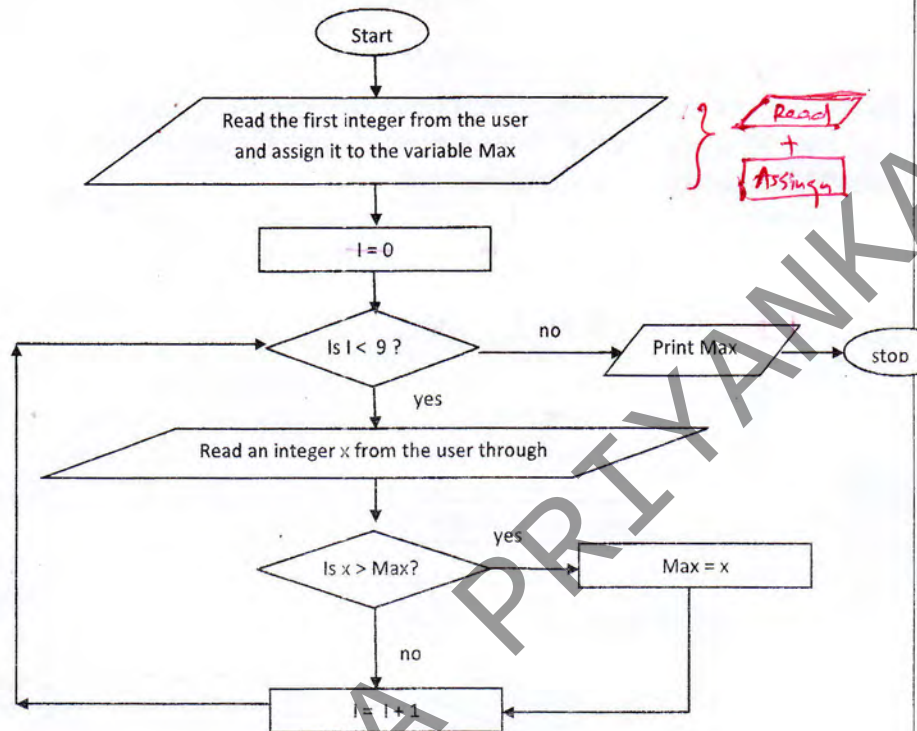
(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
3	(a)	1. Accuracy (data duplication) explanation 2. Efficiency explanation	1 1 1 1	4
	(b)	1. Privacy of patients Justification 2. Safety of patients Justification	1 1 1 1	4
	(c)	No. Discussion of 1. Saving of money 2. Increase of efficiency 3. Increase of transparencies in state sector	1 1 1 1	4
	(d)	Not a good decision Reasons (b) <i>Privacy & Safety</i>	<i>1</i> <i>1</i> <i>(each)</i>	3
4	(a)	a = 4 Acquires storage to store an integer value, assigns the label "a" and store (assign) the vale 4 at that location. b = 4.7 Acquires storage to store a floating point value, assigns the label "b" and store (assign) the vale 4.7 at that location. c = a + b <i>getting of a and b</i> Retrieves the value stored at the location (with the label) a, converts it to type float, retrieves the value stored at the location (with the label) b, add them together, Acquires storage to store a floating point value , assigns the label c, and stores (assigns) the result of the addition at that location.	1 1 2	4

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
4	(b)	<u>Reads a set of values</u> from the user <u>through the keyboard/Console</u>, <u>one at a time</u>, <u>till 0 or a negative value is entered</u>, <u>sum the values read</u> except the last value, and <u>print the result</u>. Notes: (1 Marks for all 4 essential components) (1 additional Mark for each other component) <i>1 for each bold underling</i>	4	4
4	(c) i	<pre> graph TD Start([Start]) --> Init[Max = very small value] Init --> I0[I = 0] I0 --> IsI10{Is I < 10?} IsI10 -- no --> PrintMax[/Print Max/] PrintMax --> Stop([stop]) IsI10 -- yes --> ReadX[/Read an integer x from the user through/] ReadX --> IsXMax{Is x > Max?} IsXMax -- yes --> MaxX[Max = x] IsXMax -- no --> IncI[I = I + 1] MaxX --> IncI IncI --> IsI10 </pre> Or		4

(Model Answers)



Note:

All correct:	4 marks
Reading 10 numbers:	1 mark
Logic to compute max:	1 mark
Print:	1 mark
Termination:	1 mark

loop

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
4	(c) ii	Essential parts are in bold typeface max = - 1000 # max should be assigned a value smaller than any value expected . for i in range(0,10): # range(x,y) should generate any list of 10 items x = int(input(str(i+1) + " Enter a value : ")) if x > max: max = x print("Maximum value is : ",max) or max = -1000 i = 0 while i < 10: x = int(input()) if x > max: max = x i = i + 1 print (max) or maximum = int(input("Input a number: ")) for i in range(0, 9): maximum = max(input("Input a number: ", maximum) print("Maximum value is: ", maximum) Note: All correct: 3 marks Reading 10 numbers: 1 mark Logic to compute max: 1 mark Print: 1 mark		3

Case sensitive is not consider, but indentation is essential

print(max) within while loop or outside loop consider

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
5		<pre> erDiagram Company --o{ CarOwner : Register Company --o{ Driver : Hire CarOwner --o{ Car : Rent Car --o{ Customer : Request Car --o{ Driver : Drives CarOwner { string OwnerID PK } Car { string carID PK } Driver { string driverID PK } Customer { string name string address string custID PK string contactTP } </pre>		

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(Model Answers)

[illegible]

(Model Answers)

		<pre> <tr> <td>576</td> <td>2nd wicket</td> <td>Sanath Jayasuriya</td> <td>Roshan Mahanama</td> </tr> </table> </body> </html> </pre> Notes: <hr/> or <hr> is considered as correct answer. or is considered as correct answer.		
2	(a)	Address space = 2^{32} Maximum usable size of memory = 2^{32} bytes = $2^2 \times 2^{30}$ bytes = $2^2 / 2^{20}$ GB = 4 GB = 4 GB only one unit consider bytes / GB (at least one unit GB/byte)	1 1 1	3
	(b)	Process is a program in execution - <i>simulation in programme what process do.</i> Program can have multiple processes	1 1	2
	(c)	<i>Virtual memory</i> To <u>suspend a process temporary to the hard disk</u> in order to <u>free the memory</u> (memory full), <u>to place another process in the main memory.</u> Note: 1. suspend a process 2. temporary 3. hard disk <i>or virtual memory</i> 4. free the memory (memory full) 5. to place another process in the main memory.	1 1 1 1 1	5

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
3	(a) i	$13_{10} - 00001101$ $-19_{10} - 11101101$ <i>Consider 8 bits</i>	1 2	3
	(a) ii	$13_{10} - 19_{10} =$ 00001101 <u>11101101</u> 11111010	1	1
	(a) iii	Identify the sign of the final decimal number by most significant bit (both positive and negative) <i>and</i> Most significant digit is 0 → positive convert to decimal Most significant digit is 1 → negative Take the sign as negative Get binary number Invert bit values Add 1 to least significant bit Convert the number to decimal Or Apply the reverse process of two's complement (<u>explanation</u>) Convert the number to decimal	1 1	2
	(b)	Examples having following features B2B: Purchase & sale between 2 companies through Internet Mutual agreement Consumers are not involved B2C: Products and services sold through Internet Business to consumers Consumer to consumed (Amazon.com) C2C: Sale of goods across Internet Consumer to consumer C2B: Consumer acts as the seller and business as the buyer through Internet Consumer is made payment for the service provided	1 each	4

(Model Answers)

Q No	Section	Model Answer	Marks	
			Break down	Total
4	(a)	Primary key of a table and foreign key of another table establish the relationship in a database. Note: 1. When only the foreign key definition is given: 1 mark only 2. Given the relationship: 2 marks Notes for teachers: <u>Primary Key</u>: Identify each record in a database table uniquely. (This removes data duplication.) <u>Foreign key</u>: Foreign key of a table is a primary key of another table.	2	2
	(b)	1. student(studentId, name) 2. sport(sportId, name) 3. studentSport(studentId, sportId, year, capacity) Note: 1. Three tables to represent student, sport and participate: 1 mark 2. Relating participate relation with other two tables: 1 mark 3. Proper attributes in each table: with primary key identified 1 mark		3
	(c) i	Select distinct [*] sportId from studentSport where capacity <> "captain" Note: Reduce 1 mark if distinct is not specified. <i>(Or * or name with join) select distinct name from studentSport, Sport where capacity <> 'captain' and studentSport.sportId = Sport.sportId</i>	3	3 3/2/0
	(c) ii	Select student.studentId, student.name from student, studentSport Where student.studentId = studentSport.studentId and studentSport.capacity = "captain"	2	2

(c) i - Select distinct name
from studentSport A, Sport B
where capacity <> 'captain' AND
- join - A.sportId = B.sportId
order by name

| NOT (capacity = 'captain')