

G.C.E. (A/L) ICT
2016 Batch
June Examination



Field Work Center (FWC)
Marking Scheme

Part - I

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

Part – II A Structured Essay – All questions

Note:- * Amendments to be included.

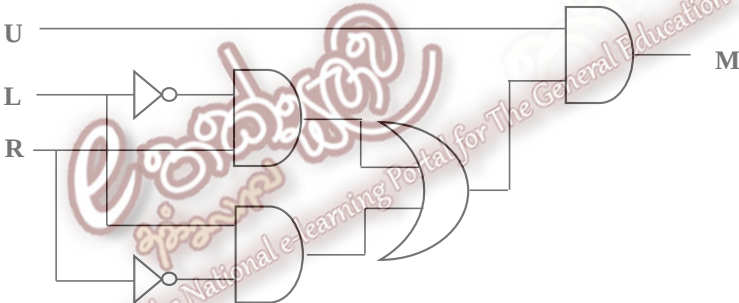
Question No.	Suggested Answers	Marks
(1)(a)(i)	A – Protocol OR Hypertext transfer protocol secured B – Domain name	1 +1 marks
(1)(a)(ii)	lk OR .lk	1 marks
(1)(a)(iii)	DNS <u>translates / maps IP address into domain name</u> or vice versa.	2 marks
(1) (b)	$ \begin{array}{r} 13_{10} = 00001101_2 \\ -9_{10} = 11110111_2 \quad + \\ \hline 00000100_2 \\ \text{(discard carry bit 1)} \end{array} $	2 marks
(1)(c)(i)	Number of physical pages = Size of physical memory / size of a page $= 1 \text{ GB} / 1\text{KB}$ $= 2^{30} \text{ bytes} / 2^{10} \text{ bytes}$ $= 2^{20} \text{ pages}$	1 marks

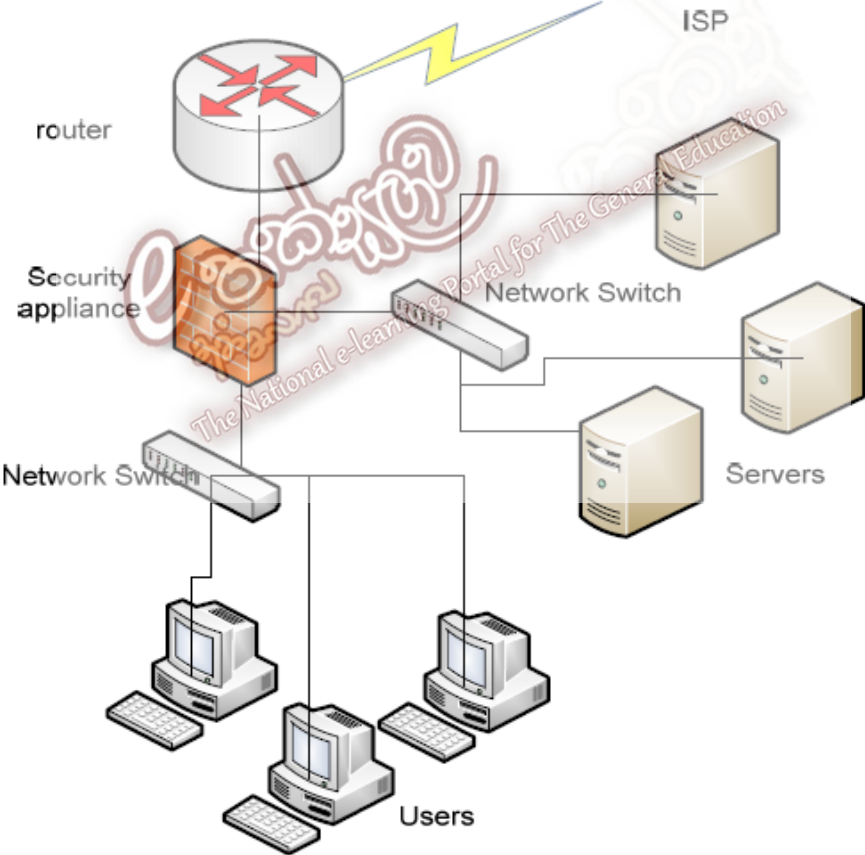
(1)(c)(ii)	Size of Virtual address = 32 bits Virtual address space = 2^{32} bytes	1 marks
(1)(c)(iii)	Number of virtual pages = Size of virtual address space / Size of a page = 2^{32} bytes / 2^{10} bytes = 2^{22} pages	1 marks
10 marks		
(2) (a)	1 – link 2 – stylesheet 3 – styles.css	3 marks
(2) (b)(i)	#header OR id="header"	2 marks
(2) (b)(ii)	.boldRed OR class="boldRed"	2 marks
(2) (c)	Can be used by <u>search engines/programs to categorize /list the page.</u> OR Provides <u>metadata</u> about the document. OR Provides a <u>description of the page /site.</u>	3 marks
(3) (a)	The table violates 2nd Normal Form. because there are <u>two partial dependencies</u> : StudentID → StudentName and ModuleID → ModuleName	2 marks
(3) (b)	Students (<u>StudentID</u> , StudentName) Modules (<u>ModuleID</u> , ModuleName) Results (<u>StudentID</u> , <u>ModuleID</u> , Grade)	3 marks
(3) (c)	<pre> erDiagram STUDENTS --o{ STUDENTS : "StudentID PK" STUDENTS --o{ STUDENTS : "StudentName" MODULES --o{ MODULES : "ModuleID PK" MODULES --o{ MODULES : "ModuleName" STUDENTS } --} MODULES : "Take M:N" Take --o{ Take : "Grade" </pre>	3 marks

(3) (d)	Many-to-many relationship. One student takes more than one modules while one module is taken by more than one students.	2 marks
(4) (a)	Encryption is a <u>mathematical technique</u> used to <u>scramble / encode</u> a message into an <u>unreadable format</u> to <u>unauthorized person</u> .	2 marks
(4)(b)(i)	B will not be able to decrypt it. A's private key would be needed to decrypt it. Only A could decrypt it.	2 marks
(4)(b)(ii)	As A's public key is available to anyone, Anybody could decrypt it.	2 marks
(4) (c)	- System will be storing confidential/personal data (that must be kept securely/safely). - Centralized/improved security management /centralized login system/ centralized administration /administration will be easier. - Centralized backup. - Running database from a server will avoid concurrency issues. - Server (operating system) may allow more simultaneous connections than a workstation.	2 marks (any two)
(4) (d)	CREATE TABLE Insurance (PolicyNumber VARCHAR(6), RegistrationNumber VARCHAR(6), DateStarted DATE(10), PolicyType VARCHAR(20), Amount FLOAT(15), PRIMAY KEY(PolicyNumber))	2 marks

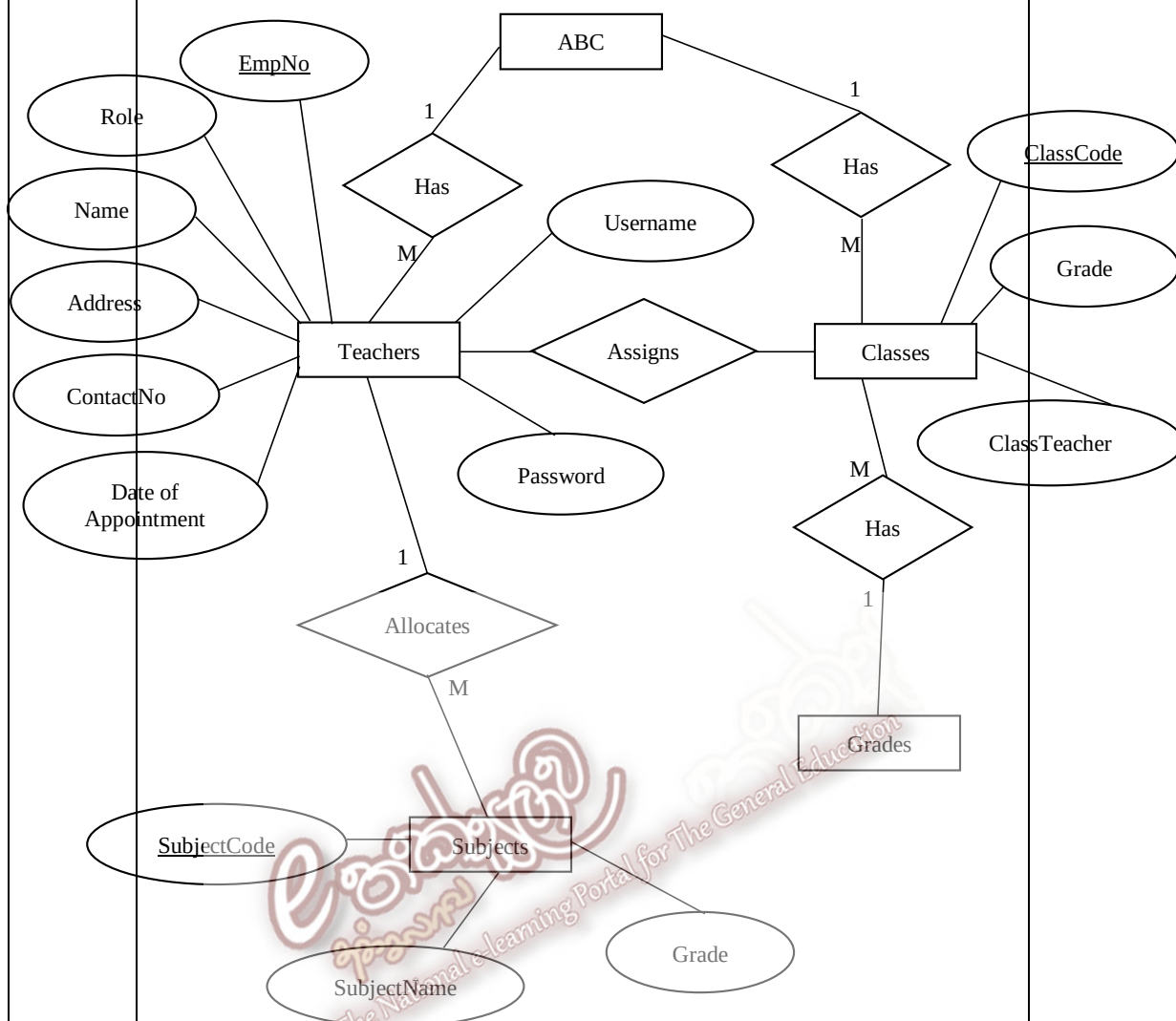
Part - II B Essay – Four questions only

Question No.	Suggested Answers	Marks
(1) (a)	$F = \overline{\overline{A} + (B.A)}$ $F = \overline{\overline{A}.B.A}$ $F = A.(B.A)$ $F = A.B.A$ $F = A.A.B$ $F = A.B$ [De Morgan's Law] [Double Complement Law] [A.A = 1]	3 marks

(1) (b) (i)	$\bar{U}(L\oplus R)$ Or $\bar{U}(L\bar{R} + \bar{L}R)$	3 marks																																																						
(1)(b)(ii)	<table><tr><th>U</th><th>L</th><th>R</th><th>$\bar{U}$</th><th>$L\oplus R$</th><th>$\bar{U}(L\oplus R)$</th></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</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>1</td><td>1</td><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td></tr></table>	U	L	R	$\bar{U}$	$L\oplus R$	$\bar{U}(L\oplus R)$	0	0	0	1	0	0	0	0	1	1	1	1	0	1	0	1	1	1	0	1	1	1	0	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	0	0	0	0	1	1	1	0	0	0	4 marks
U	L	R	$\bar{U}$	$L\oplus R$	$\bar{U}(L\oplus R)$																																																			
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1	1	1	0	0	0																																																			
(1)(b)(iii)	XOR gate	2 marks																																																						
(1)(b)(iv)		3 marks																																																						
(2)(a)	• More numbers of employees needed. • Leads to manufacturing delay. • Unable to pack more milk powder into packets per day.	3 marks																																																						
(2)(b)	Functional requirement of a system is <u>the services provided to the user</u> by the system or the <u>services expected</u> by the user. • System shall be able to measure milk powder correctly & quickly. • System shall be able to pack more milk powder into packets per day.	3 marks + 4 marks																																																						
(2)(c)	Non-functional requirement of a system is the <u>constraints / limitations</u> of the system.	3 marks																																																						
(2)(d)	Manufacturing expert system Or Computer Aided Manufacturing (CAM)	2 marks																																																						

(3) (a)(i)	TCP A file to be transmitted in its <u>entirety without any errors</u>, therefore the error <u>detection and correction properties</u> of TCP are needed.	2 marks [1+1]
(3)(a)(ii)	UDP When watching a movie, <u>delay is critical</u> and therefore there isn't any time to seek the retransmission of any errors.	2 marks [1+1]
(3)(a)(iii)	TCP Web pages need to be delivered <u>without error</u> so that all content is properly formatted and presented. Therefore the <u>error detection and correction properties</u> of TCP are needed.	2 marks [1+1]
(3) (b)(i)	The computer is <u>unable to obtain an IP address</u> from a DHCP server.	2 marks
(3) (c)(i)	Router, Switch/hub, Security appliance/firewall, Servers.	2 marks
(3) (c)(ii)		5 marks

(4)



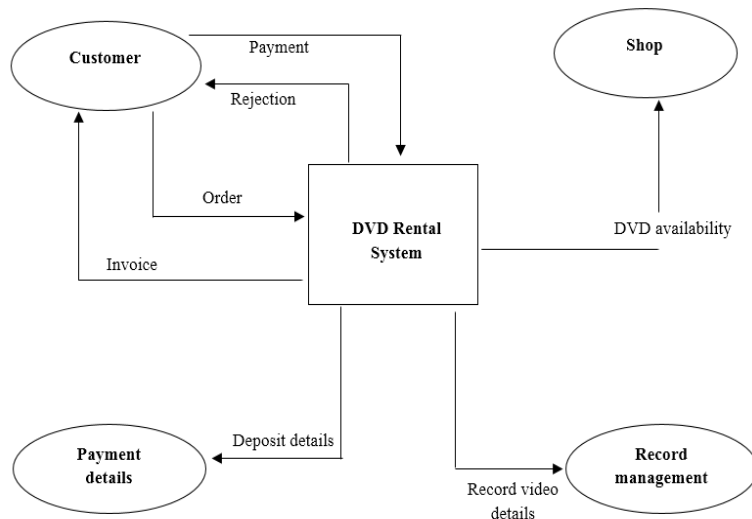
Entities – 5 marks
Attributes – 3 marks
Relationships – 4 marks
Primary keys – 3 marks

(5) (a)

Context diagram shows the system boundaries, external entities that interact with the system and the major information flows between the entities and the system.

3 marks

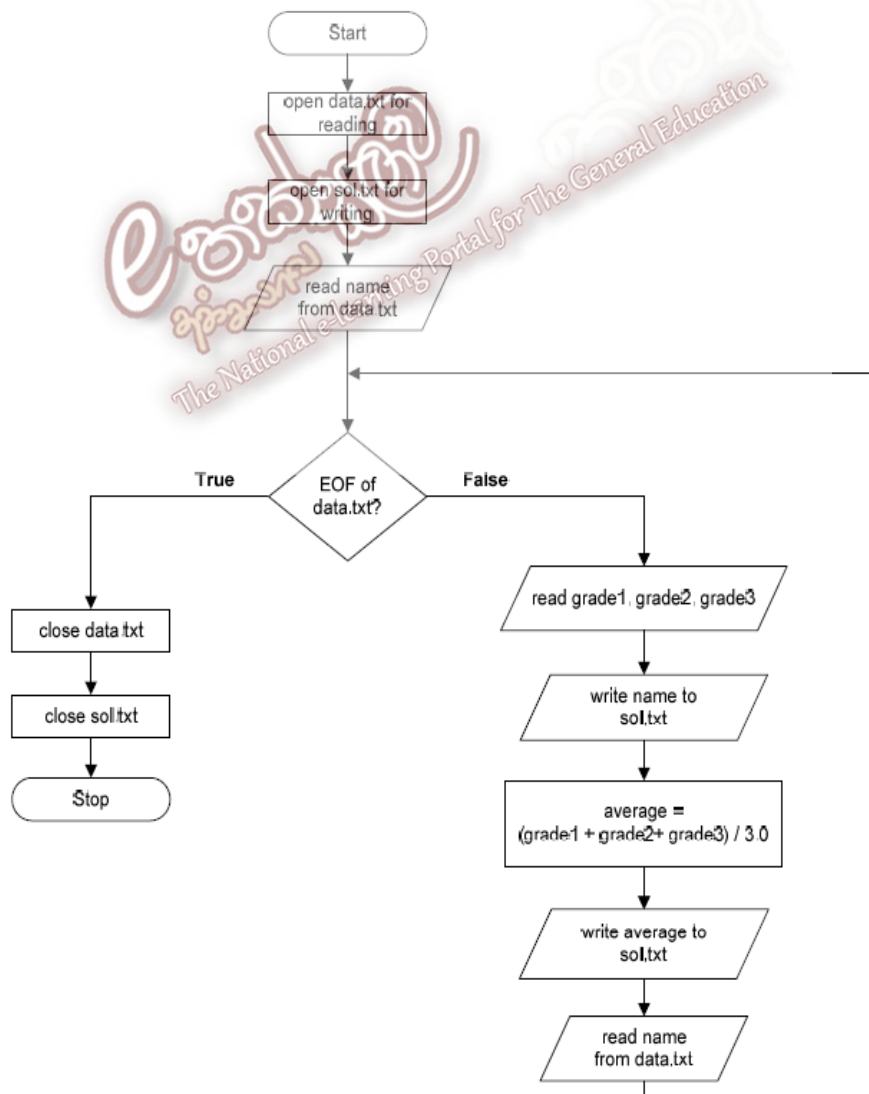
(5) (b)



4 marks for external entities.
1 marks for system.
7 marks for correct data flows.

(6) (a)

6 marks



(6) (b)	<pre> fin = open('data.txt','r') fout = open('sol.txt','w') name = fin.readline() while (name!= ""): grade1 = fin.readline() grade2 = fin.readline() grade3 = fin.readline() fout.write (name) s1 = int (grade1) s2 = int (grade2) s3 = int (grade3) average=(s1+s2+s3)/3.0 fout.write(str(average)+"\n") name = fin.readline() fin.close() fout.close() </pre>	9 marks
Note: - Teachers are expected to follow this marking scheme strictly for marking. (In the answers given, Words with Bold / <u>Underlined</u> must be in the answer scripts of students).		

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Part – I 2 x 50 =100 marks
Part – II A 10 x 4 = 40 marks
Part – II B 15 x 4 = 60 marks
200 / 2 = 100 marks
