

A/L ICT 2019 (Gr.13)
Marking Scheme
April – 2019 Model Examination



Conducted by
Northern Provincial Department of
Education



G.C.E. (A/L) ICT

Part – I

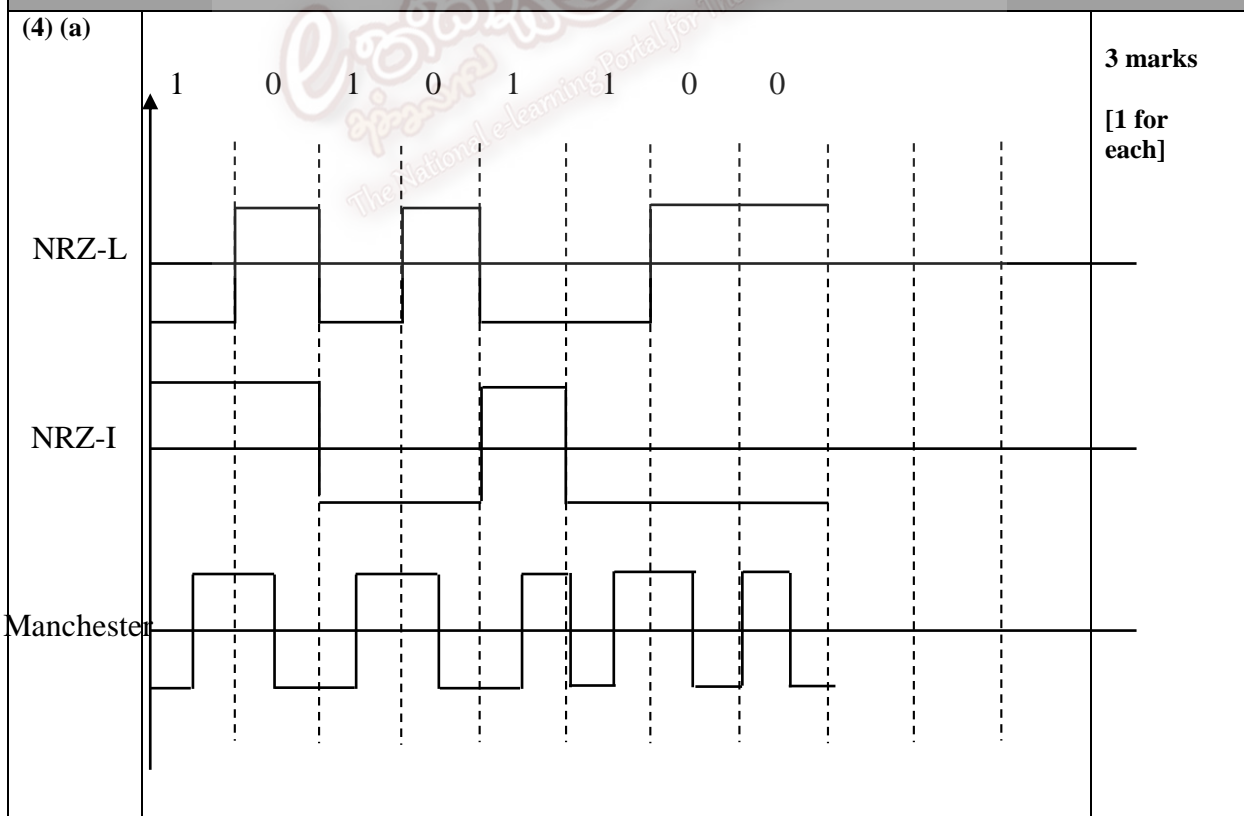
(1)	4	(11)	2	(21)	4	(31)	4	(41)	1
(2)	1	(12)	1	(22)	4	(32)	4	(42)	4
(3)	2	(13)	5	(23)	5	(33)	4	(43)	3
(4)	3	(14)	1	(24)	3	(34)	2	(44)	4
(5)	5	(15)	3	(25)	5	(35)	5	(45)	5
(6)	1	(16)	4	(26)	5	(36)	2	(46)	2
(7)	3	(17)	5	(27)	2	(37)	3	(47)	5
(8)	4	(18)	2	(28)	3	(38)	1	(48)	5
(9)	5	(19)	5	(29)	4	(39)	3	(49)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

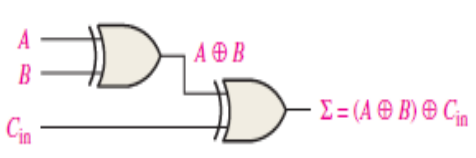
Part – II A

Question No.		Marks
(1) (a)	(i) False (ii) True (iii) False (iv) False	2 marks [0.5x4]
(1) (b)	<p><h2> A Nested List </h2></p> <p><p> Lists can be listed (lists inside lists): </p></p> <p></p> <p> Coffee </p> <p> Tea</p> <p></p> <p> Black tea </p> <p> Green tea </p> <p></p> <p></p> <p> Milk </p> <p></p>	3.5 marks [partial marks given]

(1) (c)	A – mysql_connect() B – mysql_select_db() C – mysql_query() D – mysql_query() E – mysql_close() Note: No Label F	2.5 marks [5 x 0.5]
(1) (d)	(i) Element selector (ii) ID selector (iii) Class Selector (iv) Group selector	2 marks [0.5x4]
(2)(a)(i)	7 bits ($2^7 = 128$)	1 marks [0.5+0.5]
(2)(a)(ii)	11011010101	1 marks
(2)(a)(iii)	Width of memory address = 18 bits No. of address spaces = 2^{18} Maximum usable size of memory = 2^{18} Bytes = $2^{10} \times 2^8$ Bytes = 256 KB	3 marks [1 for each step]
(2)(b)	(i) B2C, C2B (ii) B2C – Sarasavi sells books to its customers/consumers via online. C2B – Customers / consumers order for books on ‘Sarasavis’ website via online.	1 marks [0.5+0.5] 1 marks 1 marks
(2)(c)(i)	preemptive scheduling - the CPU is allocated to the processes <u>for the limited time.</u> Non-preemptive scheduling - the CPU is allocated to the process <u>till it terminates or switches to waiting state.</u>	1 marks 1 marks

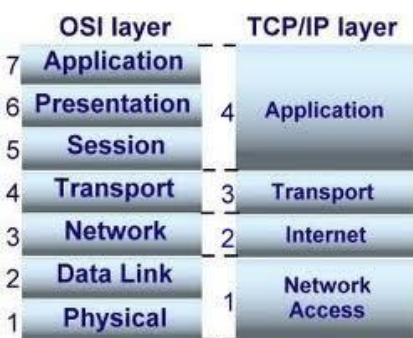
(3) (a)(i)	Table consists of the following two partial dependencies. StudentID → StudentName BookID → BookTitle	1 marks 2 marks [1+1]
(3)(a)(ii)	Insert anomaly: a new book cannot be added without having a student borrower associated with it.	1.5 marks or any possible reason
(3)(a)(iii)	Student (StudentID, StudentName) Book (BookID, BookTitle) Borrowing (StudentID, BookID, Date)	1.5 marks [3 x 0.5]
(3)(b)	SELECT BookTitle, Date FROM Book, Borrowing WHERE Book.BookID = Borrowing.BookID	2 marks [no partial marks given]
(3)(c)(i)	4	1 marks
(3) (c)(ii)	61	1 marks

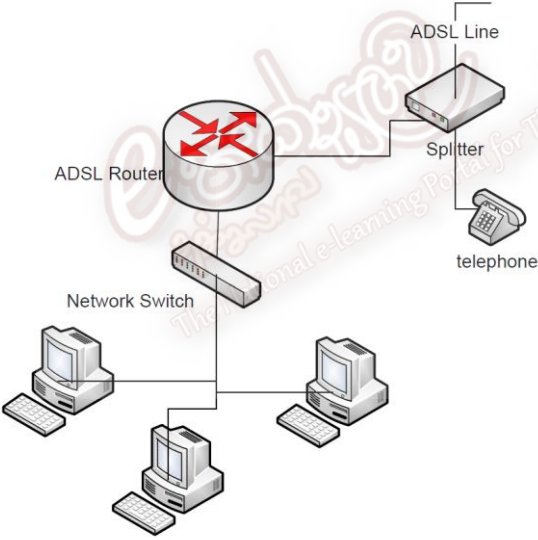


(4) (b)	$ \begin{array}{r} 17_{10} = 00010001_2 \\ -23_{10} = 11101001_2 \\ \hline 11111010_2 \end{array} $	2 marks [0.5+0.5+1]																																				
(4) (c)	<ul style="list-style-type: none"> ① Loan ② Fine process ③ Student ④ Member detail 	2 marks [0.5 x 4]																																				
(4)(d)(i)	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>A</th> <th>B</th> <th>C_{in}</th> <th>Sum</th> </tr> </thead> <tbody> <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>1</td></tr> <tr><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></tr> <tr><td>1</td><td>0</td><td>0</td><td>1</td></tr> <tr><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></tr> <tr><td>1</td><td>1</td><td>1</td><td>1</td></tr> </tbody> </table>	A	B	C _{in}	Sum	0	0	0	0	0	0	1	1	0	1	0	1	0	1	1	0	1	0	0	1	1	0	1	0	1	1	0	0	1	1	1	1	1 marks if fully correct
A	B	C _{in}	Sum																																			
0	0	0	0																																			
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(4)(d)(ii)		1 marks [for simplified only]																																				
(4)(d)(iii)	$(A \oplus B) \oplus C_{in}$	1 marks																																				

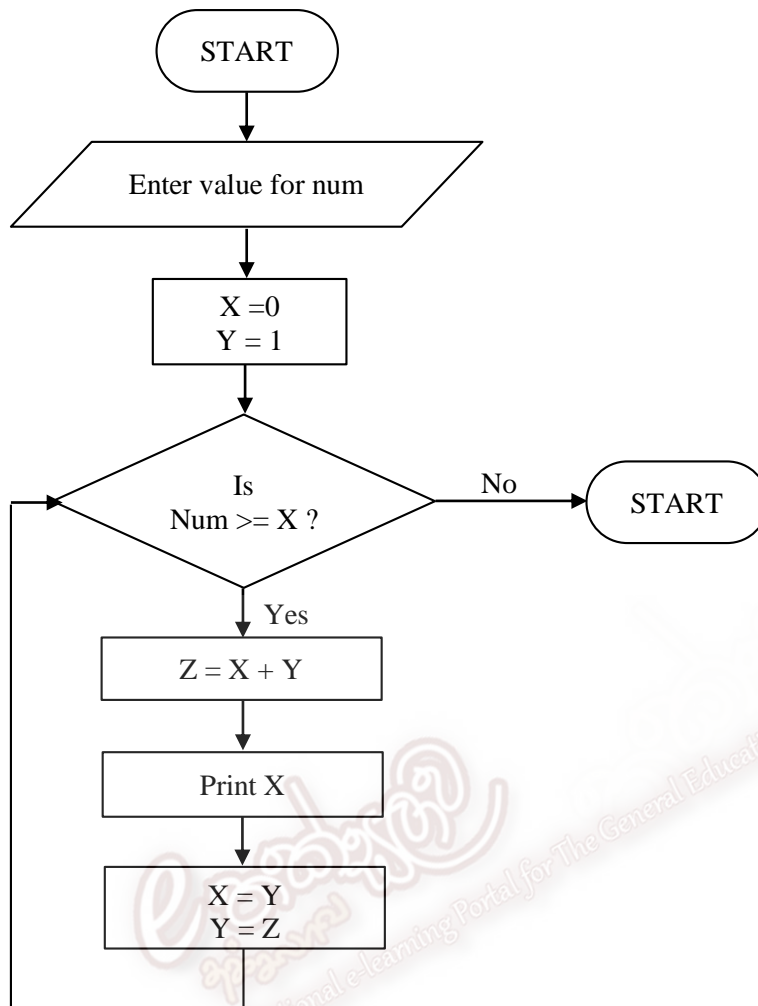
Part –II B

Question No.																													
(1)(a)(i)		<p>3 marks</p> <p>[No partial marks given]</p>																											
(1)(a)(ii)	$\bar{B} + \bar{A}C$	<p>2 marks</p> <p>[No partial marks given]</p>																											
(1)(a)(iii)		<p>2 marks</p> <p>[No partial marks given]</p>																											
(1)(a)(iv)	$(A + \bar{B} + C)(\bar{A} + \bar{B} + C)(\bar{A} + \bar{B} + \bar{C})$	<p>2 marks[No partial marks given]</p>																											
(1)(b)(i)		<p>3 marks</p> <p>[No partial marks given]</p>																											
(1)(b)(ii)	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>S</th> <th>R</th> <th>Q</th> <th>Q'</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>(after S=1, R=0)</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>(after S=0, R=1)</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>invalid</td> </tr> </tbody> </table>	S	R	Q	Q'	1	0	1	0	0	0	1	0	(after S=1, R=0)	0	1	0	1	0	0	0	1	(after S=0, R=1)	1	1	0	0	invalid	<p>3 marks</p> <p>[partial marks given]</p>
S	R	Q	Q'																										
1	0	1	0																										
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1	1	0	0	invalid																									

(2)(a)	<p>Functional requirements (FR)</p> <ul style="list-style-type: none"> System shall / should be able to store the patient's demographic and disease-related clinical information. System shall be able to store details of drugs and their stocks. System shall be able to handle working hours and salary details of doctors and employees. Patients shall be able to get appointment for doctors. Patients shall be able to use secure payment system. <p>Non-functional requirements (NFR)</p> <ul style="list-style-type: none"> Accuracy OR Efficiency – Users shall be able to reduce man-made errors in routine activities. 	<p>6 marks</p> <p>[FR: 4 marks + NFR: 2 marks]</p> <p>IEEE method accepted</p>																
(2)(b)	<p>Security - Patient's database may be used by unauthorized people.</p> <p>Privacy - Patient's database may be used by unauthorized people and leads to their privacy violations.</p>	<p>4 marks</p> <p>[2+2]</p>																
(2)(c)	<p>According to the drugs' stock details, usage of drugs in every month/year could be accessed. Sometimes usage of a particular drug in a period (eg: rainy season) can be very high/low. So a particular kind of disease could be easily predicted by computerizing drugs' details according to the usage pattern of drugs.</p>	<p>3 marks</p> <p>or equivalent explanations</p>																
(2)(d)	<p>C2B – Consumer/Customer to Business – A patient gets appointment for doctors via hospital's website.</p>	<p>2 marks</p>																
(3)(a)	 <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>OSI layer</th> <th>TCP/IP layer</th> </tr> </thead> <tbody> <tr> <td>7 Application</td> <td>4 Application</td> </tr> <tr> <td>6 Presentation</td> <td>3 Transport</td> </tr> <tr> <td>5 Session</td> <td>2 Internet</td> </tr> <tr> <td>4 Transport</td> <td>1 Network Access</td> </tr> <tr> <td>3 Network</td> <td></td> </tr> <tr> <td>2 Data Link</td> <td></td> </tr> <tr> <td>1 Physical</td> <td></td> </tr> </tbody> </table>	OSI layer	TCP/IP layer	7 Application	4 Application	6 Presentation	3 Transport	5 Session	2 Internet	4 Transport	1 Network Access	3 Network		2 Data Link		1 Physical		<p>3 marks</p> <p>[1.5 + 1.5]</p> <p>with correct order</p>
OSI layer	TCP/IP layer																	
7 Application	4 Application																	
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4 Transport	1 Network Access																	
3 Network																		
2 Data Link																		
1 Physical																		

(3)(b)	<ol style="list-style-type: none"> 1. Reduces the network traffic. 2. Helps to manage the maximum number of permitted hosts. 3. Enables users to access a work network. There is no need to open the complete network. 4. Helps to reduce troubleshooting problems. 	3 marks or equivalent answers																												
(3)(c)	<table border="1"> <thead> <tr> <th>Network</th> <th>No. of devices</th> <th>Subnet size (in slash notation)</th> <th>IP address allocation</th> </tr> </thead> <tbody> <tr> <td>Two routers</td> <td>2</td> <td>/30</td> <td>172.16.0.8/30</td> </tr> <tr> <td>Servers</td> <td>35</td> <td>/26</td> <td>172.16.3.72/26</td> </tr> <tr> <td>Computer science</td> <td>40</td> <td>/26</td> <td>172.16.3.72/26</td> </tr> <tr> <td>Physics</td> <td>60</td> <td>/25</td> <td>172.16.2.8/25</td> </tr> <tr> <td>Chemistry</td> <td>200</td> <td>/24</td> <td>172.16.0.8/24</td> </tr> <tr> <td>Biology</td> <td>100</td> <td>/25</td> <td>172.16.1.8/25</td> </tr> </tbody> </table>	Network	No. of devices	Subnet size (in slash notation)	IP address allocation	Two routers	2	/30	172.16.0.8/30	Servers	35	/26	172.16.3.72/26	Computer science	40	/26	172.16.3.72/26	Physics	60	/25	172.16.2.8/25	Chemistry	200	/24	172.16.0.8/24	Biology	100	/25	172.16.1.8/25	6 marks [1 for each row]
Network	No. of devices	Subnet size (in slash notation)	IP address allocation																											
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Biology	100	/25	172.16.1.8/25																											
(3)(d)	<p>ADSL Router, Switch, Splitter (micro filter)</p>  <p>The diagram illustrates a network setup. An ADSL Router is connected to an ADSL Line. A Splitter (micro filter) is connected to the ADSL Line and a telephone. A Network Switch is connected to the ADSL Router and three desktop computers.</p>	3 marks [devices – 1, diagram -1] [partial marks given]																												
(4)(a)	<table border="1"> <thead> <tr> <th>Syntax/ compile-time error</th> <th>Run-time error</th> <th>Semantic / Logical error</th> </tr> </thead> <tbody> <tr> <td>Shows error messages</td> <td>Shows error messages</td> <td>Does not show error message</td> </tr> <tr> <td>Reveals by syntax / punctuation mistakes</td> <td>Reveals while running program</td> <td>Unexpected result</td> </tr> </tbody> </table>	Syntax/ compile-time error	Run-time error	Semantic / Logical error	Shows error messages	Shows error messages	Does not show error message	Reveals by syntax / punctuation mistakes	Reveals while running program	Unexpected result	6 marks [3 for error types and 3 for explanation s] or any accepted points																			
Syntax/ compile-time error	Run-time error	Semantic / Logical error																												
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Reveals by syntax / punctuation mistakes	Reveals while running program	Unexpected result																												

(4)_ (b)(i)



5 marks

[partial marks given]

or equivalent logic

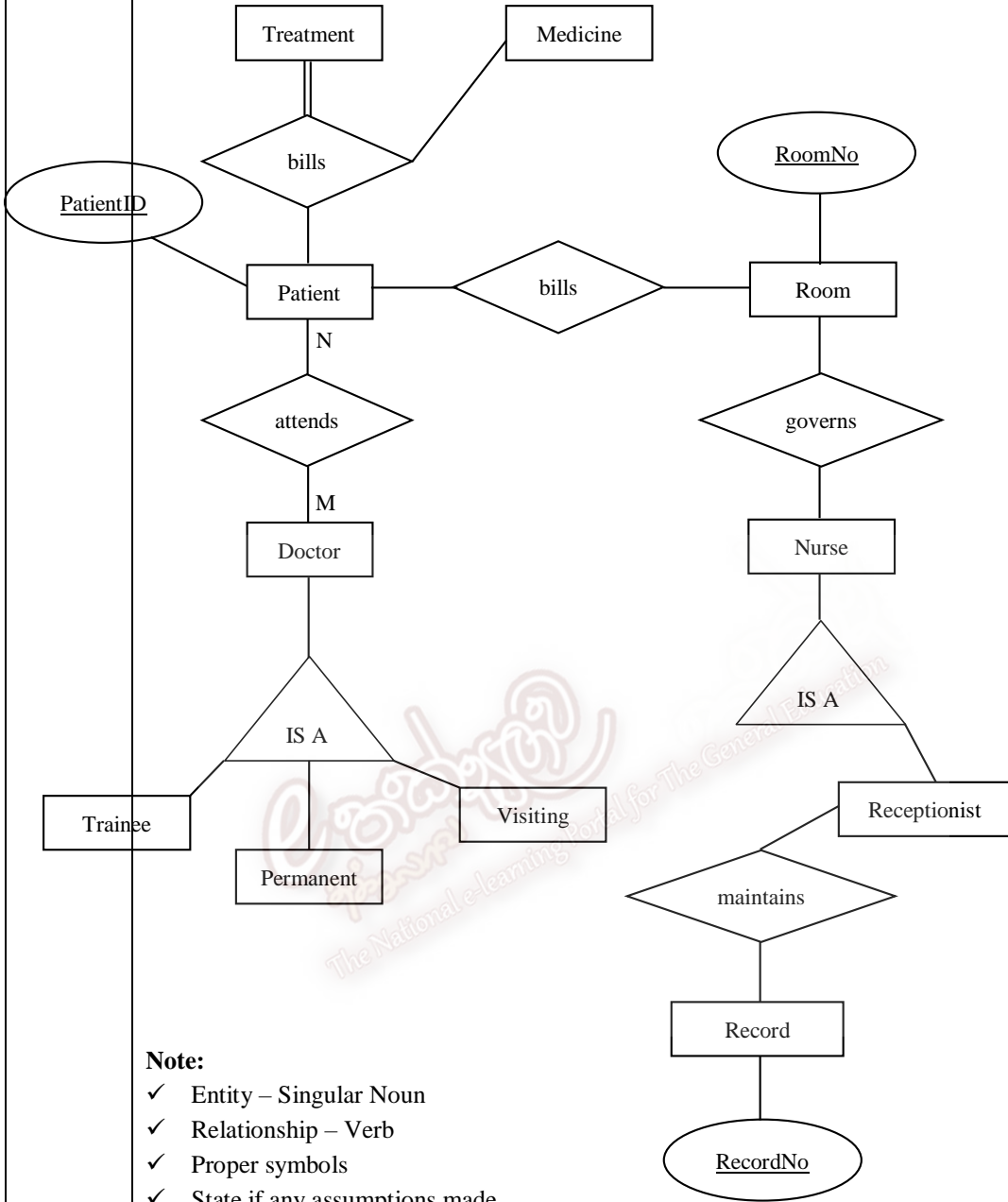
(4)(b)(ii)

```
num=int(input("Enter a number:"))
x=0
y=1
while num>=x:
    z=x+y
    print(x)
    x=y
    y=z
```

4 marks

[partial marks given]

(5)



Note:

- ✓ Entity – Singular Noun
- ✓ Relationship – Verb
- ✓ Proper symbols
- ✓ State if any assumptions made

தமிழ்மொழி மூலமான மாணவர்கள் ER வரிப்படத்தினை தமிழ்மொழி மூலமான சொற்களை மாத்திரம் பயன்படுத்தி வரைதல் வேண்டும். ஆங்கிலப் பதங்கள் தரப்பட்டிருந்தால் அவற்றினைப் பயன்படுத்தலாம். மொழிமாற்றம் செய்தலாகாது.

15 marks

5.5 marks
[for entities
11 x 0.5]

2.5 marks
[for
relationships
5 x 0.5]

2 marks
[for IS A
relationships
2 x 1]

1 marks for
cardinality

1.5 marks
[for
attributes 3
x 0.5]

0.5 marks
[partial
dependency]

2 marks
[for overall
diagram
correctness]

(6)(a)	<p>Step 1: Register for a domain name</p> <p>Step 2: Obtain a space on a web server / get permission</p> <p>Step 3: Develop website</p> <p>Step 4: Host/ upload the site developed into the web server</p>	<p>2 marks [4 x 0.5]</p>										
(6)(b)	<table border="1"> <thead> <tr> <th data-bbox="343 521 794 577">GET</th> <th data-bbox="794 521 1252 577">POST</th> </tr> </thead> <tbody> <tr> <td data-bbox="343 577 794 667">GET requests can be cached</td> <td data-bbox="794 577 1252 667">POST requests are never cached</td> </tr> <tr> <td data-bbox="343 667 794 757">GET requests remain in the browser history</td> <td data-bbox="794 667 1252 757">POST requests do not remain in the browser history</td> </tr> <tr> <td data-bbox="343 757 794 857">GET requests can be bookmarked</td> <td data-bbox="794 757 1252 857">POST requests cannot be bookmarked</td> </tr> <tr> <td data-bbox="343 857 794 947">GET requests have length restrictions</td> <td data-bbox="794 857 1252 947">POST requests have no restrictions on data length</td> </tr> </tbody> </table>	GET	POST	GET requests can be cached	POST requests are never cached	GET requests remain in the browser history	POST requests do not remain in the browser history	GET requests can be bookmarked	POST requests cannot be bookmarked	GET requests have length restrictions	POST requests have no restrictions on data length	<p>3 marks [6 x 0.5]</p>
GET	POST											
GET requests can be cached	POST requests are never cached											
GET requests remain in the browser history	POST requests do not remain in the browser history											
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GET requests have length restrictions	POST requests have no restrictions on data length											
(6)(c)(i)	<pre> <html> <head> <title> Member registration </title> </head> <body> <form action="member.php" method="post"> <fieldset> <legend> Enter details: </legend> <p> Enter name: <input type="text" name="fname"/></p> Contact number: <input type="text" name="cnumber"/> <p> Address: <textarea name="address"> </textarea> </p> <input type="submit" value="Submit" name="sbt"/> <input type="reset" value="Reset" name="rst"/> </fieldset> </form> </body> </html> </pre>	<p>6 marks</p> <p>[partial marks given]</p> <p>0.5 marks for italic / bold lines each – total 3 marks</p> <p>html, head, title , body – 1 total 1 marks</p> <p>form – 1 marks</p> <p>fieldset – 1 marks</p>										

(6)(c)(ii)	<pre> <?php echo \$_POST["fname"]; echo \$_POST["cnumber"]; echo \$_POST["address"]; ?> </pre>	4 marks or equivalent script, GET also possible instead of POST
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Final Marks Distributions

Part – I 2 x 50 = 100 marks

Part – IIA 10 x 4 = 40 marks

Part – IIB 15 x 4 = 60 marks

Total: 200 / 2 = 100 marks

