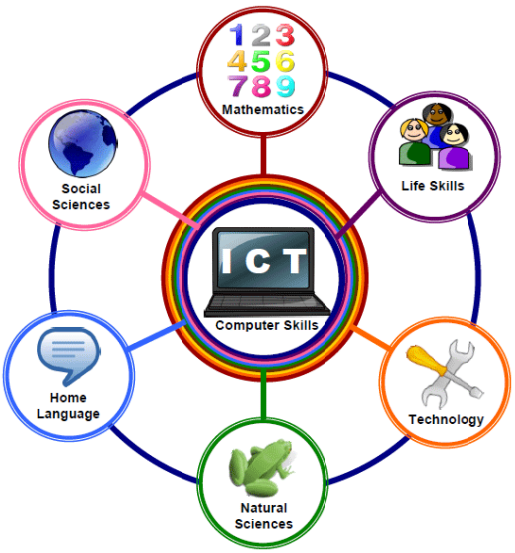
FWC

A/L ICT Marking

Scheme March – 2020

Gr – 13 (2020)



Field Work Center(FWC)

Thondaimanaru

ICT

Part – I

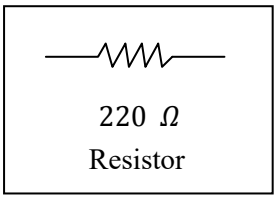
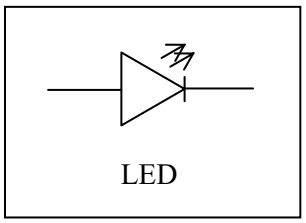
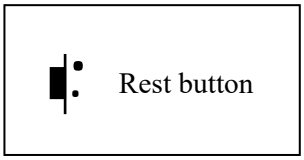
01)	3	11)	3	21)	2	31)	2	41)	5
02)	5	12)	3	22)	5	32)	4	42)	2
03)	4	13)	1	23)	2	33)	3	43)	3
04)	4	14)	4	24)	1	34)	1	44)	5
05)	3	15)	2	25)	3	35)	1	45)	4
06)	2	16)	5	26)	4	36)	3	46)	2
07)	5	17)	3	27)	5	37)	4	47)	1
08)	4	18)	3	28)	1	38)	4	48)	3
09)	1	19)	3	29)	3	39)	2	49)	3
10)	2	20)	1	30)	4	40)	5	50)	4

(2 x 50 = 100 Marks)

Part – II A

Note :-Any other relevant answers

Question No	Suggested Answers	Marks
1) (a) (i) (ii) (iii)	True True True	1.5 Marks (0.5 x 3)
(b) (i)	**Microprocessor – based :-** In microprocessor – based all devices are separately. **Micro controller – based :-** In micro controller – based all devices inserted into the CPU.	2 Marks (1 x 2)
(ii)	I. Reset button II. USB Port III. USB – Serial interface controller IV. Power supply circuit V. Power supply jack VI. Power pins VII. Analog Input pins VIII. Microcontroller IX. 16 MHz Oscillator X. Tx & Rx indicator XI. Power indicator XII. LED connected to digital pin 13 XIII. Tx & Rx pins XIV. Digital I/O pins XV. USB – Serial interface control circuit.	3 Marks (0.2 x15)

(c) (i)	I.  II.  III.  	1.5 Marks (0.5 x 3)
(ii)	I. pinMode (ledPin, OUTPUT); II. delay (500) ; III. digitalWrite (ledPin, Low); IV. delay (500) ;	2 Marks (0.5 x 4)
2) (a)	<dl> <dt> commerce </dt> <dd> Business studies </dd> <dd> Economics </dd> <dd> Accounting </dd> <dt> Bio Science </dt> <dd> Biology </dd> <dd> Physics </dd> <dd> Chemistry </dd> </dl>	3 Marks
(b)	**ICT** Information & Communications Technology is an extensional term for IT I C T	2 Marks

(c)

HTML code segment	Colour	Reason
Sri Lanka	Green	Element selector
Sri Lanka	Blue	Class selector
Sri Lanka	Red	ID selector
Sri Lanka	Black	Class section

2 Marks (0.5 x 4)

(d)

(i) root
(ii) 12345
(iii) school_info_sys
(iv) UPDATE
(v) Student
(vi) Address

3 Marks (0.5 x 6)

3) (a) (i) 00010111 — 0.5 Marks

(ii) 11000111

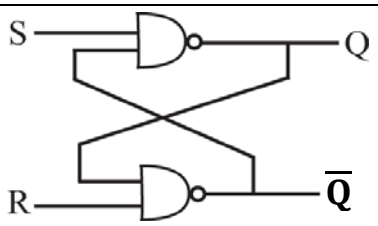
(iii)
00010111
11000111
11011110 — 0.5 Marks

1 Marks

(iv)
- Check the most significant bit .
- If it is O, the sign is positive, just convert the number to decimal (optional)
- If it is 1, the sign is negative, perform the 2’s complement and convert the number to decimal.

1 Marks

(b) (i)



1.5 Marks

(ii)

S	R	Q	$\overline{Q}$	
0	0	1	1	invalid
0	1	1	0	
1	1	1	0	[after S = 0, R = 1]
1	0	0	1	
1	1	1	0	[after S = 1, R = 0]

1.5 Marks

OR

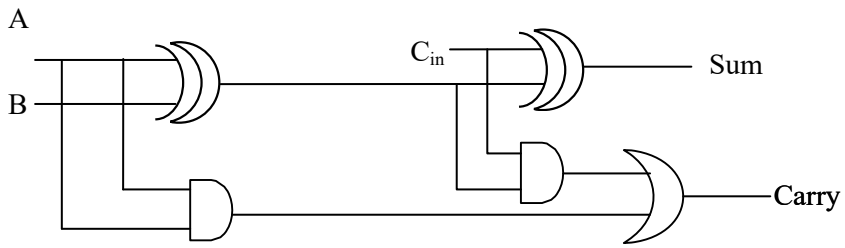
S	R	Q $\overline{Q}$
0	0	Not use
0	1	1 0
1	0	0 1
1	1	Memory

(c) (i)

A	B	C in	Sum	Carrry
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

1.5 Marks

(ii)



1 mark

(d)

```
def fact ( ) :
    n = int (input ("Enter a number:"))
    fact  = n
    while  (n > 1 ) :
        n  =  n – 1
        fact  =  fact  ∗ n
    print (fact)
```

1.5 Marks

4) (a) A = 1, B = M (N) / one to many / 1 : M — 1 Marks

(b) Yes.
Both Exam and Student table are in 1 NF as all fields are atomic and every non – prime attribute of each relation is fully functionally dependent on the primary key / primary key is not composite. hence all other attributes are fully functionally dependent on the primary key, and there are no partial dependencies / they are in 3 NF, hence in 2 NF.

1 Marks

2 Marks

(c) CREATE TABLE Student (StuId varchar (10), StuName varchar (30), Address varchar (40), DateofBirth date, PRIMARY KEY (StuId), FOREIGIN KEY (ExamId) REFERENCES Exam (ExamId));

2 Marks (or 0 Marks)

(d) SELECT Student.StuName, Exam.ExamName, Exam.Year FROM Student, ExamWHERE Student.ExamId = Exam.ExamId;

2 Marks (or 0 Marks)

(e)	INSERT INTO Student VALUES ('S0006', 'S. Nazeer', 'Colombo', 2000.07.23, 'E002'); OR INSERT INTO Student (StuId, StuName, Address, DateofBirth, ExamId) VALUES ('S006', 'S. Nazeer', 'colombo', 2000.07.23, 'E002');	2 Marks

Part – II B Essay – four questions only.

1) (a)

A	B	C	Z / output
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1

4 Marks (0.5 x 8)

(b) $\overline{A}B\overline{C} + \overline{A}BC + A\overline{B}C + ABC$ — 2 Marks

(c) $\overline{A}B\overline{C} + \overline{A}BC + A\overline{B}C + ABC$

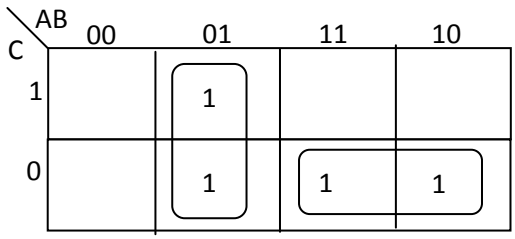
$= \overline{A}B(\overline{C} + C) + AC(\overline{B} + B)$ (distributive law)

$= \overline{A}B.1 + AC.1$ (Inverse / complement law)

$= \overline{A}B + AC$ (Identity law)

3 Marks

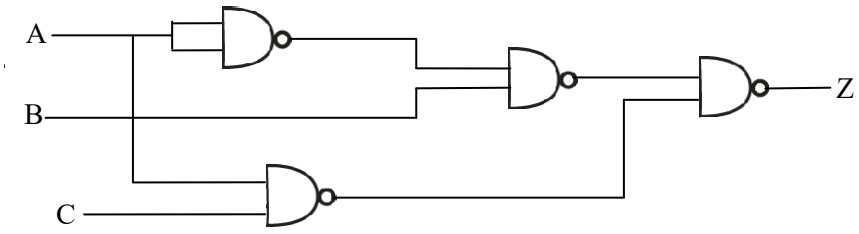
(d)



Simplified SOP : $Z = \overline{A}B + AC$

3 Marks

(e)



3 Marks

2) (a) (i) 255.255.255.224 — 1 Marks

(ii) No. of subnets $= 2^3 = 8$

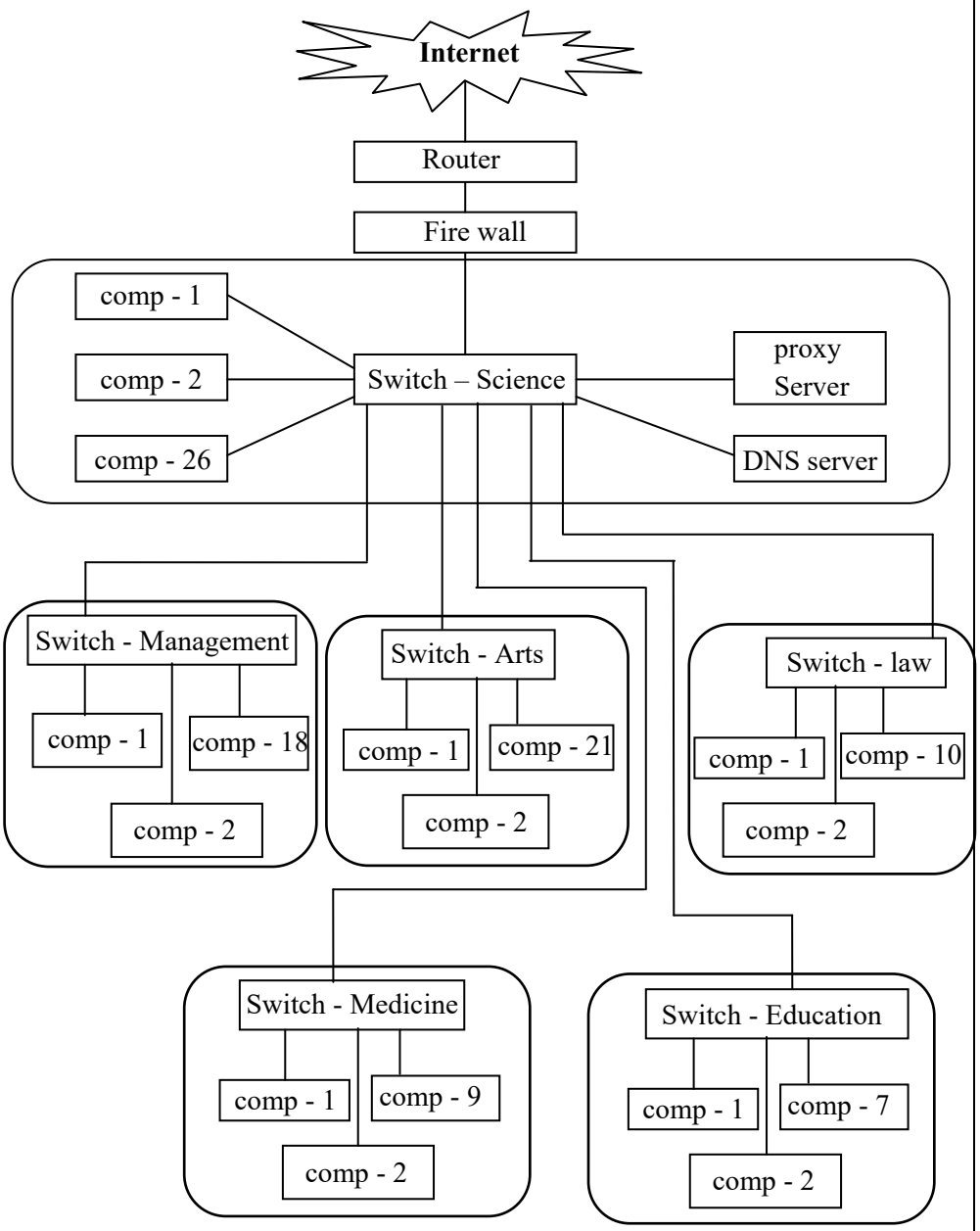
Valid host address $= 2^5 - 2 = 30$

2 Marks (1 x 2)

(iii)

Faculty	Network Address	Usable IP address Range	Broadcast address.
1. Science	192.188.10.0	192.188.10.1 – 192.188.10.30	192.188.10.31
2. Management	192.188.10.32	192.188.10.33 – 192.188.10.62	192.188.10.63
3. Arts	192.188.10.64	192.188.10.65 – 192.1888.10.94	192.188.10.95
4. Medicine	192.188.10.96	192.188.10.97 – 192.188.10.126	192.188.10.127
5. Education	192.188.10.128	192.188.10.129 – 192.188.10.158	192.188.10.159
6. Law	192.188.10.160	192.188.10.161 – 192.188.10.190	192.188.10.191

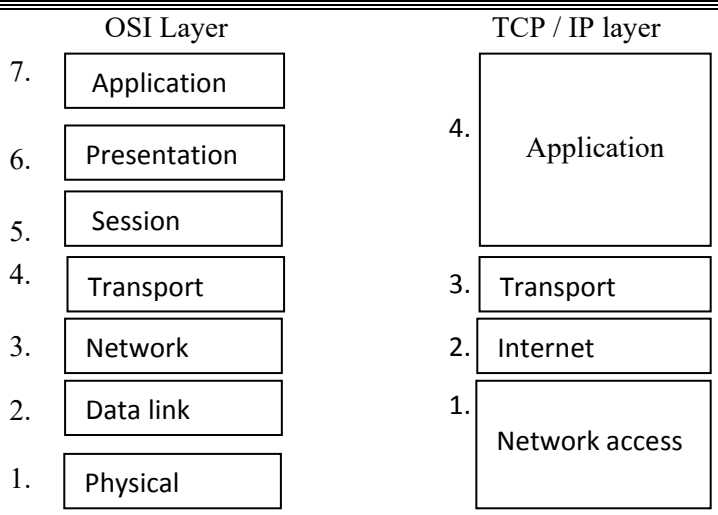
6 Marks
(1 x 6)



Router, fire wall
1 Marks

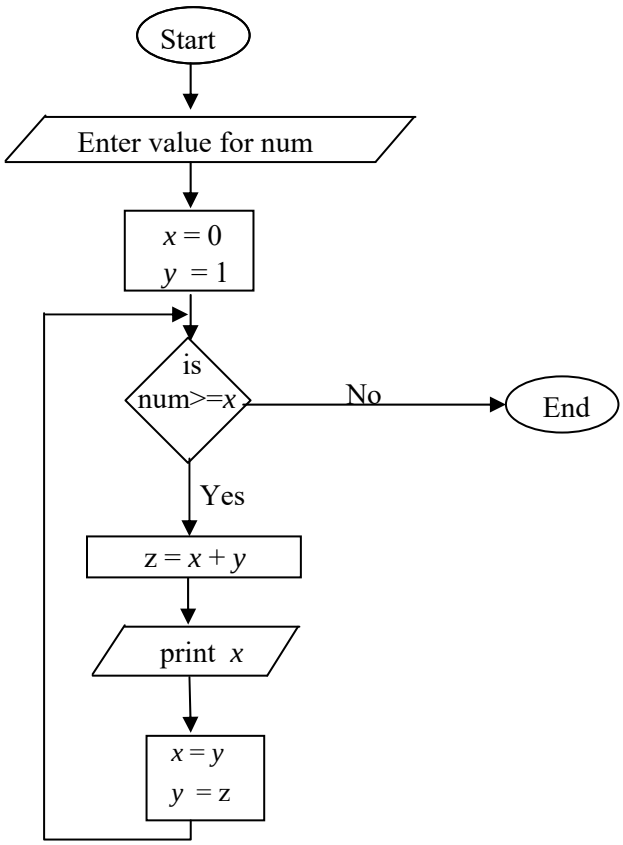
Switch – Science lab, proxy, DNS server
1 Marks

Other lab switches and computer
2 Marks



(c)	OSI Layer 7. Application 6. Presentation 5. Session 4. Transport 3. Network 2. Data link 1. Physical TCP / IP layer 4. Application 3. Transport 2. Internet 1. Network access	2 Marks

3) a)	<pre><html>
	<body>
	<h2>School Registration</h2>
	<form action="register.php"method="post">
	<div>School Name<input
	type="text"name="name"></div>
	
	<div>E-Mail<input type="text"name="email"></div>
	
	<div>
	<inputtype="radio"name="stype"value="national">National
	School
	<inputtype="radio"name="stype"value="Province"checked>
	Provincial School</div></br>
	<div>
	District:
	<selectname="district">
	<optionvalue="jaffna">Jaffna</option>
	<optionvalue="kilinochchi">Kilinochchi</option>
	<optionvalue="mannar">Mannar</option>
	<optionvalue="mullaitivu">Mullaitivu</option>
	<optionvalue="vavuniya">Vavuniya</option>
	</select>
	
	</div>
	<div><p>
	Available Labs:
	
	<inputtype="checkbox"name="com"value="comlab"checked>
	Computer Lab
	
	<inputtype="checkbox"name="sci"value="scilab"checked>
	Science Lab
	
	<inputtype="checkbox"name="tech"value="techlab">
	Technology Lab
	
	<inputtype="checkbox"name="phy"value="phylab">
	Physics Lab
	<p>
	</div>
	<div>
	<inputtype="reset"name="clear"value="clear">
	<inputtype="submit"name="submit"value="submit">
	</div>
	</form>
	</body>
	</html></pre>
		h2
		1 Marks
		form,
		text box
		1 Marks
		radio
		button
		1 Marks
		list box
		1 Marks
		
		check
		box
		2 Marks
		
		clear
		and
		submit
		buttons
		1 Marks
		
		html
		format
		1 Marks

(b) (i)	< ? php echo "Hello Word"; ? >	2 Marks
(ii)	1) Sessions 2) Cookies	2 Marks (2 x 1)
(iii)	Main differences :- Cookies is a client side technique whereas session is a server side technique	2 Marks
(iv)	Nimal$name2	1 Marks
4) a) (i)	$x = 5$ Acquires memory space for the integer and the value 5 is assigned to variable / label x andstored in the memory location.	2 Marks
(ii)	y = [3, 2, 5, 6] Acquires memory space for the array / list and the set of values 3, 2, 5, 6 are assigned to array / list (variable / label) y and stored in the memory location	2 Marks
(iii)	z = int (input ("Enter a number :")) Print the string "Enter a number:" on the screen and wait till user input, convert the string value into integer. Assign the integer to the variable / label **z** and stored in the memory location. Type of **z** is integer.	3 Marks
b) (i)		Input 0.5 Marks variable declaration 1 Marks condition 0.5 Marks statement and output 1 Marks Two statement 1 Marks

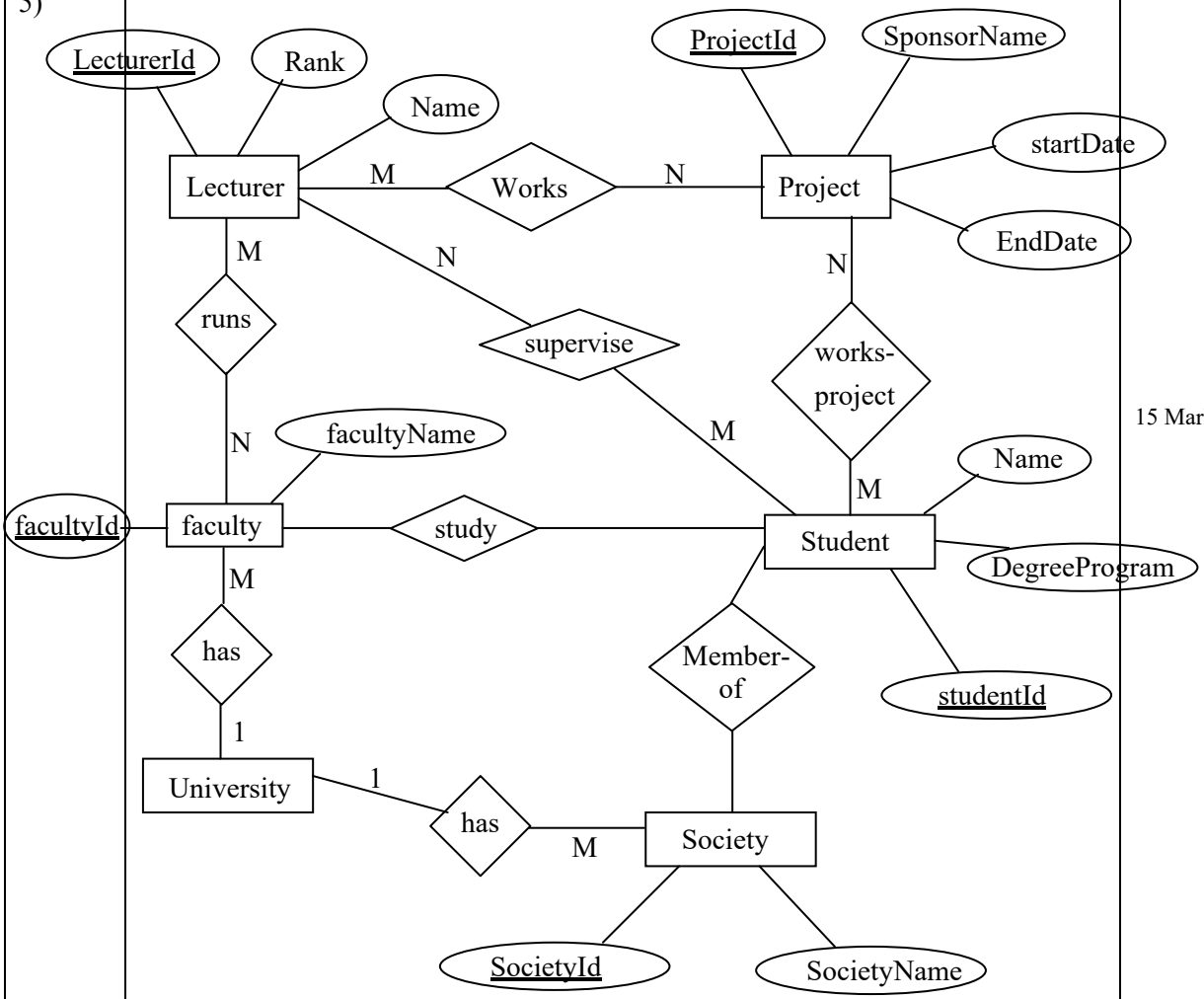
(ii)

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

Input 0.5 Marks
variable declaration 1 Marks
condition 0.5 Marks
statement and output 1 Marks
Two statement 1 Marks

(04 Marks)

5)



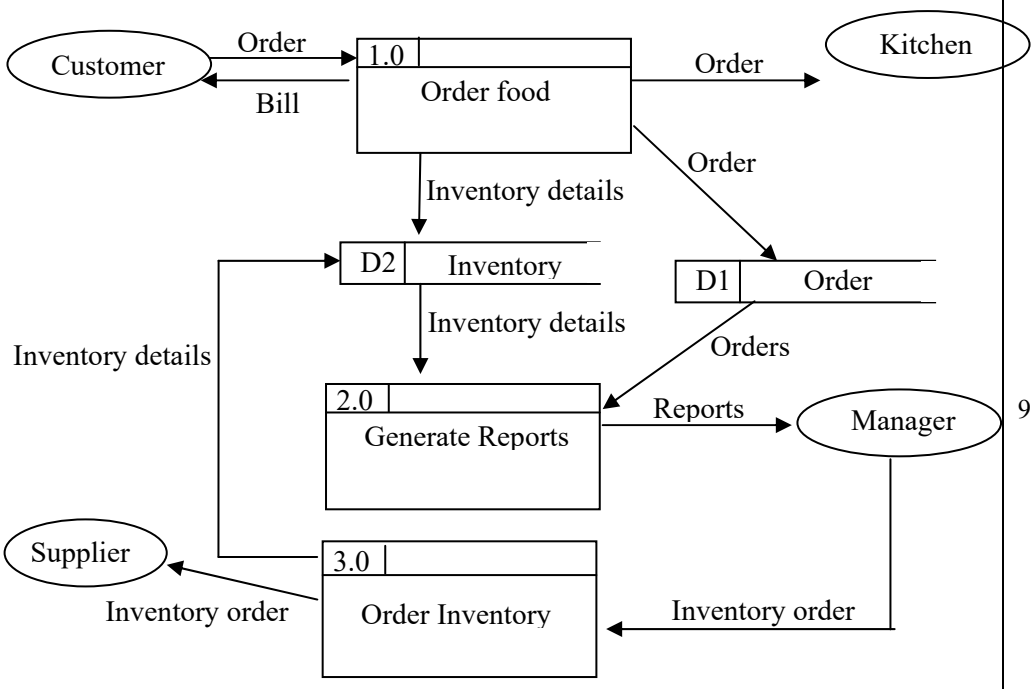
15 Marks

- Entities - 03 Marks (0.5 x 6)
- Attributes (for each entities) - 06 Marks (0.5 x 12)
- Primary keys - 03 Marks
- Relationship – 03 Marks

6) a) (i)

Minimize data duplication, reduce too much of paper work ,fast, easy to maintain data, maintain consistency of data, high storage, high security and no need to repeat the work.

1 Marks

(ii)	**Water fall model** :- • All requirements are identifies at the beginning of system development. • As it consuming more time, the requirements may change when time of Deployment. **Spiral model** :- • As system development steps are repeated new requirements can be adopted when necessary. • It is more suitable for risk prone computer systems.	1 Marks 1 Marks
(iii)	• The old system is helpful to identify the accuracy of new system. • The old system could be used If new system has faults.	1 Marks
(iv)	• **Functional requirements :-** Any requirement which specifies What the system should do or provide for users / they related to the technical functionality of the system. / Function is described as a specification of behavior between outputs and input / behavior (output)that a device or software is expected to exhibit in the case of a certain input. • **Non – functional requirements :-** Any requirement which specifies how the system performs a certain function or system works./They describe how, how well or to what standard a function should be provided/nonfunctional requirements describe the general characteristics of a system. They are also known as quality attributes. (include service hours, service hours, service availability, responsiveness, throughput and reliability)/define system attributes such as security, reliability performance, maintainability, scalability and usability.	1 Marks 1 Marks
b)	 • Processes - 02 Marks • External Entity – 02 Marks • Data stores – 02 Marks • Data flows – 03 Marks	9 Marks