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20 | E | I

Second Term Test - Grade 13 - 2018

Index No : .... Information and Communication Technology I   Two - Hours

Instructions :
- **Answer all the Questions**
- **Write down your index number in the space provided in the answer sheet.**
- **Select the correct or most appropriate answer from the given answers of 1,2,3,4 or 5**

1. Which one of the following is considered as the first electronic digital computer in the world ?
   (1) Analytical engine   (2) *ENIAC*   (3) *MARK* 1
   (4) *UNIVAC*   (5) *EDVAC*

2. Consider the following statements about data communication
   A − Fiber optics transmit data in higher speed than coaxial cables
   B − Twisted pairs are more expensive than coaxial cables
   C − Microwaves transmit data to higher distance than infrared waves
   Which of the above statement/s is/are correct?
   (1) A only   (2) A and B only   (3) A and C only
   (4) B and C only   (5) A,B and C all

3. Consider the following statements
       A. Software piracy is using others' software as one's own
       B. Plagiarism is presenting others' creations as one's own without citing
       C. Privacy is misusing private data in data banks
   Which statement/s is/are correct according to the issues caused by ICT?
   (1) A only   (2) A and B only   (3) A and C only
   (4) B and C only   (5) A,B and C all

4. The component which decodes the instructions fetch into the CPU is,
   (1) Memory registers   (2) Arithmetic and Logic Unit   (3) Main memory
   (4) Cache memory   (5) Control unit

5. Which of the following is equivalent to the binary number 110011011_2 ?
   (1) $19B_{16}$ (2) 1911_{16} (3) 306_8 (4) 401_{10} (5) 1911_{10}

1

6. There are three levels of cache memory in modern PC's
   A - Level 1 (L1) cache functions in very high speed but lesser than the speed of the CPU.
   B – Level 2 (L2) and level 3 (L3) cache can be situated in the CPU or on the mother board
   C - When level 3 (L3) cache is situated on the mother board it's speed is lesser than the main memory

   Which of the above statement/s is/are correct?
   (1) A only   (2) B only   (3) A and B only   (4) A and C only.   (5) B and C only

7. Consider the following list rendered by a web browser

   > *System Software*
   >> *Operating System*
   >> *Utility Software*
   > *Application Software*
   >> *Word Processing Software*
   >> *Web Browser*

   What are the tags that can be used to create the above list?
   (1) $< ul >$ and $< li >$ only .
   (2) $< dl >$ and $< li >$ only
   (3) $< ul >, < dl >$ and $< li >$ only .
   (4) $< dl >, < dt >$ and $< dd >$ only
   (5) $< ol >, < dl >$ and $< li >$ only

8. $3A_{16} + 56_8 =$
   (1) 110100_2 (2) $6A_{16}$ (3) 104_{10} (4) 102_{10} (5) 149_8

9. Consider the following statements regarding HTML
   A.   Angular brackets are used in the beginning and the end of a tag
   B.   There are three components of a tag as element, attribute and value
   C.   HTML forms can be used to submit data
   D.   Comments are included by using $< \# .... >$ tag in a HTML code
     The correct statement/s from above is/are,
   (1)   A and B only   (2) A,B and C only   (3) A,B and D only
   (4)   B,C and D only   (5) D only

10. Which is the binary representation of 25.75_{10} ?
    (1) 11001.01   (2) 110101.11   (3) 10111.01   (4) 10110.001   (5) 11001.11

11. The method of sharing a software as "**many users can use that software simultaneously"** in modern computers is referred as ,
    (1)   *Multi programming*   (2) *Multi tasking*   (3) *Multi user*
    (4)   *Concurrent excecution*   (5) *Re entered*

12. Data file is an abstract mechanism used to store and retrieve data in a secondary storage.

    The correct statement regarding data files is,
    (1) It is not needed to identify all the data files identically
    (2) A data file does not have the attributes as a type, date and time created
    (3) The types of files are available as ASCII and binary
    (4) doc is the part of the name given by the creator of the data file, **Filename.doc**
    (5) Security methods cannot be used to prevent opening and editing of data files

13. Which HTML program segment is used to create the following table?

Device	Capacity	Price (Rs.)
Flash Memory Drive	16 GB	1000
	32 GB	2500

(1)

```
<table border="1">
<tr>
  <th>Device</th><td>Capacity</td> <td>Price (Rs.)</td>
 </tr>
 <tr>
  <th rowspan="2">Flash Memory Drive</th>
  <td>16 GB</td> <td>1000</td>
 </tr>
 <tr>
  <td>32 GB</td><td>2500</td>
 </tr>
</table>
```

(2)

```
<table border="1">
<tr>
  <td>Device</td><td>Capacity</td> <td>Price (Rs.)</td>
 </tr>
 <tr>
  <td rowspan="2">Flash Memory Drive</td>
  <td>16 GB</td> <td>1000</td>
 </tr>
 <tr>
  <td>32 GB</td><td>2500</td>
 </tr>
</table>
```

(3)

```
<table border="1">
<tr>
  <th>Device</th><td>Capacity</td> <td>Price (Rs.)</td>
 </tr>
 <tr>
  <th colspan="2">Flash Memory Drive</th>
  <td>16 GB</td> <td>1000</td>
 </tr>
 <tr>
  <td>32 GB</td><td>2500</td>
 </tr>
</table>
```

(4)

```
<table border="1">
<tr>
  <th>Device</th><th>Capacity</th> <th>Price (Rs.)</th>
 </tr>
 <tr>
  <td>Flash Memory Drive</td>
  <td>16 GB</td> <td>1000</td>
 </tr>
 <tr>
  <td>32 GB</td><td>2500</td>
 </tr>
</table>
```

(5)

```
<table >
<tr>
  <th>Device</th><td>Capacity</td> <td>Price (Rs.)</td>
 </tr>
 <tr>
  <td rowspan="2">Flash Memory Drive</td>
  <td>16 GB</td> <td>1000</td>
 </tr>
 <tr>
  <td>32 GB</td><td>2500</td>
 </tr>
</table>
```
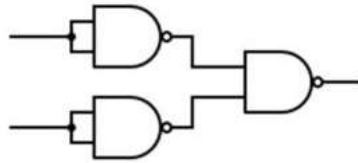
14. The correct HTML segment which can be used to limit the number of characters to10 in the text box
    User Name in the **Form** of given picture.
    (1) <input type="text" name="username" maximumlength="10">
    (2) <input type="text" name="username" maxlength="10">
    (3) <input type="text" name="username" length="10">
    (4) <input type="text" name="username" width="10">
    (5) <input type="text" name="username" maxcharacter="10">

User Name:

Password:

Submit

15. Consider the following logic circuit which is created by using universal gates

The above circuit is equivalent to
(1) AND gate   (2) XOR gate   (3) NOR gate   (4) OR gate   (5) $NAND$ gate

16. ¨ When a wave moves though an electronic media, the frequency of that wave decreases gradually due to the decrease of energy of it". Which of the following illustrates the above statement?
(1) Distortion   (2) Frequency Modulation   (3) Noise
(4) Frequency shift key   (5) Attenuation

17. Internet Control Message Protocol (ICMP) is a protocol of the ……………………. Layer.
(1) Application   (2) Physical   (3) Data link   (4) Network   (5) Transport

18. A school computer lab uses 255.255.255.224 as their subnet mask. How many different IP addresses can be used for the computers of this network.
(1) 30   (2) 32   (3) 62   (4) 64   (5) 126

19. Which data processing method is used to process examination results by the examination department?
(1) Online processing   (2) Batch processing   (3) Real time processing
(4) Timely processing   (5) Electronic processing

20. Which of the following is a correct statement?
(1) www.amazon.com is an example for B2B
(2) www.ikman.lk is an example for G2C
(3) www.ebay.com is an example for C2C
(4) www.nie.lk is an example for C2C
(5) G2C is an example for the services provided by the government to the government servants through the internet

- **Use the following three relational data tables to answer the question no. 21 to 24**

Sport

Sp_No	Sp_Name
001	Cricket
002	Netball

Stu_Sport

Stu_No	Sp_No	Since
013	002	2016-10-18
021	001	2017-04-23

Student

Stu_No	Stu _Name	Stu _Address	Stu _TP
020	Kapila	Kurunegala	0712326588
021	Kumaran	Halawatha	0712526584

21. Which of the following presents the accurate relational schema for the above tables?
    (1) Sport (Sp_No, Sp_Name)
        Student (Stu_No, Stu _Name, Stu _Address, Stu _TP)
        Stu_Sport (Stu_No, Sp_No, Since)

    (2) Sport (Sp_No, Sp_Name)
        Student (Stu_No, Stu _Name, Stu _Address, Stu _TP)
        Stu_Sport (Stu _No, Sp_No, Since)

    (3) Sport (Sp_No, Sp_Name)
        Student (Stu_No, Stu_Name, Stu _Address, Stu _TP)
        Stu_Sport (Stu_No, Sp_No, Since)

    (4) Sport (Sp_No, Sp_Name)
        Student (Stu_No, Stu _Name, Stu _Address, Stu _TP)
        Stu_Sport (Stu _No, Sp_No, Since)

    (5) Sport (Sp_No, Sp_Name)
        Student (Stu_No, Stu _Name, Stu _Address, Stu _TP)
        Stu_Sport (Stu_No, Sp_No, Since)

22. Which of the following is the correct primary key for the table Stu_sport?
     (1) Stu _No   (2) Sp_No   (3) Stu _No, Sp_No
     (4) Stu _No, Sp_Name   (5) Stu _No, Sp_No, Since

23. Which of the following SQL statement that can change only the Kumaran's registered date for cricket?
    (1) UPDATE Stu_Sport SET Since= '2017-01-20' WHERE Stu_No= '021' or Sp_No= '001'
    (2) UPDATE Stu_Sport SET Since= '2017-01-20' WHERE Stu_No= '021' and Sp_No= '001'
    (3) UPDATE Stu_Sport SET Since= '2017-01-20' WHERE Stu_No= '001' and Sp_No= '021'
    (4) UPDATE Stu_Sport SET Since= '2017-01-20' WHERE Since= '2017-04-23'
    (5) UPDATE Stu_Sport SET Since= '2017-01-20' WHERE Stu_No= '021' or Sp_No= '001' or
        Since= '2017-04-23'

24. Which is the correct SQL statement that can be used to get the SQL statement of creating the above
    Sport table?
    (1) SHOW CREATE TABLES Sport   (2) SHOW CREATED TABLE Sport
    (3) DISPLAY CREATE TABLE Sport   (4) DISCRIPTION CREATE TABLE Sport
    (5) SHOW CREATE TABLE Sport

25. An information system for issuing tickets in a cinema theatre can be classified as,
    (1) Artificial and Open   (2) Natural and Close   (3) Artificial and Natural
    (4) Artificial and Close   (5) Natural and Open

26. A customer paid the bill of a super market by using his credit card. What is the type of the system
    used in the above process?
    (1) Management Support System   (2) Decision Support System
    (2) Content Management System   (4) Transaction Processing System.
    (5) Expert System

27. Which of the following system developing model will get an unexpected output, because of the issues
    like the client cannot see the output till the last moment and the time of getting the final output is
    unpredictable?
    (1) Spiral model   (2) Rapid application model   (3) Waterfall model
    (4) United development model   (5) Prototype model.

28. In which stage of the system development life cycle occurs the activities like creating interfaces and system flow charts
    - (1) System planning
    - (2) System analyzing
    - (3) System developing
    - (4) System testing
    - (5) Feasibility study

- **Question no 29 to 31 are based on the following python code**

```
#python program
test=3,5,-1,7,0
def funl(val):
    a,b=val[0],val[0]
    for c in val:
        if c>a:
            a=c
        elif c<b:
            b=c

    return[b,a]

print(funl(test))
```

29. What is the data type of the variable **test** in the above python code?
    - (1) Integer
    - (2) Float
    - (3) Boolean
    - (4) Tuple
    - (5) List

30. The correct output of the above python code is,
    - (1) 7,0
    - (2) [7,-1]
    - (3) [-1,7]
    - (4) (-1,7)
    - (5) -1,7

31. What is the correct data type return by the function ?
    - (1) Integer
    - (2) Float
    - (3) Boolean
    - (4) List
    - (5) Tuple

32. What is the correct python code that is used to open a file named ,'file.txt' to read and write by taking the curser to the starting point of the file?
    - (1) f=open ("file1.txt", "w+")
    - (2) open=f("file1.txt", "w")
    - (3) open=f("file1.txt", "r")
    - (4) f=open ("file1.txt", "w")
    - (5) f=open ("file1.txt", "a")

33. The correct output of the following python code is,
    ```
    list1=["A",[1,2,3], "B",['one','two','three']]
    print(list1[3][1])
    ```
    - (1) A
    - (2) 1
    - (3) B
    - (4) two
    - (5) one

34. Consider the following statements about the python data types
    - A   Data value of **list** type cannot be changed as a dictionary type data value
    - B   Ordered values of a data **tuple** are separated by commas
    - C   **Dictionary** type data consist of an unordered set of key value and included in the brackets curly separated by commas

    Which of the above statement/statements is / are correct?
    - (1) A only
    - (2) B only
    - (3) C only
    - (4) A and B only
    - (5) B and C only

35. The correct output of interpreting the python statement 1==1.0 is.
    - (1) False
    - (2) Ture
    - (3) 0
    - (4) 1.0
    - (5) 1

36. The most suitable Boolean expression for the following Karnaugh - map is,

c \ AB	00	01	11	10
0			1	1
1			1	1

(1) $\bar{A}BC + \bar{A}B\bar{C} + ABC + AB\bar{C}$
(2) $ABC + AB\bar{C} + AB\bar{C} + A\bar{B}C$
(3) $\bar{A}B\bar{C} + AB\bar{C} + A\bar{B}\bar{C} + ABC$
(4) $AB\bar{C} + \bar{A}B\bar{C} + ABC + \bar{A}\bar{B}\bar{C}$
(5) $AB\bar{C} + ABC + A\bar{B}\bar{C} + A\bar{B}C$

37. When a process sends an interrupt while the processor is running another process is referred to as,
(1) Software interrupt   (2) Context switching   (3)   Sub processing
(4) Processor utilization   (5) Hardware interrupt

38. Which statement shows the correct descending order of the access speed of the memory devices?
A. $Register$ B. $Hard\ Disk$ C. $Cache\ Memory$
D. Compact Disk(CD)   E. RAM

(1) $A\ B\ E\ C\ D$ (2) $A\ C\ B\ E\ D$ (3) $A\ C\ E\ B\ D$ (4) $D\ B\ E\ C\ A$ (5) $E\ C\ A\ B\ D$

39. What is the correct statement about the normalized form of the following relationship?
$CD(DiskNo, Title, Publisher, Version, Developer1, Developer2, Developer3)$
(1) It is in the zeroth normal form   (2) It is in the first normal form
(3) It is in the second normal form   (4) It is in the third normal form
(5) It is in the no enough information to decide the form of normalization

40. Consider the following diagrams
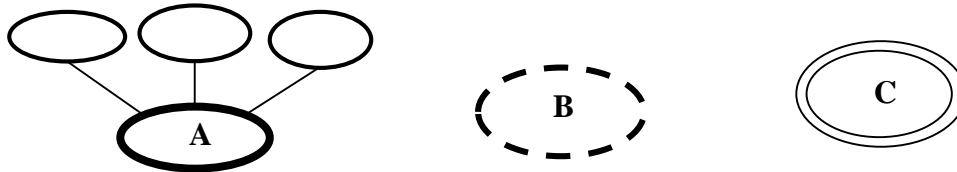
The correct order of the components of the above ER diagrams A,B and C is,
(1) Composite attributes, multi valued attributes, derived attributes
(2) Composite attributes, derived attributes, multi valued attributes
(3) Derived attributes, composite attributes, multi valued attributes,
(4) Multi valued attributes, derived attributes, composite attributes
(5) Multi valued attributes, composite attributes, derived attributes

41. Which statement indicates the one's compliment of -20 ?
(1)   11101011   (2) 01101011   (3) 11101111   (4) 10101101   (5)11101100

42. Changing data in to data models, data encryption and data decryption occur in the
……………………………. layer of the OSI seven layer reference model .
(1) Application   (2) Presentation   (3) Session   (4) Transport   (5) Physical

43. The command used to check whether a computer is connected without any trouble with other computer or device in the network is,
(1) $ping$ (2) $ipconfig$ (3) $tracert$ (4) $hostname$ (5) $netstat$

44. Which of the following is a CCS rule?
(1) p= {color: red;}   (2) p {color:= #ff00cc;}
(3) body {background-image: "url("Sri Lanka.jpg")";}   (4) h1 {color: blue;}
(5) h1 {font-size:= 40px;}

45. The correct output of the following pseudo code is,
    Begin
            sum=1
            for odd=1 to 9 step 2
                    Sum=sum+odd
                    Next odd
            Print "Total is" , sum
    End
    (1) Total is 15   (2) 15   (3) Total is 20   (4) Total is 25   (5) Total is 26

46. Which of the following statement is true regarding the programming languages?
    (1)   Assembly language is a first generation computer language
    (2)   Running speed of a program is high when interpreters are used instead of compilers
    (3)   Programs in machine language are relatively slow
    (4)   Programs in machine language run in high speed relative to the programs written in languages of   other generations
    (5)   Python is a second generation programming language

47. Consider the following facts
    A.   Functioning independently   B. Response to the changes of the environment
    C.   No specific aim   D. Sensitive to the environment
  Prior characteristic/s of an agent is/are,
    (1) B only   (2) C only   (3) A and D only   (4) B and D only   (5) A,B and D only

48. What is the type of e-commerce of selling the shares of **Excellent Apparel** limited to it's employee.
   (1) B2B   (2) B2C   (3) B2E   (4) C2C   (5) E2B

49. When designing an information system, in the stage of coding, testing for errors in the output by using test data is referred as,
    (1)   Static testing   (2) Dynamic testing   (3) Software designing
    (4)   Technology testing   (5) Database testing

50. Consider the following activity flow diagram.
   Which statement indicates the components A,B,C and D respectively in the
    given activity diagram in structured system analyzing and designing
    methodology(SSADM) ?

    (1)   Start, connecting activities, making decisions, end
    (2)   Activity, decision making, direction, end
    (3)   Start, activity, decision making, end
    (4)   Start, decision making, direction, connecting activities
    (5)   End, activity, decision making, start
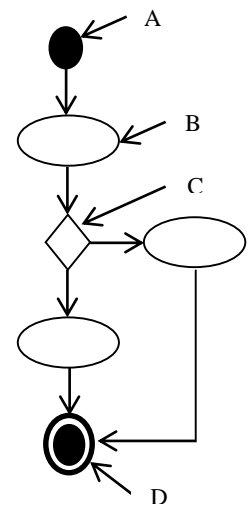
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Index No : ....   Information and Communication Technology II   Three Hours

Answer all questions in Part A and only four questions selected from part B

Part –A - Structured essay

- **Answer all the four questions on this paper itself.**
- **Write your answers in the space provided for each question.**

1. Consider the following web page, rendered by a web browser. Assume that all images and HTML documents are in the same folder.

   (a). Write the HTML code to open "More Details.html" document on the same window, when the user clicks on "More Details" text.

   ....

   ....

   (b). Write the HTML code to open "Apply Now.html" document on a new tab or a new window, when the user clicks on "Apply Now" text.

   ....

   ....

1

(c). Name of the source file of image displayed in the above web page is "logo.jpg". The alternative text must be shown as "Club logo". Height and width of the image is 100px and 200px. Write the HTML code for inserting ICT Club image to the web page.

....

....

(d). Write down the CSS internal styles required to apply the following styles for the elements in this web page

	Text	Tag	Attribute	Style
(i).	...ICT STUDENTS' CLUB...	h1	color Font	Blue verdana
(ii).	Software Design Competition - 2018	h3	color Font	Red courier

....

....

....

....

....

....

....

....

2.

(a). Three business organization types according to the use of ICT are given in the following table complete it.

Organizations	Introduction	Example
Pure Brick Organizations		
Pure Click Organizations		
Brick and Click Organizations		

(b). What is a scheduler?

....

....

....

....

(c). Describe the following terms about process scheduling.

(i).   Throughput

....

....

(ii).   Turnaround

....

....

2

(iii). *Waiting time*

....
....

(iv). *Response Time*

....
....

(d). Describe the two main processes which are managed by the mid-term scheduler

....
....
....
....
....
....
....

3.

(a). A school has decided to prepare a computer based information system to ring the bell and announce the relevant period. State four methods that can be used to gather information to identify the requirements of the above system.

....
....
....
....

(b). i). State whether the following requirements of the above system is a functional requirement or a non-functional requirement

Requirement	Functional / Non functional
The bell rings for the relevant period and the interval, when the starting and the closing time were given.	
The national anthem plays, when the school starts.	
Mention the period, when the bell rings.	
The new system is more reliable than the current system.	

ii). The principal states that the parallel implementation is more suitable for implementing this information system. Do you agree with this statement? Justify your answer.

....
....
....
....

(c). The following ER diagram was developed for students to engage in different sports in inter sports house meet.

```
[Student]━━━━<Participate>━━━━[Sport]
```
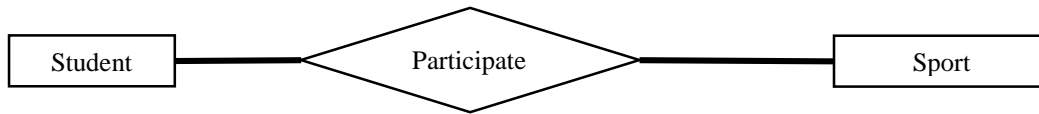
(i).   Write down the primary keys and attributes for each of these entities separately.

Entity	Primary Key	Attribute 1	Attribute 2

(ii).   Specify the relational schema for the above ER diagram.

....
....
....

4.

(a). Convert 28_{10} and - 15_{10} into two's complement numbers. Use 8-bits to represent a number.

....
....
....
....

(b). According to a logical error of a python code, which was written to print some integer pattern in a text file "m.txt" by a student, the output he got is shown in the right side.

Programme

```
file=open('d:\m.txt','w')
n=2
for k in range(0,4):
    for j in range (0,n):
        file.write("n"+" ")
        n=n+1
    file.write('\n')
    print()

file.close()
```

Output

n n

n n n n

n n n n n n n n

n n n n n n n n n n n n n n n n

  i. Correct the logical error and rewrite it.

    ....

 ii. Write the correct integer pattern represented by "n"according to the correct program.

....
....
....
....

(c).   What is a Kansei System ?

....
....

Second Team Test – 2018

Information Communication Technology -13 – Part II
Part B

- **Answer any four questions**

1. A computer based alarm system is created in a certain private hospital to observe the patients' in the intensive care unit. Here, the data like body temperature (A), blood sugar level (B) and pulse rate (C) are input to the computer system using an instrument with sensors. There is a nurse in charge for each patient.

   - The patient's body temperature is higher than 37.5^0C is denoted by 1 and lower 37.5^0C is denoted by 0.

   - The patent's blood sugar level is higher than 120 is denoted by 1 and lower than 120 is denoted by 0

   - The patient's pulse rate is higher than 65 is denoted by 1 and lower than 65 is denoted by 0

   The computer system is created in a way to send a warning signal to the nurse in charge of the patient with a sms containing data of the patient, when the body temperature increases more than 37.5 ℃ and pulse rate decreases less than 65 or when the blood sugar level increases 120 and pulse rate decreases less than 65.

   (a) Construct a truth table to represent the above computer based warning system

   (b) Write a Boolean expression (not simplified) for the final output represented by the truth table.

   (c) Construct the logic circuit for the Boolean expression obtained in section (b) above.

   (d) Simplify the Boolean expression obtained in section (b) above, using the Boolean laws. Clearly show the Boolean algebraic rules used for simplifications.

   (e) State with A, B and C, under which condition of the patient, the warning alarm alert is send? (There may be several possibilities)

2. In the three storied building of Vidhyartha Vidyalaya, the computer laboratory, A / L computer laboratory and the language laboratory are located. The three computer labs have 120, 60 and 31 computers respectively. Each unit is connected to a network using separate switchers. In order to improve the educational knowledge of the students the management of the school has taken steps to facilitate the units with "Internet". The received IP address to school is 192.168.10.0./24 Using the given IP address, private IP addresses are given to three networks.

(a). Complete the following table using the way, the IP addresses are given to the computer networks in the school. You can mention any other assumptions.

	Information Technology computer lab	AL computer lab	Language lab
Subnet Mask			
Net ID			
First host address			
Last host address			
Broadcast address			

(b). How many computers can be connected to the networks according to the assigned IP addresses?

(c). Graphically represent, how the internet is connected to the LAN in the school.

3.

(a). Describe the economical and the environmental issues in ICT by taking an example for each

(b). E- Auto mart is a business organization of selling vehicle modification equipment and spare parts. To make it island wide, to develop sales promotion and in order to increase the efficiency of distribution and deposition for suppliers and buyers, they have decided to develop as an e-market place.

(i). Write 3 tasks in the process of above e-market place.

(ii). Write the frontend process and backend process of the above incident.

(c). The agent software of the website that is maintained by the above institute identify the user requirements and provide services for the users. Describe two agent software that can be run parallel with this system.

4. 5 packages have been introduced for an entertainment program, which was held in an entrainment park and the prices of the items are displayed below.

Package Number	1			2				3		4		5			
Item number of package	1	2	3	1	2	3	4	1	2	1	2	1	2	3	4
Item price Ru.	300	150	400	450	500	230	180	260	300	450	500	100	150	450	250

Those who wish to participate for the program with the family members have to select **their package number**, **the number of tickets, the total number of packages** and mention it in the card and receive the tickets from the counter.

(They will charge for the every package selected by the members and each member of the group has to pay for a package before they receive the tickets from the counter. unique number is giving in each and every card)

Card Number	0001
Package number	**Number of tickets**
Total number of packages	

You are assigned a computer program to calculate the total price according to the selected tickets of the package and print the total price and the card number.

(a). Draw a flow chat for the above process of calculating the total price of the selected number of packages and number of tickets for each package mentioned in the card.

(b). Write the relevant python program for the above flow chart. State all valid assumption if any.

(c). Develop a function in python to write total price for the packages according to the card number at the end of an existing text file named **"packamount.txt"**

5. Under a programme of an institute known as "Arunalu", unemployed youths are accommodated to be registered as employees of the institute's branch officers and to distribute their products through the suppliers. An employee must be registered in a branch office of the institute and a large number of employees are registered under one branch. The employees who are registered to the institute are able to be trained by many projects and manufacture many products. There are many employees training under one project. As required information about employees their employment number, name, address and telephone number are collected. The name of branch, its number and the address are maintained as the required information. To sell the products, which are produced by employees, the orders are arranged online. One order is prepared by one employee and the order contains order number, date of order and the date of delivery. Many different products can be entered in an order. As the necessary information about a product, serial number, name and the colour is needed. One order is delivered by one supplier and the suppliers who are appointed for one region are supplied by the orders to be delivered in that particular area. The institute keeps the address, number and the name of the suppliers.

Draw an ER diagram to describe the above mentioned system. Provide your assumptions clearly.

6. The contextual diagram of the food ordering system of the restaurant known as "Food Paradise" is given below. Draw a first level data flow diagram associate with the above system following
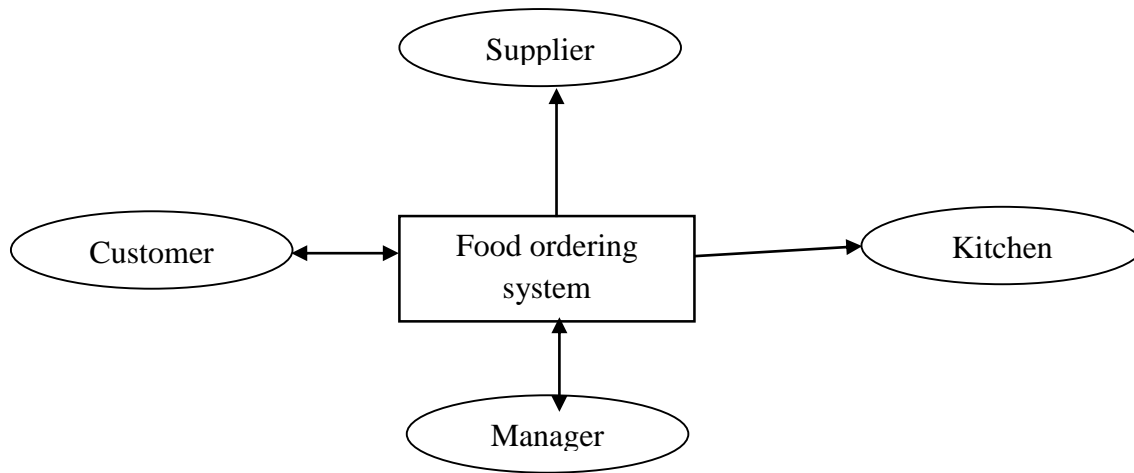
A customer produces his food order to the sales assistant at the Food Paradise by online. Then the sales assistant accepts the order, place the order in the order tray and send the order to the kitchen to prepare the food. The sales assistant updates the inventory details such as spoons, forks, papers and plats in the inventory.. And he prepares a bill related to the order and sends it as a short massage to the customer's mobile phone. At the end of the day assistant manager prepares a report by taking inventory details and orders as input from the inventory and order data respectively. After that the reports are sent to the manager. After referring the reports, the manager sends the inventory order to the store keeper to prepare the order inventory. The store keeper takes the necessary steps to order and then handover the inventory order to the supplier. The store keeper updates the inventory by sending inventory detail to the inventory.

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

Grade 13 - Second Term Test - 2018
Information and Communication Technology
Part II - Answer
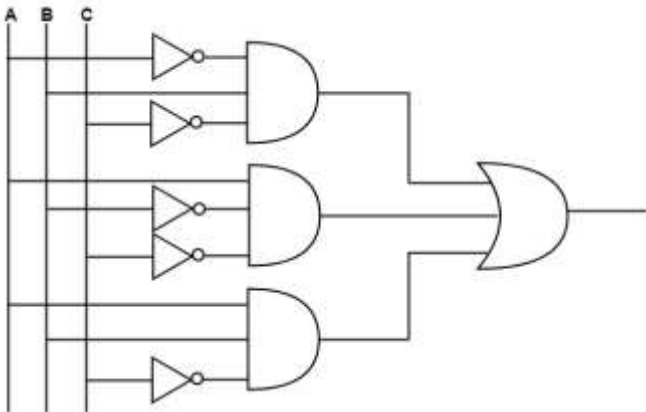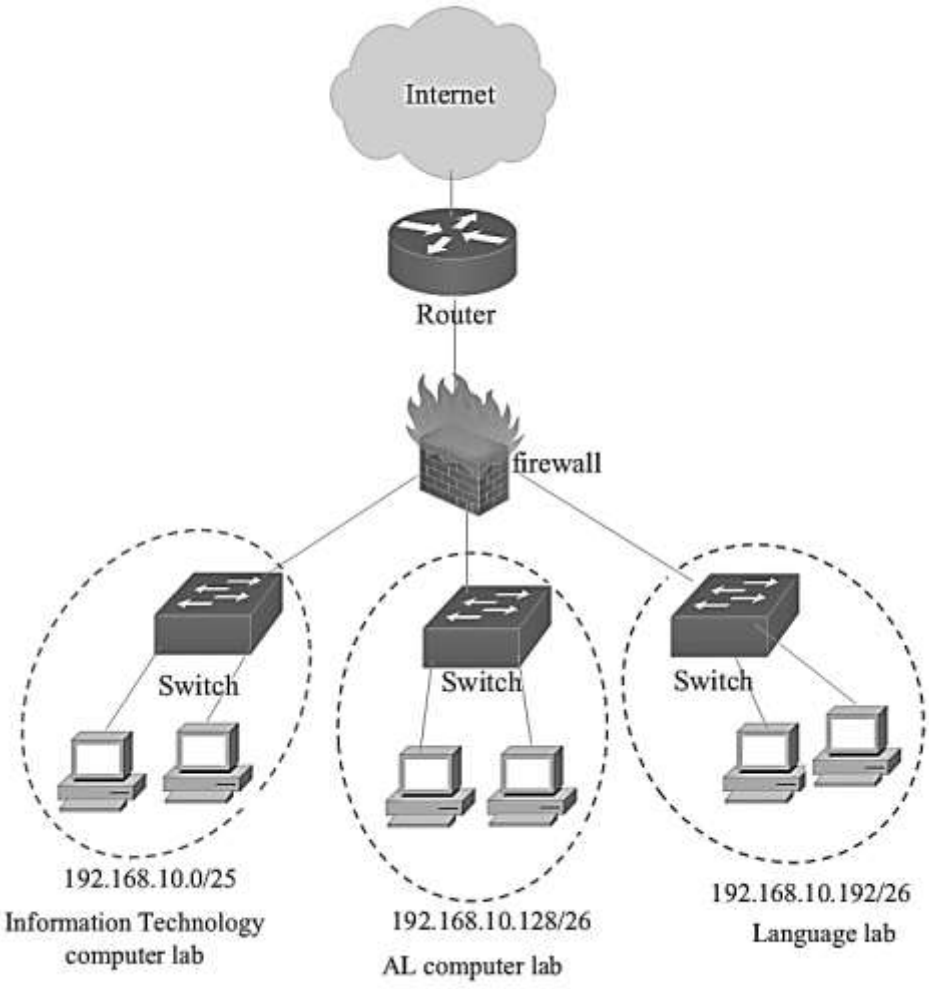
Part − A

Question No.	Answer	marks
1(a)	More Details...	2 marks
1(b)	Apply Now... 	2 marks
1(c)	<img src = "logo.jpg" Alt ="ICT club" width=200 height=100>	2 marks

1(d)	h1 {
	    color: blue;
	    font-family: verdana;
	}
		2 marks

1(e)	h3 {
	    font-family: courier;
	}
		2 marks

2(a)	*(see table below)*	3 marks
2(b)	Scheduler is the program that handles the activity of scheduling in multiprogramming operating systems.	1 mark
2(c)	**Throughput** - Throughput is the amount of work completed in a unit of time. **Turnaround** - Turnaround time refers to the time between the moment of submission of a process and the time of its completion. **Waiting time**- It is the time that a process is waiting to be assigned to a processor for resource allocation.	4 marks

Table for 2(a):

Organizations	*Introduction*	*Example*
Pure Brick Organizations	*Do their business only offline*	A retail shop in a village
Pure Click Organizations	*Do their business only online*	*an organization which do their business only online as e − bay*
Brick and Click Organizations	*Do their business both online and offline*	A supermarket in a town

	Response Time - Response time is the time taken to start a process after it received the request		
2(d)	1.Transferring processes between random access memory (RAM) and virtual memory. 2. When the processes in the virtual memory are needed to run taking them back from virtual memory to random access memory (RAM) .		2 marks
3(a)	Interviews Questionnaires Observation Analyzing Existing system Prototyping		2 marks

3(b) (i). | 2 marks

Requirement	Functional / Non functional
The bell rings for the relevant period and the interval when the starting and the closing time were given.	Functional
The national anthem plays when the school starts.	Non functional
Mention the period when the bell rings.	Functional
The new system is more reliable than the current system.	Non functional

(ii). Yes
If any error occured in the new system, the old system can be used.
   Or
No
Its not suitable to ring two bells at the same time.

1 marks

3(c) (i). | 3 marks

Entity	Primary Key	Attribute
Student	Student No.	Name, Date of birth ....
Sport	Sport No.	Name, Place

Marks for correct primary keys $0.5 \times 2 = 1$
Marks for correct attributes $0.5 \times 4 = 2$

(ii). Student(student_No, name, Date_of_birth) | 1 marks

Sport(sport_no, name, place)

participate(student_No,sport_no) | 1 marks

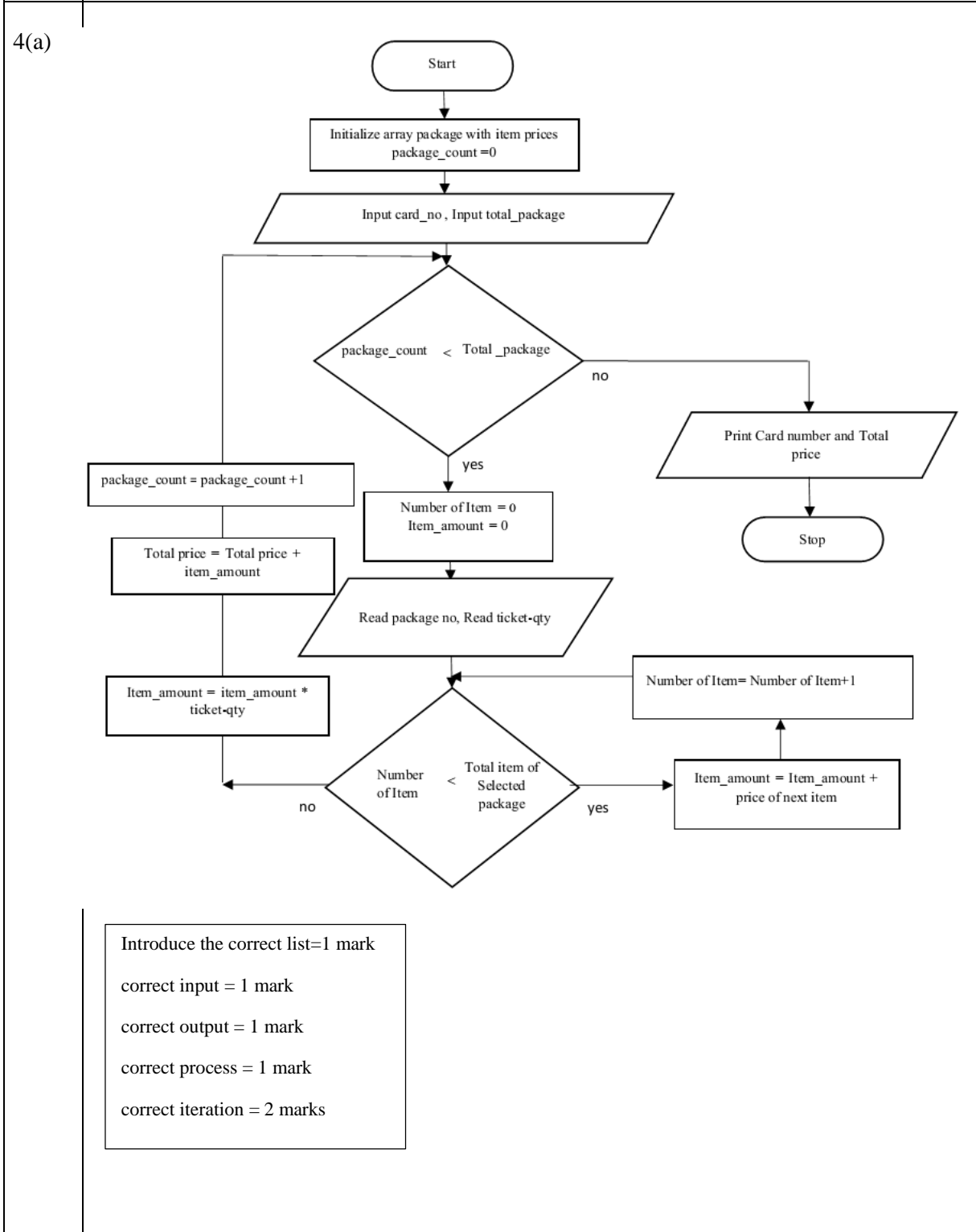| 4(a)	28 - 00011100 -15 - 11110001	2 marks
4(b)	(i). file.write(str(n)+" ")	2 marks
	(ii). 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	4 marks
4(c)	Is a system with artificial intelligence that provides products and services by identifying the customer's feelings and needs.	2 marks

4

$Part-B$

Questi on No.	Answer						marks
1(a)		A	B	C	$\bar{C}$	Send alarm alert (F)	4 marks
		0	0	0	1	0	
		0	0	1	0	0	
		0	1	0	1	1	
		0	1	1	0	0	
		1	0	0	1	1	
		1	0	1	0	0	
		1	1	0	1	1	
		1	1	1	0	0	

1(b)	$\bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$	2 marks
1(c)		4 marks
1(d)	$\begin{aligned} F &= \bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C} \\ &= \bar{C}(\bar{A}B + A\bar{B} + AB) \\ &= \bar{C}\,(\bar{A}B + A(\bar{B} + B) \\ &= \bar{C}\,(\bar{A}B + A) \\ &= \bar{C}\,(A + B) \\ &= A\bar{C} + B\bar{C} \end{aligned}$	2 marks
1(e)	$A\bar{C}$ $B\bar{C}$ $AB\bar{C}$	3 marks

2(a)		Information Technology computer lab	AL computer lab	Language lab	
	Subnet Mask	255.255.255.128	255.255.255.192	255.255.255.192	3 marks
	Net ID	192.168.10.0	192.168.10.128	192.168.10.192	1.5 marks
	First host address	192.168.10.1	192.168.10.129	192.168.10.193	1.5 marks
	Last host address	192.168.10.126	192.168.10.190	192.168.10.254	1.5 marks
	Broadcast address	192.168.10.127	192.168.10.191	192.168.10.255	1.5 marks

2(b)	Information Technology computer lab - 6 Host machine AL computer lab - 2 Host machine Language lab - 31 Host machine	3 marks

2(c)		3 marks
3(a)	**Ecomical issues** - as the computer aided production is increasing in the world the job opportunities are decreasing. This has become an ecomical issue etc... **environmental issues** –release of raw material used in computer aided production as pollutants to the environment has caused in increasing various diseases among people living near those factories etc…	4 marks

3(b)	(i). Auction(Regular, Reverse)
	        List
	        Order
	        Exchange procurement process
	        supply cooperation to buying and selling
		3 marks

3(b)	**Front –End Process –** Order vehicle styling accessories from the menu which has Vehicle ornament, search engines and cart **Back end process -** admit the order of vehicle styling accessories, Complete the bill of vehicle styling accessories, Purchase accessories and packing of vehicle styling accessories	4 marks

4

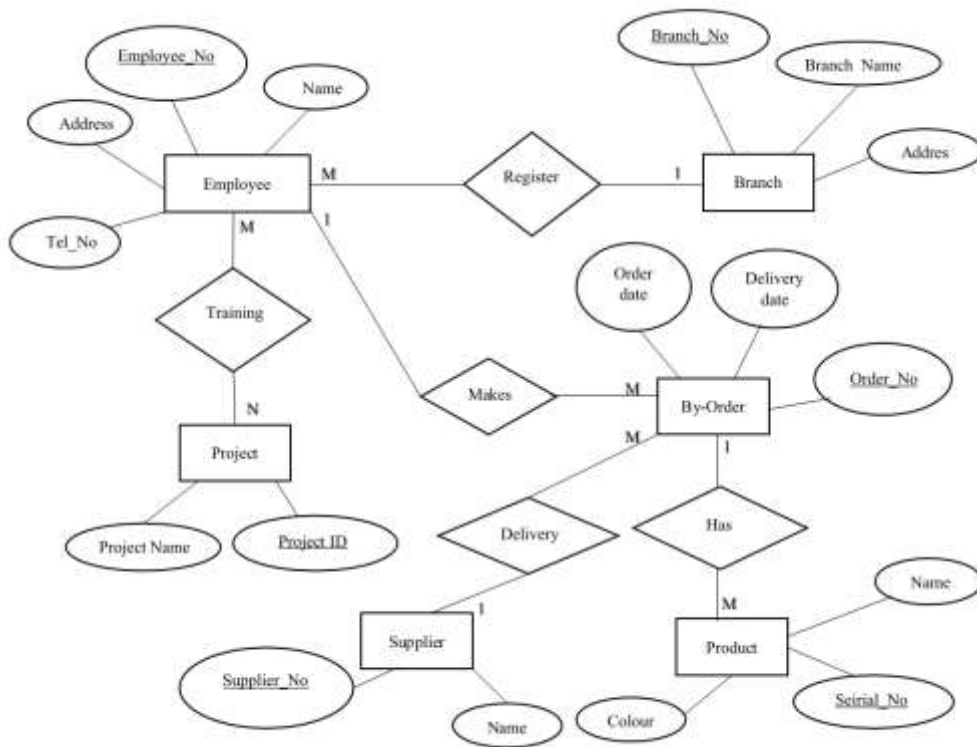|		
3(c)	Intelligent agent systems - Intelligent agent systems are used to do functions using artificial intelligence	4 marks
	distributed agent systems - distributed agent systems can operate only on individual computer systems	
	Multi-*agent system* - Multi-*agent systems* are used to solve problems that are difficult or impossible for an individual *agent*	
	Mobile agent system - A mobile agent has the unique ability to transport itself from one system in a network to another in the same network	
4(a)		6 marks


```
                        Start

          Initialize array package with item prices
                  package_count = 0

            Input card_no , Input total_package

                package_count  <  Total _package
                                              no
                      yes                          Print Card number and Total
                                                            price
  package_count = package_count +1
                               Number of Item = 0          Stop
                               Item_amount = 0
    Total price = Total price +
          item_amount
                          Read package no, Read ticket-qty
                                                    Number of Item= Number of Item+1
  Item_amount = item_amount *
          ticket-qty
                      Number     Total item of
                      of Item  <  Selected       Item_amount = Item_amount +
                                   package              price of next item
                        no                  yes
```

Introduce the correct list=1 mark

correct input = 1 mark

correct output = 1 mark

correct process = 1 mark

correct iteration = 2 marks

5

		6 marks
4(b)	```
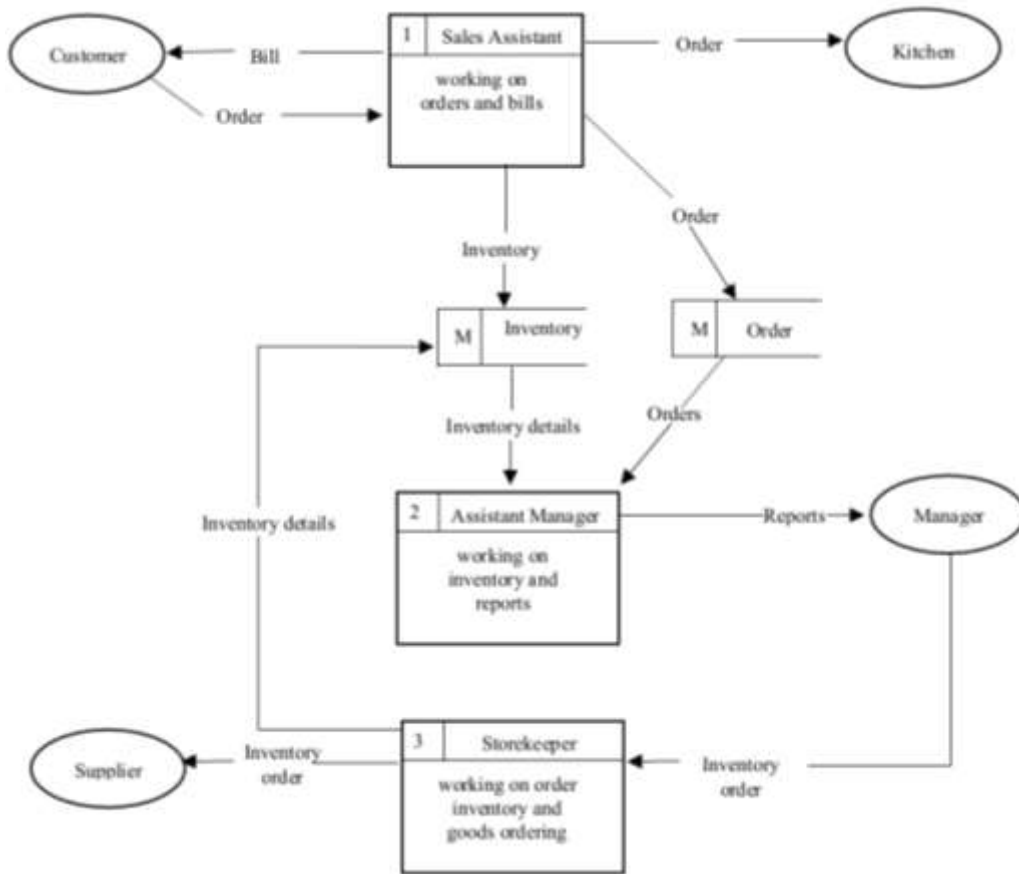def amount_item(item,ticket_qty): item_no=0 item_amount=0 while
  item_no<len(item): item_amount=item_amount+item[item_no]

    item_no=item_no+1
  item_amount=item_amount*ticket_qty
  return(item_amount)

package=[[300,150,400],[450,500,230,180],[260,300],[450,500],[100,150,450,250]]
card_no=(input('enter the Bill Number:- '))
total_packge=int(input('enter the total no of package:- '))
packge_count=0
i=0
total_amount=0
while packge_count<total_packge:
  packge_no=int(input('enter the package no'))
  ticket_qty=int(input('enter the no of ticket'))
  packge_no=packge_no-1
  item_price=amount_item(package[packge_no],ticket_qty)
  total_amount=total_amount+item_price
  packge_count=packge_count+1
file(total_amount,card_no)
print('card no:- ',card_no,' Your Total Amount IS :- ',total_amount)
```

Code for Introduce the correct list=1

Code for correct input = 1

Code for correct output = 1

Coder for correct process = 1

Code for correct iteration = 2 | |
| 4(c) | ```
def file(a,b):
  file1=open('packamount.txt','a')
  file1.write("\n"+str(a)+"     "+b)
  print(a,b)
  file1.close()
``` | 3 marks |

| 5 | | 15 marks |

Employee_No
Name
Address
Employee   M
Tel_No
M
1

Register   1   Branch

Branch_No
Branch Name
Addres

Training

N

Project

Project Name   Project ID

Makes   M   By-Order

Order date   Delivery date
Order_No

M

1

Delivery   Has

Supplier   Product

1   M

Supplier_No
Name

Colour   Name
Seirial_No

For Entities - 6 marks(Entities must be singular)
Correct relations with cardinality - 5 marks
For primary keys - 0.5x6= 3 marks
If mentioned 4 attributes for entities = 1 mark

(6)

For external entities 0.5x4=2
For data store 1.5x2 = 3
For process 1.5x3=4.5
For data flow 0.5x11=5.5

15 marks

8