



université libanaise
Faculté des sciences 1

EXAMS EXEMPLES

FIRST YEAR
Semestre-1-

I1100

MISPCE

مجلس طلاب الفرع

2022

Exercise 1 : MCQ (Multiple Choice Questions).

- 1 One bit represents three states
a. Yes b. No
- 2 On a hard disk the information is stored as magnetic fields
a. Yes b. No
- 3 The hard drive loses its contents when you turn off the computer
a. Yes b. No
- 4 The directory contains a set of files
a. Yes b. No
- 5 The arithmetic operations are performed by
a. The processor
b. The keyboard
c. The screen
- 6 The cache memory is linked directly to the
a. Processor
b. Keyboard
c. Motherboard
- 7 Windows is an operating system
a. Yes b. No
- 8 Two bytes equals
a. 4 bits b. 8 bits c. 16 bits

Exercise 2 (35Pts): Data Base

Consider the following table R:

CODE	DESCRIP	CARACTER	FRAC	PRIXU
AMI001	AMICASIL 500MG/2ML A	01	1	2000
AML001	AMLOCARD 5MG TAB	01	1	1302
AMO001	AMOXICILLIN 500 MG A	01	1	2334
AMY001	AMYLASE	10	1	2000
APO001	APO-ALLOPURINOL 300M	01	1	866
APC002	APO-ISDN 10MG TAB	01	1	1424
ASP001	ASPIRINE PROTECT 100	01	1	1220
AUG001	AUGMENTINE	10	10	42360
BAC001	BACILLOLAF 5 LITRE	M1	1	45000

Write the SQL queries that answer the following questions

1. Find all the information of R.
2. Find the information of R with CARACTER equal '01'.
3. Find without repetition the list of CARACTER.
4. Find the information of R having a DESCRIP starting by 'A'.

5. Find the information of R having DESCRIPT contains 'GM' and the CHARACTER equal 'M1'.
 6. Find the information of R having PRIXU >=20000.
 7. Find the sum of all PRIXU.

Exercise 3(10pts):

Write an algorithm that allows the user to enter two integers a and b . This algorithm must display the sum of a and b then display TRUE if a divides b and FALSE otherwise.

Exercise 4(15pts):

Write an algorithm that allows the user to enter three integers a, b, and c. This algorithm must display the largest and the smallest number among a, b and c.

Exercise 5(12Pts):

Determine which class each of the IP addresses belong to and the number of hosts per network:

- a) 128.0.1.1 b) 192.168.0.1 c) 12.1.1.1

Exercise 6(8Pts):

Give the decimal notation and determine the class of the following IP address:

00001001 00001101 00000011 00000010

Exercise 7 (10pts):

Exercise 7 (101 As). Write the HTML code that allows you to create the following web page:

Exercice 1 (10Pts) : QCM (Questions à Choix Multiple).

1. Un bit représente trois états
 - a. Oui
 - b. Non
2. Sur un disque dur les informations sont stockées en tant que champs magnétiques
 - a. Oui
 - b. non
3. Le disque dur perd son contenu lorsqu'on éteigne l'ordinateur
 - a. Oui
 - b. Non
4. Le répertoire contient un ensemble de fichiers
 - a. Oui
 - b. non
5. Les opérations arithmétiques sont réalisés par
 - a. Le processeur
 - b. Le clavier
 - c. L'écran
6. La mémoire cache est liée directement au
 - a. Au Processeur
 - b. Au clavier
 - c. A la carte mère
7. Windows est un système d'exploitation
 - a. Oui
 - b. Non
8. Deux octets valent
 - a. 4 bits
 - b. 8 bits
 - c. 16 bits

Solution :

1-b 2-a 3-b 4-a 5-a 6-a 7-a 8-c

Exercice 2 (35Pts): Base de données

Considérons le tableau R suivant :

CODE	DESCRIP	CARACTER	FRAC	PRIXU
AMI001	AMICASIL 500MG/2ML A	01	1	2000
AML001	AMLOCARD 5MG TAB	01	1	1302
AMO001	AMOXICILLIN 500 MG A	01	1	2334
AMY001	AMYLASE	10	1	2000
APO001	APO-ALLOPURINOL 300M	01	1	866
APO002	APO-ISDN 10MG TAB	01	1	1424
ASP001	ASPIRINE PROTECT 100	01	1	1220
AUG001	AUGMENTINE	10	10	42360
BAC001	BACIOLLAFL 5 LITRE	M1	1	45000

Écrire des **requêtes SQL** qui répondent aux questions suivantes

1. Trouver toutes les informations
2. Trouver les informations ayant un CARACTER égal '01'.
3. Trouver sans répétition la liste des CARACTER.
4. Trouver les informations ayant un DESCRIP commençant par la lettre 'A'.

5. Trouver les informations ayant un DESCRIPT contenant ‘GM’ et un CARACTER égal ‘M1’.
6. Trouver le nombre des informations ayant un PRIXU ≥ 20000 .
7. Trouver la somme de tous les PRIXU.

Solution :

- 1- Select * from R
- 2- Select * from R where CARACTER='01'
- 3- Select DISTINCT CARACTER from R
- 4- Select * from R where DESCRIPT like 'A%'
- 5- Select * from R where DESCRIPT like '%GM%' and CARACTER='M1'
- 6- Select count(*) from R where PRIXU>2000 (version FR)
Select * from R where PRIXU>2000 (version ENG)
- 7- Select SUM(PRIX) from R

Exercice 3(10Pts):

Écrire un algorithme qui permet à l'utilisateur de saisir deux nombres entiers a et b. Cet algorithme doit afficher la somme de a et b puis afficher VRAI si a divise b et FAUX sinon.

Solution (version FR) :

```

Debut
    Lire a,b
    S=a+b ;
    Ecrire S
    Si b%a==0 alors
        Ecrire 'VRAI'
    Sinon
        Ecrire 'FAUX'
    FinSi
Fin

```

Solution (version ENG) :

```

Begin
    Lire a,b
    S=a+b ;
    Write S
    if b%a==0 then
        Write 'TRUE'
    else
        Write 'FALSE'
    Endif
End

```

Exercice 4(15Pts):

Écrire un algorithme qui permet à l'utilisateur de saisir trois nombres entiers a, b et c. Cet algorithme doit afficher le plus grand et le plus petit nombre parmi a, b et c.

Solution (Version Fr)

```

Debut
    Lire a,b,c
    Max=a ;

```

```

Min=a ;
Si b>Max alors
    Max=b
FinSi
Si c>Max alors
    Max=c
FinSi
Si b<Min alors
    Min=b
FinSi
Si c<Min alors
    Min=c
FinSi
Ecrire Max, Min
Fin

```

Solution (Version ENG)

```

Begin
    Read a,b,c
    Max=a ;
    Min=a ;
    if b>Max then
        Max=b
    endif
    if c>Max then
        Max=c
    endif
    if b<Min then
        Min=b
    endif
    if c<Min then
        Min=c
    endif
    Write Max, Min
End

```

Exercice 5(12Pts):

Déterminez à quelle classe appartiennent chacune des adresses IP et le nombre d'hôtes par réseau

- a) 128.0.1.1 b) 192.168.0.1 c) 12.1.1.1

Solution

- a-Classe B nombre d'hotes $2^{16} - 2$**
- b-Classe C nombre d'hotes 254**
- c-Classe A nombre d'hotes $2^{24} - 2$**

:Exercice 6(8Pts)

Donnez la notation décimale et déterminer la classe de l'adresse IP suivant:

00001001.00001101.00000011.00000010

Solution :

9.13.3.2 Classe A

Exercice 7 (10Pts):

Ecrire le code HTML qui permet de créer la page web suivante:



Solution version 1 :

```
<HTML>
<BODY>
<CENTER>
<FONT SIZE=7>M</FONT>
<FONT SIZE=6>O</FONT>
<FONT SIZE=5>H</FONT>
<FONT SIZE=4>A</FONT>
<FONT SIZE=4>M</FONT>
<FONT SIZE=3>A</FONT>
<FONT SIZE=2>D</FONT>
</CENTER>
</BODY>
</HTML>
```

Solution version 2 :

```
<HTML>
<BODY>
<CENTER>
<table>
<tr>
<td><h1>M</h1></td>
<td><h2>O</h2></td>
<td><h3>H</h3></td>
<td><h4>A</h4></td>
<td><h4>M</h4></td>
<td><h5>A</h5></td>
<td><h6>D</h6></td>
</tr>
</table>
</CENTER>
</BODY>
</HTML>
```

Exercice 1 (10Pts) : QCM (Questions à Choix Multiple).

1. Le composant informatique le plus rapide est
 - a. RAM
 - b. cache
 - c. disque dur
2. La taille du registre peut être
 - a. 2 bits
 - b. 2 Go
 - c. 4 octets
3. Qui n'est pas considéré comme un composant de l'ordinateur ?
 - a. Levier
 - b. Clavier
 - c. Ecran
4. Le format _____ est généralement utilisé en informatique.
 - a. Base 3
 - b. Decimal
 - c. hexadecimal.
5. Le mot octal représente un format en
 - a. Base 8
 - b. Base 16
 - c. Base 2
6. Un « BUS » informatique est composée de _____ ?
 - a. Cache mémoire
 - b. Clavier
 - c. Ensemble de lignes parallèles
7. RAM signifie _____ ?
 - a. Readily Available Memory
 - b. Read And more Memory
 - c. Random Access Memory
8. Dans un seul octet, combien de bits y aura-t-il ?
 - a. 8
 - b. 16
 - c. 4
9. Le processeur n'effectue pas l'opération _____
 - a. De transfert de données.
 - b. Opération logique
 - c. Opération arithmétique
10. Le disque dur est une mémoire
 - a. Principale
 - b. Secondaire
 - c. Auxiliaire

Exercice 2 (35Pts) : Base de données

Considérons le tableau R suivant :

ADMI	CARACT	SERIAL	LIGNE	CODE	DESCRIP	CODF
02111185	M	34	1	DEX017	DEXTROSE 5% 500 ML	DEX017
02111185	M	34	2	123600	123 COLD Tablet	123600
051000082	E	97	1	43235	GASTROSCOPE	43235
051000082	L	153	1	B206	Culture body fluids	B206
051000082	L	153	2	B227	Culture stool	B227
051000082	L	161	1	D501	Erythrocyte RBC count	D501

Écrire des requêtes SQL qui répondent aux questions suivantes

1. Trouver toutes les informations
2. Trouver les informations ayant un CARACT égal 'M'.
3. Trouver sans répétition la liste des ADMI.

4. Trouver les informations ayant un DESCRIPT contenant deuxième lettre 'E'.
 5. Trouver les informations ayant un CODE égal à CODEF.
 6. Trouver le nombre des informations ayant un LIGNE entre 5 et 10.
 7. Trouver la somme de tous les SERIAL.
 8. Trouver les informations ayant un DESCRIPT contenant CARACT.

Exercice 3(10pts) :

Écrire un algorithme qui permet à l'utilisateur de saisir trois nombres entiers a, b et c. Cet algorithme doit afficher la somme de a, b et c puis afficher « vrai » si l'un de a, b ou c est un multiple de deux autres et « faux » ailleurs.

Exercice 4(15pts):

Écrire un algorithme qui permet à l'utilisateur de saisir deux nombres entiers a et b. Cet algorithme doit afficher le reste et le quotient de division de a sur b.

Exercice 5(12Pts):

Déterminez à quelle classe appartiennent chacune des adresses IP et le nombre d'hôtes par réseau :

- a) 120.128.128.128 b) 220.1.0.127 c) 1.1.1.1

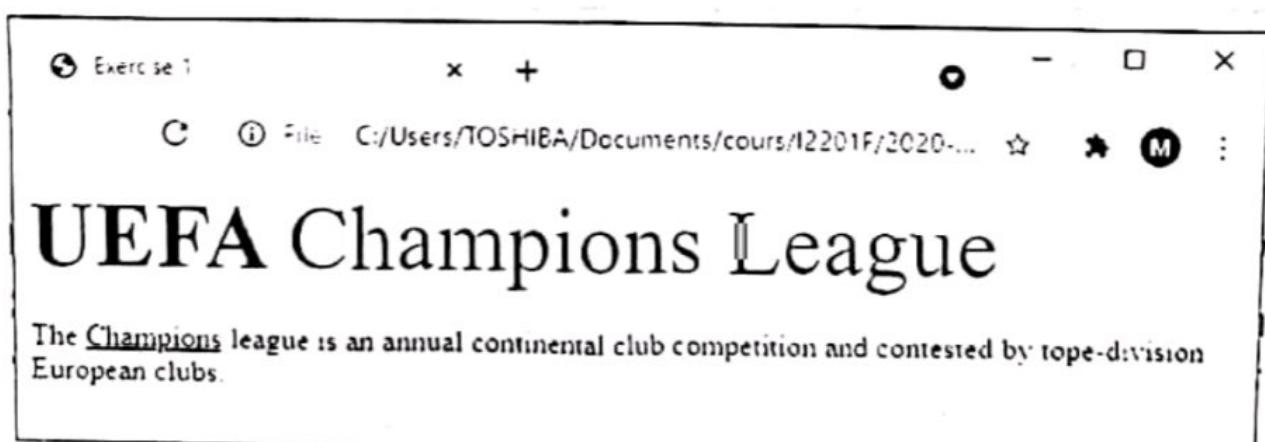
Exercice 6(8Pts):

Donnez la notation décimale et déterminer la classe de l'adresse IP suivant:

rotation décimale et déterminer la classe

Exercice 7 (10 Pts):

Ecrire le code HTML qui permet de créer la page web suivante:





I1100 FR

Introduction à l'informatique

Examen Final
21/02/2020
Durée: 120 min

Final 2019-2020

Question I (10 Pts)

QCM (Questions choix multiple).

1. L'adresse IP 191.168.121.7 appartient à la
 - a) classe A
 - b) classe B
 - c) classe C
 - d) classe D
2. Qu'est-ce qu'un pare-feu dans un réseau de sécurité ?
 - a) La limite physique du réseau
 - b) Un système d'exploitation du réseau informatique
 - c) Un logiciel conçu pour empêcher tout accès non autorisé au LAN
 - d) Tout ce qui précède
3. Combien de bits sont réservés aux hôtes dans une adresse IP de classe C ?
 - a) 4 bits
 - b) 8 bits
 - c) 16 bits
 - d) 32 bits
4. Quel est le bon code HTML pour insérer une image ?
 - a) ...
 - b) <Image src="img.jpeg" />
 - c)
 - d) <Image href="img.jpeg" />...</Image>
5. Quel est le schéma html correct ?
 - a) <body><p>Texte</body></p>
 - b) <p><body>Texte</body></p>
 - c) <body><p>Texte</p></body>
 - d) Tout ce qui précède
6. Quel est le code HTML correct pour insérer un lien ?
 - a) page
 - b)
 - c) page
 - d)
7. Un logiciel est :
 - a) un ensemble de programmes liés
 - b) liste de règles
 - c) ensemble d'instructions
 - d) Aucune de ces réponses
8. Un virus est :
 - a) un programme
 - b) un algorithme
 - c) un fichier texte
 - d) aucune de ces réponses
9. Un port d'ordinateur est :
 - a) Construction logique
 - b) Construction physique
 - c) Construction mécanique
 - d) Aucune de ces réponses
10. HTML signifie :
 - a) Hyper Text Markup Language
 - b) Hyperlinks Tabular Markup Language
 - c) Hyper Tabular Markup Language
 - d) Hyperlinks Text Markup Language

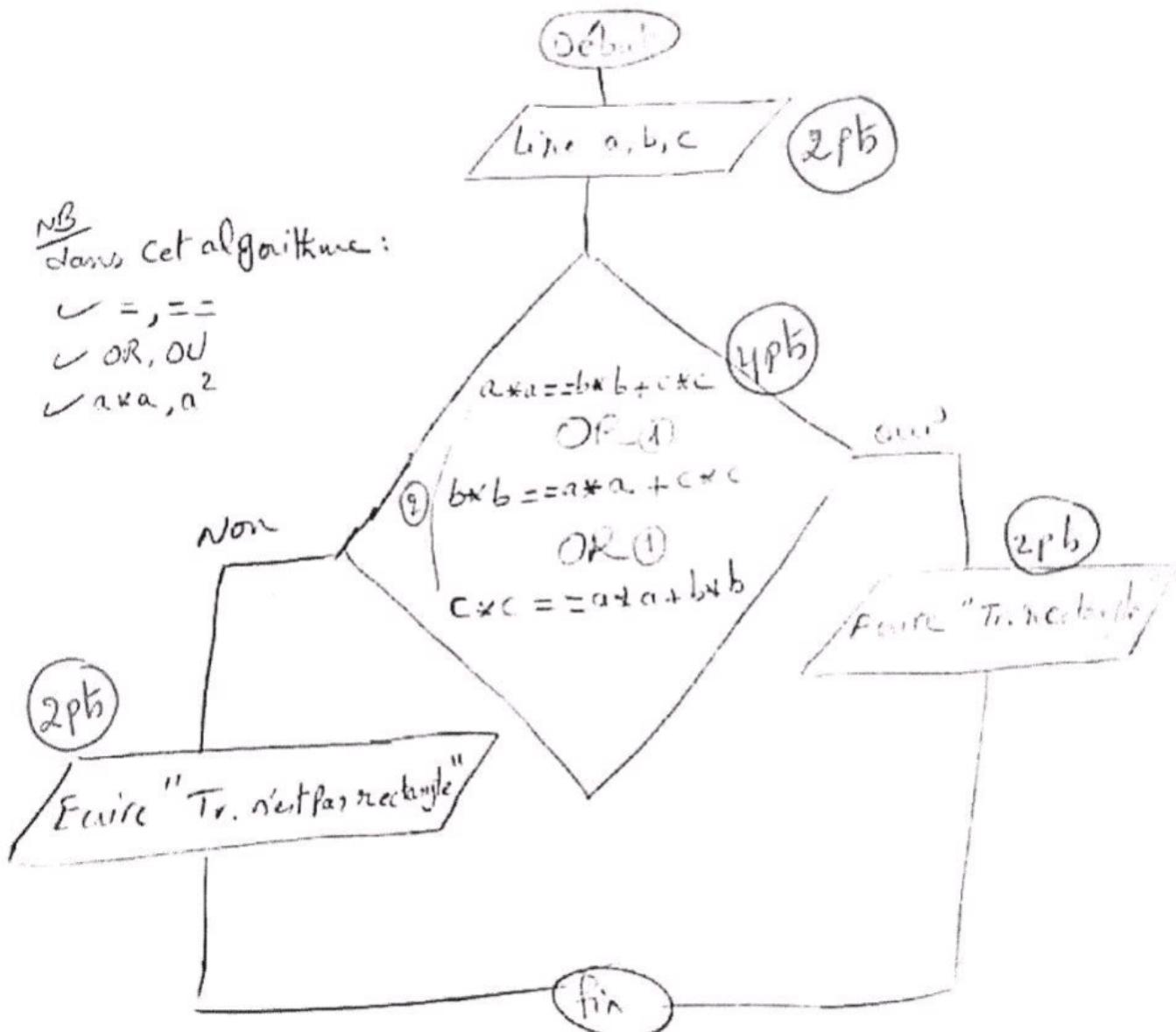
10th chapter response

Veuillez écrire vos réponses dans le tableau.

1	2	3	4	5	6	7	8	9	10
b	c	b	c	c	c	a	a	a	a

Question 2 (10 pts)

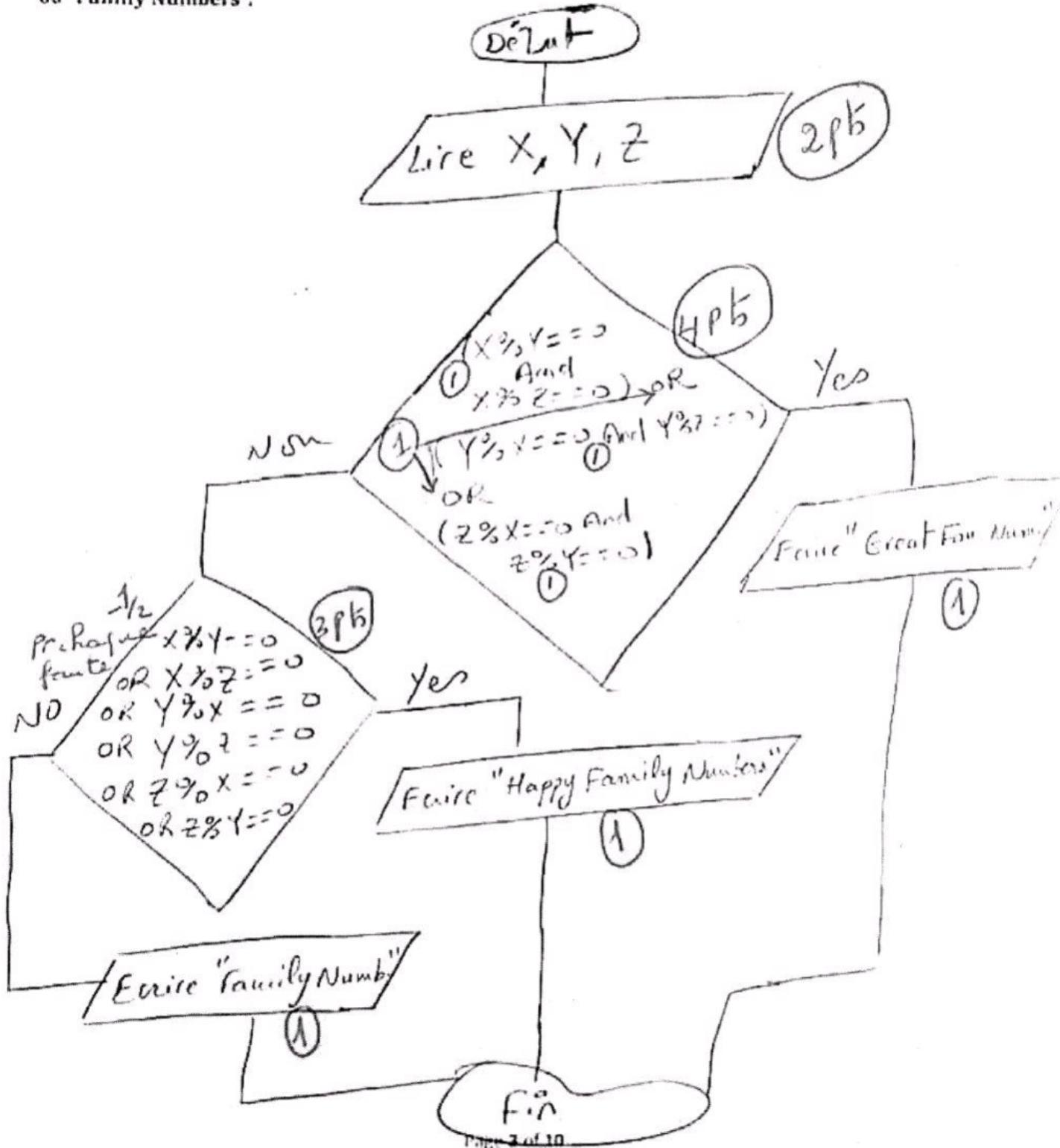
Écrire un algorithme (organigramme ou pseudo-code) qui permet à l'utilisateur de saisir la longueur des trois côtés d'un triangle et détermine si le triangle est un triangle rectangle ou non (en utilisant le théorème de Pythagore).



Question 3 (12 pts)

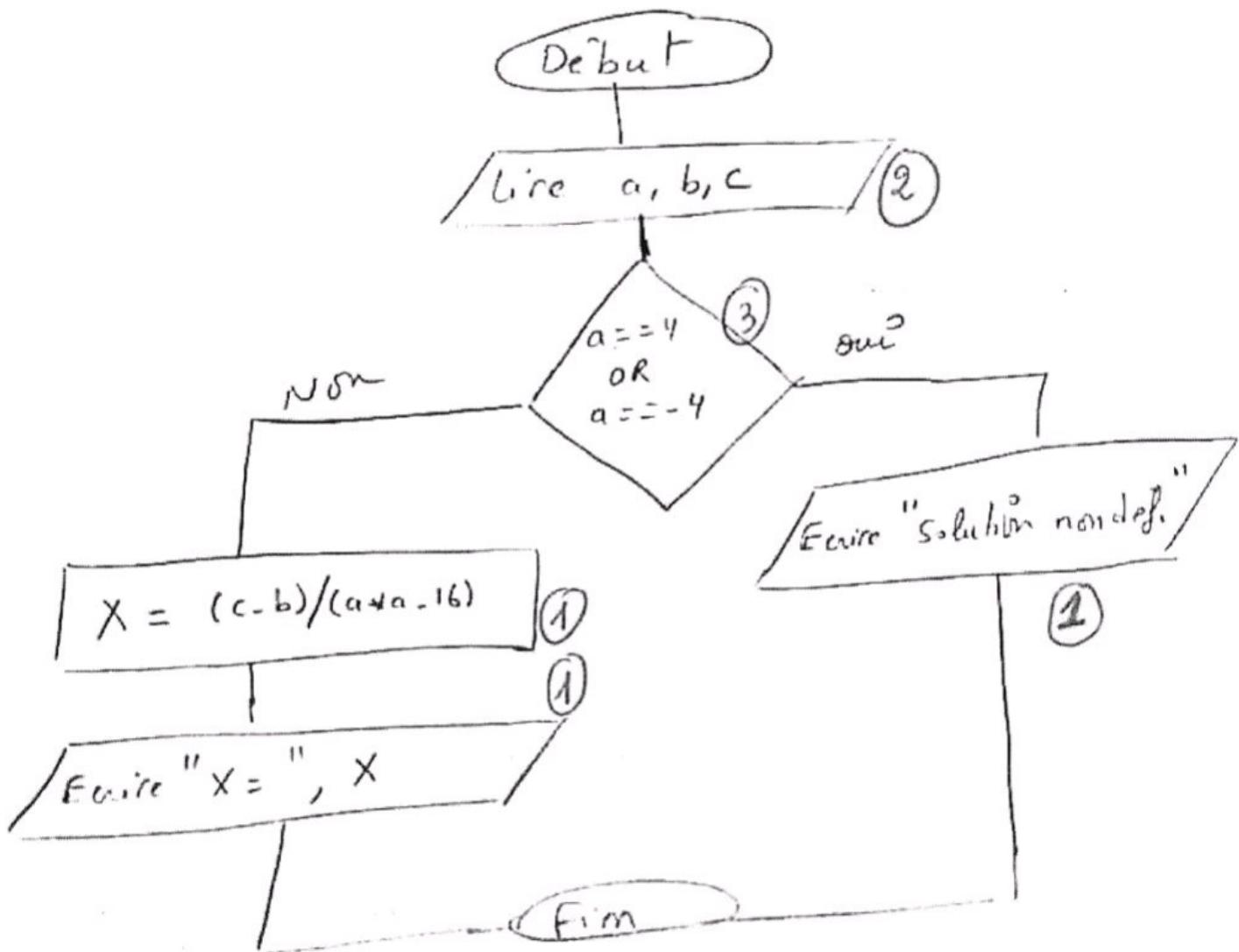
Trois numéros sont nommés "Great Family Numbers" si au moins l'un de ces numéros est multiple des deux autres numéros. Sinon, ils sont nommés "Happy Family Numbers" si au moins l'un de ces numéros est multiple de l'un des autres. Sinon, ils sont nommés "Family Numbers".

Écrire un algorithme (organigramme ou pseudo-code) qui permet à l'utilisateur de saisir trois nombres X, Y et Z, puis il indique si ces numéros sont des "Great Family Numbers", "Happy Family Numbers", ou "Family Numbers".



Question 4 (8 Pts)

Écrire un algorithme (organigramme ou pseudo-code) qui demande à l'utilisateur de saisir trois nombres a, b et c et trouve la solution de l'équation $(a^2 - 16) * X + b - c = 0$ (il faut prendre en compte le cas où $a^2 - 16 = 0$, alors nous devons afficher le message "Solution non définie").



Question 5 (14 Pts)

Écrire le code HTML qui fournit la page Web suivante. Notez que si nous cliquons sur le texte www.W3Schools.com à la fin de la page, nous devons ouvrir le site Web www.W3Schools.com.

About W3Schools

What is W3Schools?

W3Schools is a web developers site, with tutorials and references on web development languages such as **HTML, JavaScript, PHP, SQL, Python, jQuery, Java...** covering most aspects of web programming.

Easy Learning

- W3Schools has focus on simplicity.
- W3Schools practice easy and straight-forward learning.

Demographics

Origin	Percent
Asia	38 %
Americas	30 %
Europe	27 %
Africa	3 %
Oceania	2%

For more details, please visit the W3Schools page: www.W3Schools.com

```
<html>
<head> ... </head>
<body>
<h1> About W3 Schools </h1>
<h2> What in W3 schools </h2>
W3 Schools is... <b> HTML </b>; <i> Java Script </i>;
PHP; ... programming.
<h2> Easy Learning </h2>
<ul>
<li> W3 schools ...
<li> W3 schools ...
<h3>
<h2> Demographics </h2>
<table border=3>
<tr> <td><b> origin </b></td> <td><b> Percent </b></td><td>
<tr> <td> Asia </td> <td> 38% </td> <td>
<tr> <td> Oceania </td> <td> 2% </td> <td>
</table>
For more details, please visit the W3 schools page:
<a href="http://www.W3Schools.com">www.W3schools.com</a>
</html>
```

3. Écrire une requête SQL pour obtenir toutes les informations des clients dont la ville commence par la lettre «L».

```
Select *  
from clients  
where ville like "L%"
```

4. Écrire une requête SQL pour trouver le nom du client et la ville où le montant de la commande est supérieur à 2000 et le numéro de commande est inférieur à 2010.

```
Select nom_du_client, ville  
from clients  
where Montant > 2000 And numero_de_commande <  
2010
```

5. Écrire une requête SQL pour trouver le nombre de clients ayant la lettre O dans leur nom ou qui vivent en United Kingdom ou en France.

```
Select count(numero_de_commande)  
from clients  
where (nom_du_client like "%O%") OR  
(Pays = 'United Kingdom' OR ville = 'France')
```

→ Tâche suivante

3. Écrire une requête SQL pour obtenir toutes les informations des clients dont la ville commence par la lettre «L».

```
Select *  
from clients  
where ville like "L%"
```

Exercice 1 : QCM (Questions à Choix Multiple).

Ecrire votre réponse dans la table en bas de cette page.

- Lequel des appareils suivants nous utilisons pour se connecter à Internet?
a. Switch b. Hub c. Routeur d. Bridge
 - Lequel des éléments suivants est une topologie de réseau?
a. LAN b. MAN c. Port d. Star
 - Lequel des éléments suivants **n'est pas** un équipement de réseau?
a. Switch b. Hub c. Modem d. Disque dur
 - Le noyau est un programme qui constitue l'élément central d'un système d'exploitation?
a. Oui b. Non
 - Un logiciel disponible en téléchargement (avec son code source) et en distribution sans paiement s'appelle:
a. Adware b. Freeware c. Open Source d. Proprietary
 - Lequel des éléments suivants est une topologie de réseau?
a. Switch b. LAN c. RAM d. bus
 - Linux est un système d'exploitation
a. Oui b. Non
 - Pour un réseau MAN
a. Les ordinateurs sont connectés dans une petite zone géographique
b. Les ordinateurs sont connectés dans une zone géographique étendue
c. Les ordinateurs sont connectés dans une zone géographique plus large
d. Aucune de ces réponses
 - Dans un réseau de classe A, le masque de réseau est:
a. 255.0.0.0 b. 255.255.0.0 c. 255.255.255.0 d. 255.255.255.255
 - L'adresse IP 122.16.1.1 appartient à la classe B.
a. Oui b. Non
 - L'adresse IP 10001111.11111111.00100011.00011010 appartient à la classe:
a. A b. B c. C d. D
 - Quelle est l'abréviation de BD?
a. Banque de données
b. Collecte de données
c. Base de données
d. Gestion de données

Exercice 2 : Base de données

Considérer une base de données relationnelle stockant des informations sur les films. La base de données est constituée d'une seule table appelée **Movies** illustrée ci-dessous:

Code	Title	Year	Duration	Country
901	Vertigo	1958	128	UK
902	The Usual Suspects	1995	106	UK
903	Annie Hall	1977	93	USA
904	Avatar	2009	162	UK

Écrire des **requêtes SQL** qui répondent aux questions suivantes

1. Trouver la durée du film ayant le code 901.

2. Trouver les titres de tous les films britanniques (c.-à-d. de l'UK).

3. Trouver toutes les informations sur les films produits avant l'an 2000 ou situés dans un pays qui se termine par la lettre 'A'.

5. Trouver les titres, pays et durées des films dont le titre commence par la lettre 'J'.

6. Trouver le nombre de films produits entre 1995 et 2010 (tous deux inclus).

7. Trouver les codes des films qui ont une durée de 93 ou 100 ou 128 ou 200 et qui sont produits après l'année 1960.

8. Trouver la durée moyenne des films situés dans au Royaume-Uni (c.-à-d. UK).

Exercice 3:

Écrire un algorithme qui permet à l'utilisateur de saisir deux nombres entiers. Cet algorithme doit afficher l'entier le plus proche de la valeur 100 parmi les deux entiers donnés. Valeur de sortie 0 si les deux nombres sont égaux.

Exercice 4:

Ecrire un algorithme qui lit une température en centigrades et affiche un message approprié en fonction de l'état de la température ci-dessous:

Temp <0	alors Temps glacial
Temp 0-10	alors Temps très froid
Temp 10-20	alors Temps froid
Temp 20-30	alors Normal en Temp
Temp> 30	alors Il fait chaud



I1100 E

Introduction to Computer Science

Final Exam
05/02/2018
Duration :120 min

PART I (10Pts) : MCQ (Multiple Choices Questions).

Please write your answers in the table below.

1. An algorithm is used to prepare the writing of a computer program
 - a) True
 - b) False
2. A program is written using a :
 - a) Specification document
 - b) Programming language
 - c) Security order
3. Among the following elements, which one allows to store a value?
 - a) Constante
 - b) Variable
 - c) Expression
4. After executing the following code, what will be the final value of x ?

```
Begin
    x=2
    x=x+x
    x=x+x
End
```

 - a) 4
 - b) 8
 - c) 16
5. A LAN network can connect Brussels and London cities :
 - a) Yes
 - b) No
6. An IP address is composed of :
 - a) 6 bytes
 - b) 4 numbers, each of them is between 0 and 256
 - c) 4 numbers, each of them is between 0 and 255
7. In a class C network, the subnet- mask is :
 - a) 255.0.0.0
 - b) 255.255.0.0
 - c) 255.255.255.0
8. The writing <!-- to conserve --> identifies :
 - a) The end of code
 - b) A comment
 - c) A file
9. The writing Computer allows to write the word Computer:
 - a) in blue
 - b) in bold
 - c) in a form close to italic
10. The tag <title></title> is located between :
 - a) <body></body>
 - b)
 - c) <head></head>

Table of answers:

1	2	3	4	5	6	7	8	9	10
a	b	b	b	b	c	c	b	b	c

PART II

Exercise 1 (8 Pts)

Write an algorithm (flowchart or pseudo-code) that asks the user to enter four numbers a, b, c, and d and finds the minimum among these four numbers.

Begin

```
Int a,b,c,d,Min;
Write('Plz enter four numbers')
Read a,b,c,d;
Min=a;

If (Min<=b) then
    If (Min<=c) then
        If (d <Min) then
            Min=d;
        EndIf
    Else
        Min=c;
        If (d <Min) then
            Min=d;
        EndIf
    EndIf
Else
Min=b;
If (Min<=c) then
    If (d <Min) then
        Min=d;
    EndIf
Else
    Min=c;
    If (d <Min) then
        Min=d;
    EndIf
EndIf
EndIF
Write ("the smallest is ", Min);
End
```

Exercise 2 (6 Pts)

Write an algorithm (flowchart or pseudo-code) which allows the user to fill two numbers a and b and then displays the solution of the equation $aX + b = 0$ (we must take into account the case where $a = 0$, we display the message "Indefinite Solution").

```
Begin;
Int a,b, X;

Write ("plz enter 2 numbers a and b");
Read a,b;
If (a!=0) then
X=-b*1.0/a;
Write ("the solution of the equation is", X)
Else
Write ("indefinite solution")
End IF
End
```

Exercise 3 (6 Pts)

Write an algorithm (flowchart or pseudo-code) which allows entering the length of two adjacent sides of a parallelogram and calculates its perimeter. Then, the algorithm determines whether this parallelogram is a lozenge.

```
Begin
Int x, y, Perimeter;
Write ("Plz enter the length of two adjacent side of a parallelogram")
Read x,y;
Perimeter=2*(x+y);
Write ("the perimeter of parallelogram is", Perimeter);
If (x==y) then
    Write ("this parallelogram is a rhombus")
EndIF
End
```

Exercise 4 (15 Pts)

Consider the following relational database (DB) that stores information about the university courses. The DB consists of a single relationship (table) called R:

Code	Course Name	Hours	Type	Semester	Year
I1100	Computer Science	36	I	1	1
M1100	Algebra	36	M	2	1
M3101	Analysis	60	M	1	3

Write SQL queries that answers the following questions:

1. Find the course names of type I .

```
Select Name from R where Type="I"
```

2. Find the course names of the first semester in the first year.

```
Select Name from R where Semester=1 and year=1;
```

3. How many courses exist in the first year?

```
Select count(*) from R where year=1;
```

4. Find the codes of courses that their name begins with the letter M.

```
Select code from R where Name like "M%";
```

5. Find the total number of hours of the courses named Algebra or Analysis.

```
Select (hours) from R where CourseName = "Algebra" OR CourseName="Analysis"
```

Exercise 5 (10 Pts)

Write the HTML code that allows creating the following web page:

Lebanese University

The Lebanese University (French: Universite libanaise) is the only public institution for higher learning in Lebanon

Main Faculties:

1. The faculty of Law, political and Administrative Sciences.
2. The faculty of Sciences.

Faculty	Number of Branches
The faculty of Law, political and Administrative Sciences	4
Sciences	5

```
<!doctype html>
<html>

<body>
<h2>Lebanese University</h2>
<p>The Lebanese University (<b>French: Universite libanaise</b>)
is the only public institution for higher learning in Lebanon</p>
<h3>Main Faculties:</h3>
<ol>
    <li> The faculty of Law, political and Administrative Sciences.
    <li> The faculty of Sciences.
</ol>
<table border=2>
    <tr>
        <td>Faculty</td>
        <td>Number of Branches</td>
    </tr>
    <tr>
        <!-- or <th> is acceptable -->
        <td><B>The faculty of Law, political and Administrative Sciences</B></td>
        <td><center>4</center></td>
    </tr>
    <tr>
        <td><B>Sciences</B></td>
        <td><center>5</center></td>
    </tr>
</table>
</body>
</html>
```

Exercise 6 (9 Pts)

Determine the network class, the number of hosts per network, and the network address of each IP address:

IP Address	Class	Number of hosts per network	Network Address
192.1.1.1	C	254 (or 256 for whom they counts the 0 and 256)	192.1.1.0
191.255.250.232	B	65534 (OR 256*256 For whom they counts the 0 and 256)	191.255.0.0
30.133.255.2	A	16777214 (OR 256*256*256 For whom they counts the 0 and 256)	30.0.0.0

Exercise 7 (6 Pts)

Give the decimal notation of each IP address and determine the class and subnet-mask of the following IP addresses:

IP Address	Decimal Notation	Class	Subnet-Mask
10001001.00001111.00100011.00010010	137.15.35.18	B	255.255.0.0
11000000.10101000.00000000.00000010	192.168.0.2	C	255.255.255.0

I1100 E

1st Session

Introduction to computer.

Problem 1

Multiple Choices Questions

25 points

Question 1. The Operating System is a :

- A. System Software
- B. Application Software
- C. Utility Software
- D. Malware

Question 2. Files are Organized in:

- A. RAM
- B. Cache
- C. Directories
- D. None of the above

Question 3. Two types of Networks are :

- A. WAN and LAN
- B. WAN and DAN
- C. TAN and CAN
- D. All of the above

Question 4. Which of the following is not a file attribute?

- A. Name
- B. Extension
- C. Icon
- D. Size

Question 5. Backing up of computer data is the process of:

- A. Reversing the files stored on the hard drive
- B. Putting your computer in the back of the room
- C. Storing an extra copy of data on the hard disk
- D. Storing an extra copy on an external storage device

Question 6. A Database is used to:

- A. Store and Organize data in records
- B. Store and Organize papers
- C. Store and Organize records in files
- D. Store and Organize records in fields

Question 7. ABC Super Market has a new inventory system, what type of software is managing it?

- A. Communications Software
- B. System Software
- C. Accounting Software
- D. Database Software

Question 8. Electronic mail is best used to:

- A. Send and Receive messages over a network
- B. Send and Receive messages via the Internet
- C. Send and Receive messages via radio waves.
- D. A and B

Question 9. The Main directory is otherwise called the _____?

- A. Truck Directory
- B. C directory
- C. Root Directory
- D. LAN Directory

Question 10. The special formatting language used to create Web Pages is called:

- A. HTML
- B. COBOL
- C. Perl
- D. JAVA

Question 11. An example of an Input device is a:

- A. Digital Camera
- B. Plotter
- C. Optical Disc
- D. Monitor

Question 12. An example of an Output device is a:

- A. Scanner
- B. Plotter
- C. Tapes
- D. Software

Question 13. A computer Virus is a malicious program that affects the computer

Answers

1		6		11		16		21	
2		7		12		17		22	
3		8		13		18		23	
4		9		14		19		24	
5		10		15		20		25	

Problem 2**Conversion between numeral systems****24 points**

1- Find in base **10** the addition $(1100)_{16} + (EA2)_{16}$

2- Convert to decimal the negative number $(1101\ 1100\ 0101)_2$

3- Convert to decimal $(101.1110)_2$

4- Subtract the following relative numbers $(01111001)_2 - (11000101)_2$ on 8 bits machine

5- Calculate $(ADE)_{16} + (CCC)_{16}$

6- Calculate $(1001)_8 + (101100)_{16} + (1001010101)_2 = (\dots \dots)_{16}$

7- Convert to binary on 8 bits machine the decimal number $(-45)_{10}$

8- Give the representation in base 6 the number $(57)_5$

Problem 2**Database****6 points**

Give an entity-relationship model that best describes the database needed for managing information gathering countries and rivers as follows:

- A country is identified by its name, surface and number of inhabitants.
- A river is known by its name and length.

Each river refers to a country. Draw the ER diagram.

Problem 3**HTML****15 points**

Write the HTML code that displays the following:

List of Students

The following table summarizes the *list of students*.

Id	Student Name
112211	Samir
112233	Ahmad

I1100 E
Introduction to computer

Problem 1

Multiple Choices Questions

40 points

Question 1. Memory Management is a functionality maintained by the :

- A. Operating System
- B. File system
- C. Shell
- D. User programs

Question 2. The operating system layer is usually on the top of the following logical layer:

- A. Application
- B. Driver
- C. Hardware
- D. None of the above

Question 3. A file should have a unique name across the entire

- A. folder
- B. File system
- C. One Hard disk
- D. All the hard disks of a computer

Question 4. Which of the following is not a file attribute?

- A. Name
- B. Extension
- C. Icon
- D. Size

Question 5. The component that allows the communication with the operating system through a command line language is the:

- A. NTFS
- B. Driver
- C. File System
- D. Shell

Question 6. From a file management system view, a file is a collection of _____ on the hard disk.

- A. tracks
- B. Cylinders
- C. Blocs
- D. Sectors

Question 7. Which of the following file system is the most secure among the following choices

- A. FAT16
- B. FAT32
- C. NTFS
- D. All these file systems are equally secure

Question 8. Which of the following file systems gives the possibility to automatically solve certain disk-related errors?

- A. FAT16
- B. FAT32
- C. NTFS
- D. None of the above

Question 9. The system software that allows the boot of the computer is stored in the

- A. BIOS
- B. Hard disk
- C. Master Boot Record (MBR)
- D. RAM

Question 10. The operating system is often identified and loaded from the:

- A. BIOS
- B. Master Boot Record (MBR)
- C. ROM
- D. Firmware

Question 11. Compilation allows the translation of a:

- A. source code into machine language code
- B. machine language code into source code
- C. source code into set of instructions
- D. machine language code into set of instructions

Question 12. What is a database?

- A. a software
- B. a collection of structured information
- C. a collection of non-structured information
- D. a module to validate

Question 13. In a Database Management System the "Administrator" user:

- A. Is a normal user of the system
- B. Is an expert user of the system
- C. Is a designer user of the system
- D. Is a developer user of the system

Question 14. A file that has the extension ".exe" is :

- A. An executable file
- B. An object file
- C. A source file
- D. A text File

Question 15. The semantic analysis is apprehension of the:

- A. the vocabulary
- B. grammar
- C. the meaning
- D. the source

Question 16. _____ is a set of programs:

- A. Software
- B. Network
- C. Folder
- D. File

Question 17. The "Read" instruction is a/an :

- A. output instruction
- B. input instruction
- C. input and output instruction
- D. test instruction

Question 18. The "Display" instruction is a/an :

- A. output instruction
- B. input instruction
- C. input and output instruction
- D. test instruction

Question 19. The "if" instruction is a/an :

- A. output instruction
- B. input instruction
- C. input and output instruction
- D. test instruction

Question 20. The word "DBMS" means

- A. A File Management System
- B. A Machine Management System
- C. An Operating System
- D. A Database Management System

Question 21. In a database management system, the database is a:

- A. Folder
- B. Program
- C. File
- D. None of the above

Question 22. In a database management system, normal users can :

- A. install and maintain the system
- B. access to information in the database
- C. create application software
- D. identify information in the database

Question 23. The algorithm is:

- A. A detailed description of methods
- B. A non-detailed description of methods
- C. A programming language
- D. A data base

Question 24. A switch

- A. Send everything it receives to everyone
- B. Allows each machine to receive what it is addressed to him
- C. Ensures the connection between different networks
- D. Strengthens the wifi signal

Question 25. Choose the intruder from the following network topologies

- A. Bus
- B. Star
- C. Pyramid
- D. Ring

Question 26. The different types of networks are

- A. LAN, HAN, WAN
- B. LAN, MAN, WAN
- C. NAN, LAN, MAN
- D. LAN, MAN, VAN

Question 27. The HTTP protocol is an abbreviation of

- A. Hyper Text Transfer Protocol
- B. Hyper Text Translate Protocol
- C. Higher Text Transfer Protocol
- D. Hidden Text Transfer Protocol

Question 28. Choose the intruder

- A. Google Chrome
- B. Mozilla Firefox
- C. Internet Explorer
- D. Facebook

Question 29. To reproduce itself, in general, the WORM virus uses

- A. Chat applications
- B. Email
- C. Forums
- D. USB keys

Question 30. Basically a 'hacker' is the one who

- A. Seeks to destroy websites
- B. Creates viruses
- C. Looks for errors in code
- D. Creates software

Question 31. A firewall is a computer tool designed to

- A. Organize the data of a network
- B. Protect the data of a network
- C. Encrypt data from a network
- D. Archive data from a network

Question 32. _____ is not a social network

Question 33. The number following the number 4 in base 5 is:

Question 34. In base 8, the sum $7777 + 1$ is equal in the same base to :

Question 35. An ASCII character is encoded on :

- A. 7 bits B. 8 bits
C. 9 bits D. None of the above

Question 36. In the computer, the BIOS program (Basic Input Output System) is loaded into memory :

Question 32 In a base B, with N digits, we can represent the positive integers from 0 to

- A. 2^B B. B^{N-1}
C. $N^B - 1$ D. $B^N - 1$

Question 38 Which list of file sizes is in ascending order?

- A. 5 Gb; 5 Mb; 125 kb
B. 52 Mb; 1 Tb; 456 Gb
C. 698 byte; 687 kb; 59 Mb; 1Gb
D. 756 byte; 5 Mb; 125 kb; 5 Gb

Question 39 What information can be represented by 1 byte?

Question 40 Windows is a/an

- A. Set of video games and applications B. Small Programs
C. Operating system D. Algorithm

1		6		11		16		21		26		31		36	
2		7		12		17		22		27		32		37	
3		8		13		18		23		28		33		38	
4		9		14		19		24		29		34		39	
5		10		15		20		25		30		35		40	

Problem 2**Algorithm****15 points**

Write an algorithm (organigram or pseudo-code) that displays on the screen the following:

Box 5\$**Card 7\$**

Then it asks the user to enter the quantity to buy of each item (box and card). The algorithm should calculate the total amount to pay. If the total is greater than 100\$, the user will get a discount of 12%. Calculate and display the deducted amount and the new total amount to pay.

Problem 3**HTML****15 points**

Write the HTML code that displays the following:

Definition of Computer Science

Computer science is the study of the theory, experimentation, and engineering that form the basis for the design and use of computers.

Devices in a Computer

VGA	Screen	Ethernet Card
Hard Disk	RAM	ROM

Good luck!

Note: Calculators and documents are not allowed.

PART I (9 Pts): MCQ (Multiple Choice Questions)

1. The register is a memory
 - a. Yes b. No
2. The cache memory is faster than the main memory
 - a. Yes b. No
3. A compiler converts the code of a program into a
 - a. Source Code
 - b. Object Code
 - c. Executable Code
4. We want to create a network in a building. The most appropriate type of network is
 - a. LAN
 - b. WAN
 - c. MAN
5. In what topology, a failed computer does not disturb the rest of the network?
 - a. Topology in bus
 - b. Ring Topology
 - c. Star Topology
6. What is a computer program?
 - a. a list of orders that tell a computer what to do.
 - b. Is a list of messages written in binary
 - c. Is a writing list is on the screen
7. Is an output device?
 - a. A keyboard
 - b. A printer
 - c. A motherboard
8. A file is a
 - a. Set of images
 - b. Set of characters
 - c. Set of bytes
9. Is a role of an operating system?
 - a. Performing arithmetic processing
 - b. Creating a file

PART II

Exercise 1 (24 Pts):

- What is the base-16 value of the number $(101111000110101001)_2$?
- Convert to binary $(A00A)_{16}$
- What is the base 8 value of the number $(10001)_8$?
- Convert to binary $(10012)_8$
- What is the value in base 10 $(1000100.01)_2$?
- What is the representation of the number -28 in base 2 on a machine of 16 bits?

Exercise 2 (6 Pts): Write a flow chart that reads the radius R of a circle and displays the perimeter $P = 2 * 3.14 * R$ and the surface $S = 3.14 * R^2$

Exercise 3 (8 Pts): Write a flowchart that reads three numbers a, b, and c then reads an integer x and displays the word 'exists' in the case where x is equal to one of a, b or c and displays "does not exist" elsewhere.

Exercise 4 (7 Pts): Write an algorithm that reads three grades and displays the sum of these three grades and their mean.

Exercise 5 (6 Pts): Draw an entity-relationship model corresponding to the following scenario:

In a supermarket a customer buys items.

The client is identified by: number, surname, first name, date of birth, address, telephone
The object is identified by: code, title, price.

Exercise 6 (10 Pts): Write the HTML code that allows to create the following web page:

