

PART SIX PRACTICAL OF PC

PRACTICAL OF PC SET 2 (Official HND 2021)

REPUBLIQUE DU CAMEROUN
Paix-Travail-Patrie

REPUBLIC OF CAMEROON
Peace-Work-Fatherland

MINISTRE DE L'ENSEIGNEMENT SUPERIEUR
COMMISSION NATIONALE D'ORGANISATION
DES EXAMENS

MINISTRY OF HIGHER EDUCATION
NATIONAL COMMISSION FOR THE ORGANISATION
OF THE EXAMS

NATIONAL EXAM OF HIGHER NATIONAL DIPLOMA- 2022 SESSION

Specialty/Option: *Software Engineering*

Paper: *Practice of Computer*

Duration: *5 hours*

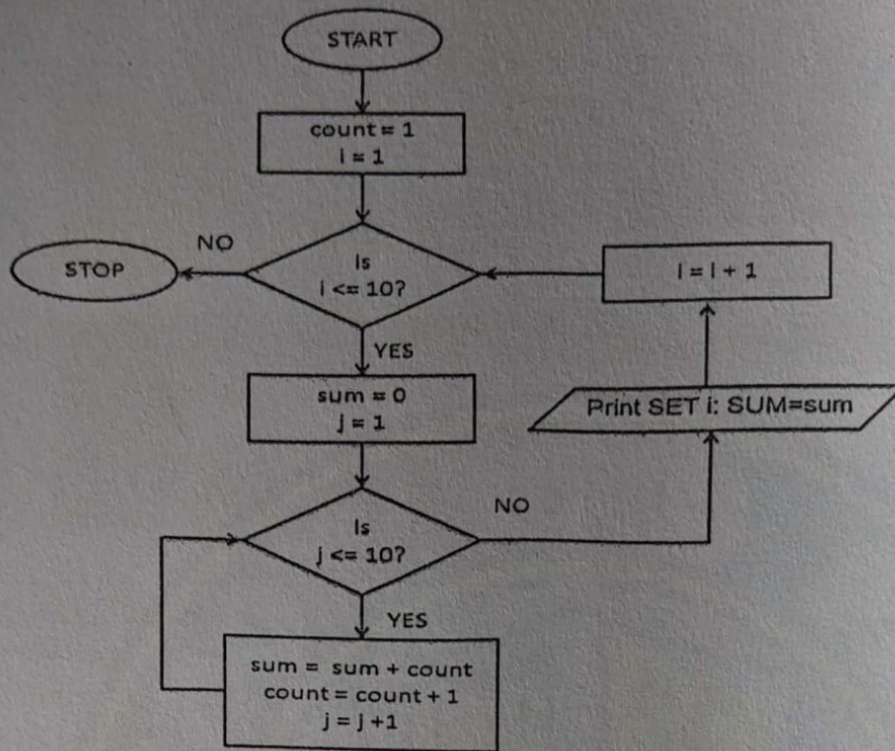
Credit Value: *08*

/50 marks

SECTION A: ALGORITHM AND PROGRAMMING

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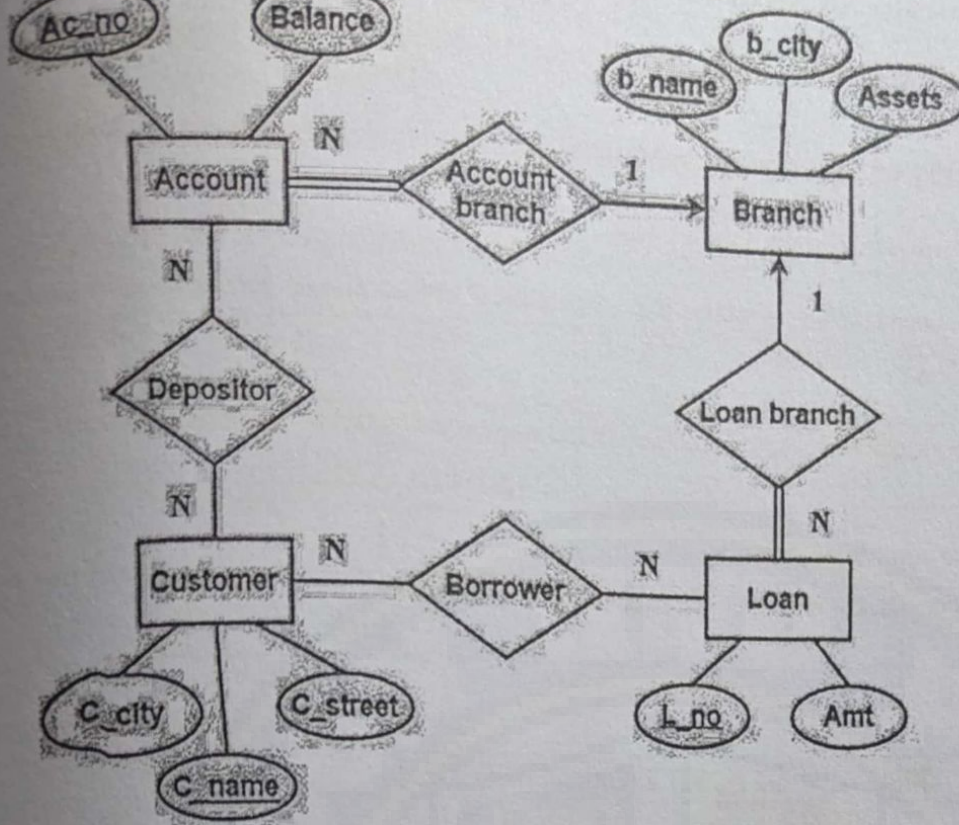
During the last academic year, a teacher sends a student to the board to draw the following diagram:



- Q1. List all the variables used and their corresponding data types (4 marks)
- Q2. Which loop can we used to convert this flowchart to code? Justify your choice (4 marks)
- Q3. List two software's which can be used to write down the corresponding C++ code of this flowchart (2 marks)
- Q4. Using the software install in your computer, write down the corresponding C++ program (20 marks)
- Q5. Explain what the program is doing (5 marks)
- Q6. Modify the program in such a way that he prints the sums from the highest to the lowest (15 marks)

SECTION B: DATABASE DEVELOPMENT AND ADMINISTRATION (MYSQL) /20 marks

To design an information system of a bank we have the following diagram:



- 1- What is this representing? Describe it with all his components (4 marks)
- 2- Give the equivalent relational model of this figure (5 marks)
- 3- Using appropriate software to create a database entitled BANK and create all the tables and populate each with 3 data's (8 marks)
- 4- Write a query to select all customer having 3 accounts and which have borrow 500000 FCFA in your database and you screenshot it and save with the name HND2022 in a folder HND2022 (3 marks)

SECTION C: WEB DESIGN

/15 marks

An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself. For example, 371 is an Armstrong number since $3^3 + 7^3 + 1^3 = 371$.

1. Write a PHP function to check if a given number entered by the user have 3 digits (3 marks)
2. Write the function to check if a given number of 3 digits entered by the user is an Armstrong number or not. (5 marks)
3. Write a complete HTML page with an input text and a button using the question; where the user will input a value (n) in the text area and press the submit button to generate the (n) first Armstrong numbers. Note that

(7 marks)

SECTION D: NETWORKING

/15 marks

You have gotten a job as a networking expert to network a newly created company having 08 computers.

- Q1. Which additional hardware do we need? Briefly describe each (3 marks)
- Q2. Setup peer to peer network between the 08 computers and assign static IP address on each computer (5 marks)
- Q3. Explain what is a static IP address? (2 marks)
- Q4. After two months the company acquire two laptops computers and wanted to connect to the existing network through wireless (5 marks)
- 1- Which hardware can we used? Briefly describe it?
 - 2- Connect the laptops to the networks

PRACTICAL OF PC SET 2 (Official HND 2021)

NATIONAL EXAM OF HIGHER NATIONAL DIPLOMA - 2021 SESSION

Specialty/Option: Software Engineering

Subject: Practice of Computer

Duration: 5 hours

Credit Value: 08

SECTION A: ALGORITHM AND PROGRAMMING

In number theory, a perfect number is a positive integer that is equal to the sum of its proper positive divisors, that is, the sum of its positive divisors excluding the number itself (also known as its aliquot sum). Equivalently, a perfect number is a number that is half the sum of all of its positive divisors (including itself). For example, the first perfect number is 6. Its proper divisors are 1,2 and 3, and $1+2+3=6$. Equivalently, the number 6 is equal to half the sum of all its positive divisors $(1+2+3+6)/2=6$.

Using the appropriate software in the computer assigned to you; answer the following questions:

- Q1. write a C function is perfect (int n) which check is perfect or not. (10 marks)
- Q2. Write a C program called Perfect, prompting the user to enter a positive number and use the function is Perfect (int n) to check and display whether the number is perfect or not. (20 marks)

Note: your program should repeatedly prompt the user to enter a positive number if it is not the case.

SECTION B: DATABASE DEVELOPMENT AND ADMINISTRATION(MYSQL) /20marks

A business company is having the following tables on their database:

Sample Table-Worker

WORKER-ID	FIRST-NAME	LAST-NAME	SALARY	JOINING_DATE	DEPARMENT
001	Monika	Anora	100000	2014-02-20 09:00:00	HR
002	Niharika	Verma	80000	2014-06-11 09:00:00	Admin
003	Vishal	Singhal	300000	2014-02-20 09:00:00	HR

Sample Table-Bonus

WORKER_REF_ID	BONUS_DATE	BONUS_AMOUNT
1	2021-02-20 00:00:00	5000
2	2021-06-11 00:00:00	3000
3	2021-02-20 00:00:00	4000

Task 1: using the appropriate software, create the database of the company entitled "COMP".

Task 2: create the table "Worker" and "Bonus" including all their columns.

Task 3: insert all Data's found on "Worker" and "Bonus" tables.

Task 4: create a SQL query to fetch "FIRST_NAME," "DEPARMENT"," BONUS_AMOUNT"

From "worker" and "Bonus" table.

SECTION C: WEB DESIGN

A prime number (or a prime) is a natural number greater than 1 that cannot be formed by multiplying two smaller natural numbers. A natural number greater 1 that is not prime called a composite number. For example,5 is prime because the only ways of writing it as a product, 1*5 or 5*1, involve 5 itself. However, 6 is composite because it is the product of two numbers (2*3) that are both smaller than 6.

1. What do we need to write and run PHP code (2 marks)?
2. Using the appropriate software, write a PHP or JavaScript function taking as parameter a number and check if the number is a prime number or not. (5 marks)
3. Given the figure bellow

LIST OF PRIME NUMBERS

Enter a Number:

DISPLAY

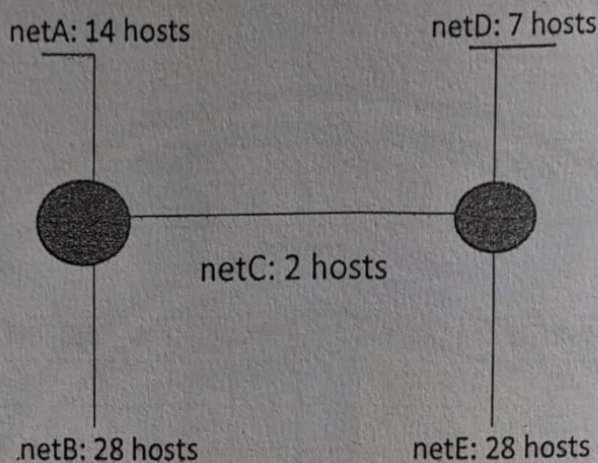
Write now a dynamic web using the previous function to display the n first prime numbers where n is entered by the user using the HTML from as on the figure. (8 marks)

SECTION D: NETWORKING

/15 marks

You have gotten a job as a networking expert to network a newly create company having 5 department and the manager gives to you the following design.

Figure 3



The manager also said that the IP address given to him by the internet network provider is 204.15.5.0/24.

- 1- list all the tools needed to implement this design (3 marks)
- 2- which types of cables will be needed? Describe each (2 marks)
- 3- explain the process of sub-netting and precise the range of each (5 marks)
- 4- using appropriate software installed in your computer, design the entire network. (5 marks)

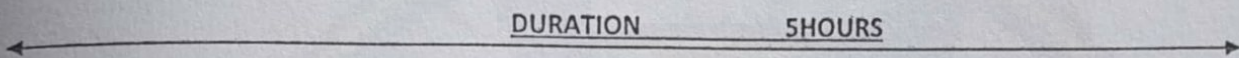
note: represent just two computers in each sub-network and make sur that tou assign the correct IP address to each sub-network.

PRACTICAL OF PC SET 3
HIGHER NATIONAL DIPLOMA (HND)

JUNE 2021 SESSION

Examination Date:

OPTION	SOFTWARE ENGINEERING
SPECIALTY	COMPUTER ENGINEERING
COURSE TITLE	PRACTICE OF COMPUTER
TYPE OF EXAMINATION	WRITTEN
CREDIT VALUE	8



Instructions: Answer all questions. You are authorized to use only non-programmable calculator.

SECTION A: ALGORITHM AND PROGRAMMING. (50marks)

IV. DATA STRUCTURES AND ALGORITHMS AND STRUCTURED PROGRAMMING (25 MARKS)

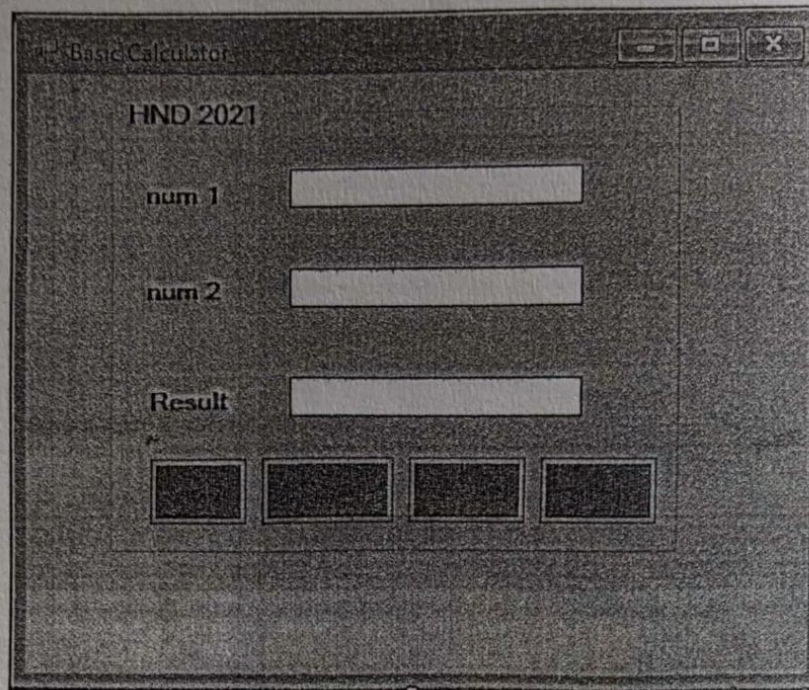
1. A system is design to receive and manipulate range of numbers based on the user's need. This system starts by asking the user how many numbers it would work with. After getting this number, the system gives the user the opportunity to enter these numbers after which the following operations are done on the numbers.
 - a. Prints the numbers entered
 - b. Prints the number in reverse order
 - c. Calculate the sum of all the numbers and print the sum
 - d. Calculate the average and print the average
 - e. Sort the numbers and print the output in ascending order
 - f. Scan through the numbers and produce the maximum number

Using c programming language, implement this system to perform all the above 5 listed system requirements.

V. EVENT PROGRAMMING (25 MARKS)

1. Consider the figure of a basic calculator below. Using visual studio IDE and using either **c#** or **visual basic**, design the windows form app and make sure each time a user enters num 1 and

num 2 and press either Add, or Subtract, or Divide, or Multiply, the result of the operation is seen in the result textbox.



VI. Section B: Development of Database System and Administration (20 marks)

Create a database called employee_management in your MySQL database. In that database, create a table called employee_table with the following fields as shown below. Use the table to answer the following questions.

emp_id	emp_name	job_name	emp_id	hire_date	salary
68319	KAYLING	PRESIDENT		1991-11-18	6000
66928	BLAZE	MANAGER	68319	1991-05-01	2750
67832	CLARE	MANAGER	68319	1991-06-09	2550
65646	JONAS	MANAGER	68319	1991-04-02	2957
64989	ADELYN	SALESMAN	66928	1991-02-20	1700
65271	WADE	SALESMAN	66928	1991-02-22	1350
66564	MADDEN	SALESMAN	66928	1991-09-28	1350
68454	TUCKER	SALESMAN	66928	1991-09-08	1600
68736	ADNRES	CLERK	67858	1997-05-23	1200
69000	JULIUS	CLERK	66928	1991-12-03	1050
69324	MARKER	CLERK	67832	1992-01-23	1400
67858	SCARLET	ANALYST	65646	1997-04-19	3100
69062	FRANK	ANALYST	65646	1991-12-03	3100
63679	SANDRINE	CLERK	69062	1990-12-18	900

ASK:

1. Write a query in SQL to display all the information of the employees.
2. Write a query in SQL to find the salaries of all employees.
3. Write a query in SQL to produce the output of employees name and job name as a format of "Employee & Job"
4. Write a query in SQL to display the average salaries of all the employees who works as ANALYST.
5. Write a query in SQL to display the details of the employee BLAZE.
6. Write a query in SQL to list the employees whose salaries are less than 3500.

SECTION C: WEB DESIGN (15 MARKS)

1. As a web developer, you want to validate a form by adding some JavaScript functionalities. The form contains the following fields: name field, password field and retype password field.

The operation of the form goes thus: if you leave any of the field empty, an alert message will pop up saying: **"field cannot be empty"**.

If the password length is not greater 6, an alert message pops up and says **"Your password cannot be less than 6 characters"**

If you type a different password inside the retyped password field, an alert pops up saying **"Password must be same"**

The text on the button should be **validate**.

SECTION D: NETWORKING (15 MARKS)

Using well-labeled diagrams , demonstrate the the internal arrangement of the following cables used in computer networking: **INDICATING THE PIN POSITIONS AND COLOR CODES**

- i) Straight-Through Ethernet Cable . (4mks)
- ii) Give a pair of devices which can be connected using a straight-through cable. (2mks)
- iii) Crossover Ethernet cable (4mks)
- iv) Give a pair of devices which can be connected using a Crossover Ethernet cable. (2mks)
- v) Rollover Ethernet cable . (3mks)

PRACTICAL OF PC SET 4
Higher National Diploma Exam-June-July 2020 Session

Speciality: SOFTWARE ENGINEERING (SM)

Paper: **PRACTICE OF COMPUTER**

Nature of the paper: Practical

Coefficient : 3

Duration : 5hrs

SECTION A: PROGRAMMING. (50marks)

students are required to have the following software installed in their computers:

- Code block, for C and C++ programing
- Visual Studio, for Event programming
- Netbeans or Eclipse or JBlue for Java
- Wamp or Xampp for database

I- C- programming (15mks)

Consider the sequence $S_n = \sum_{i=1}^n (x^i) = x^1 + x^2 + x^3 + \dots + x^n$

- i. Write a C code that allows the user to input a real value $0 < x < 1$, calculate the value of $n=N$ such that $S_n \leq 1$. N and S_N will be displayed. (5mks)
- ii. An error message (ERROR: the value of x is too small) that permits the user to know that the value of x was too small which would permit the program to enter an infinite loop was entered would also be printed. This would occur if the program attempts to do more than 50 iterations. (5mks)
- iii. Define an array called sum and put all the values of S_i , $1 \leq i \leq N$. The program would print out the values of S_i both vertically and horizontally. (5mks)
- iv. Write another set of codes on the same program that deletes the kth value in the array where $k < N$ and display the terms of the table where $k < N$. (5mks)

II- Object oriented programming (20mks)

Write a program that defines a shape class with a constructor that gives value to width and height. Then define two sub-classes triangle and rectangle, that calculate the area of the shape area (). In the main, define two variables a triangle and a rectangle and then call the *area()* function in this two variables. Clearly show how inheritance is exhibited by sufficiently commenting the program. Use either C++ or Java.

III- Event programming (15mks)

1- Create in ASP.NET a page as below:

Login	:	<input type="text"/>
Password	:	<input type="password"/>
Country	:	Macedonia ▼
<input type="button" value="Login"/>	:	<input type="button" value="Reset"/>

- a. Create another page and rename it as example1.aspx (5mks)
- b. When the user clicks on Login button in (a), the page should redirect to example1.aspx. (10mks)

NB: The Reset button is used to clear the Login and Password text fields.

SECTION B: Database Development and Administration (MySQL). (20marks)

Sectors (Sec#, sec_name, city)

Employees (Emp#, Emp_name, Qualification, Salary, Sec#*)

Projects (Project#, Project_name, Budget)

Participation (Emp#*, Project#*, Function)

Following the relational schema provided above where the attributes underlined are primary keys and those with the symbol (*) denotes foreign keys, consider developing a relational database using MySQL

PRACTICAL OF PC SET 5

NATIONAL EXAM OF HIGHER NATIONAL DIPLOMA-2020 SESSION

Specialty option: SM

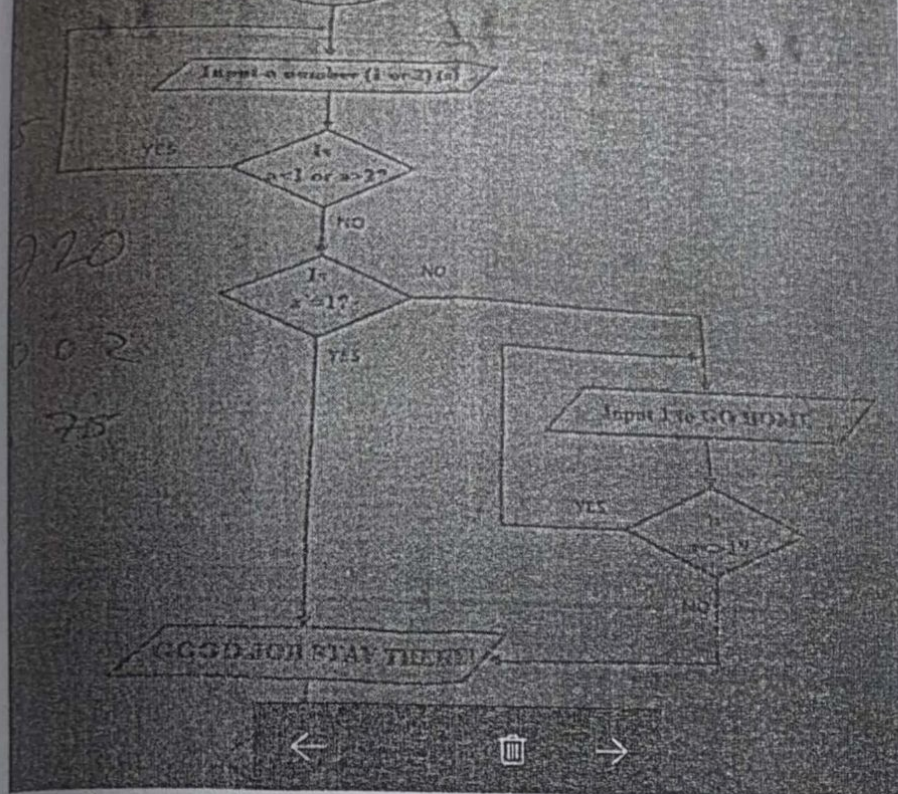
Paper: practice of computer

Credit value: 08

SECTION A: ALGORITHM AND PROGRAMMING

During the confinement holidays your lecturer sends to you the following diagram showing what a person should answer to respect government instructions about COVID-19

970
002
75



- Q1. What type of diagram is this? (2 marks)
- Q2. List all the variables used and their corresponding data types. (2 marks)
- Q3. Which loop can we use to convert this data to code? justify your choice. (2 marks)
- Q4. From the disk provided, install in your computer the appropriate software to write a C code. (5 marks)
- Q5. Create a folder called PRACTICALS on your desktop and write down the corresponding C program and save in the folder with the name PRACTICAL1. (20 marks)
- Q6. Explain what the program is doing.
- Q7. Create another new program called PRACTICAL2 displaying in the menu form as follows:
 1====>SOCIAL DISTANCING
 2====>Temperature check
 3====>Exit

Where a refers to question 1 program, 2 will prompt the user to enter a temperature and display if you are sick or not, and 3 is to exit to the program.

Note: if your temperature is above 36.5C you are sick.

SECTION A: DATABASE DEVELOPMENT AND ADMINISTRATION (MYSQL) (20marks)

The DBMS of a school is having the following requirements
 It made up of 3 tales, Students, Course and StudentCourse
 Student table includes column Stud_id, Stud_Name, Stud_DateOfBirth , Stud_PlaceOfBirth, Stud_Tel, Stud_address, Course table includes columns Course_id, Course_title, Course_Code, Course_Credit and StudentCourse table include Stud_id, Course_id, mark.

- Task 1: using the appropriate software, create the database of the school entitled "SCHOOL "
- Task 2: create the tables "Students", "Course" and "StudentCourse" including all their columns.
- Task 3: insert into student the following data's:

Id	names	Date of birth	Place of birth	Tel	address
----	-------	---------------	----------------	-----	---------

1	Messi leonel	19/02/2015	chelsea	0034568	London
2	Coby bryan	09/05/2006	manchester	0034598	London
3	Alle manuel	19/12/2005	city	0024568	Liverpool

Course id	Course title	Course code	Course credit
C01	C programming 1	CP01	5
C02	Networking 1	NW01	5
C03	Database 1	DB01	5
C04	English	Eng	3

Stud id	Course id	Marks
1	C01	09
2	C02	14
3	C03	18
3	C04	06

Task 6 create a sql query to fetch "Stud_Name", "Course Title", "Mark" from "Student", "Course" and "StudentCourse" tables where student is alle manuel

Task 7 create a sql query that fetch "Stud_Names", "Mark" from "Student", "Course" and "studentCourse" tables where course title is C Programming 1

SECTION C: WED DESIGN

We want to create a web application to test temperature of student and give the corresponding remark.

1. What do we need to write a run PHP code?
2. Given the figure below

TEMPERATURE TEST PROGRAM

Enter your temperature:

Display

a- Write an HTML code associated with JAVASCRIPT to display the following message in an alert box when the condition is met.

Temperature(t) in °c	Message
If t <= 36.5 °c	You are corona free, keep respecting government instructions
If t > 36.5 °c	You are a corona patient move to the closest government dedicated hospital

SID	SNames	SAddress	STel	SDob	SPob
S01Y2019	Peter Manyuy	Bonaberi	123456	10/12/2001	Kumba
S02Y2019	Alpha Margareth	Village	342567	20/02/2003	Mamfe
S03Y2019	Kongho Malo	Bonaberi	345298	22/06/2003	Bamenda

Task 5: write a query to display(SNames,SDob,SPob,STel) of student's living at bonaberi and save your work (3marks)

SELECTION: MAINTENANCE-TROUBLESHOOTING AND OS

/15marks

A new software engineering company called TECHNOLOGY 4 BETTER LIFE have been created in your surroundings. For their company to be operational they have some dismount desktop computers at their disposal and there are looking for an engineer mastering maintenance and troubleshooting and operating system. You have been called for that purpose and instructed to:

Task 1: Connect the different part of the computer together (3marks)

Task 2: Enter the BIOS setup to properly configure the boot sequence to CD/DVD and save your configuration (2marks)

Task 3: Boot your computer from your DVD disk and proceeds with the installation of Windows 10 on these computers (7marks)

Task 4: Install Microsoft office 2013 and CODEBLOCK 16.1 on all computers in office (3 marks)

SECTION D: NETWORKING

During a practical session, the teacher wanted to focus on the network connection between two desktop computers running Windows 10 using cable. For this he asks you to perform the following tasks.

Task 1: setup the name of the two computers to ENG01 and ENG02 respectively (3marks)

Task 2: Change the WORKGROUP of both computers to HNDSUCCESS (3marks)

Task 3: Define What is a Workgroup and why it is used (2marks)

Task 4: Which type of cable will be appropriate for the interconnection of the two computers? (2marks)

Task 5: Connect the two computer and setup the IP address of ENG01 TO 192.168.201.1 and ENG02 to 192.168.201.2 (3marks)

Task 6: Create in the desktop of each computer a folder name SHREDOC where all the share files will be pasted and share it (2marks)

NATIONAL EXAM OF HIGHER NATIONAL DIPLOMA PROPOSAL-2019 SESSION

Specialty/Option:SM

Paper:Pratice of Computer

Coef:03 SECTION A:PROGRAMMING

In number theory, a perfect number is a positive integer that is equal to the sum of its proper positive divisors, that is, the sum of its positive divisors excluding the number itself (also known as its aliquot sum).

Equivalently, a perfect number is a number that is half the sum of all of its positive divisors (including itself).

For example, the first perfect number is 6. Its proper divisors are 1, 2, and 3, and $1+2+3=6$. Equivalently, the number 6 is equal to half the sum of all its positive divisors: $(1+2+3+6) \div 2 = 6$.

Q1. Write a C program, prompting the user to Enter a number a positive number and check whether a given number is, perfect or not. (10marks)

Q2. Modify the program in such a way that the user enters a positive upper limit "N" and the program print all perfect numbers between 1 to N (20marks)

Q3. Write now a full C program that will be displayed as a MENU form where the user select between 1 (check if a given number is perfect), 2 (print all perfect number from 1 to N) and 3 (Exit) then the program perform the selected action (20marks)

Note: Your program should repeatedly prompt the user to enter a positive number if it is not the case (for Q1 and Q2).

SECTION B: DATABASE DEVELOPMENT AND ADMINISTRATION (MYSQL /20 marks)

Due to redundancy problems and searching problem, a secondary school in town want to computerized her system. The database in question will be made up of the following 4 tables: Students (Sid, SNames,

SAddress, STel, SDob, SPob) Teachers (Tid, TNames, TAdress, TTel), StudentsCourses (STID, Sid,

Cid, Mark), Courses (Cid, TId, CCode, CTitle, CCredit). Task 1: Launch Microsoft access 2013 and Create a

database entitle SCHOOLDATABASE (3marks)

Task

2: Create the 4 tables with their attributes (8marks)

Task 3: Link the different tables using relationship (3 marks)

Task 4: add the following data in your Students tables (3 marks)