

National Exam of Higher National Diploma-New program – 2021 Session

Spécialty/option :Software Engineering

Paper :Case Study

Duration : 6hours

Credits : 14

*Instructions: Answer all questions*

**SECTION A: ALGORITHM AND PROGRAMMING (50 marks)**

**ALGORITHMS. (20 marks)**

1. What is an algorithm? List four characteristics of algorithms (5marks).
2. The algorithm below is designed to determine the average weight of two rabbits.
  1. Start
  2. Get weight of first and second rabbits, W1, W2
  3. If  $W1 < 0$  OR  $W2 < 0$ , ~~then print error message~~
  4. Display weight cannot be negative
  5. Else
  6. Average =  $(W1+W2) / 2$
  7. Displace W1, W2, Average
  8. End
  - a) How many control structures are used in the algorithm? Name them and identify their line numbers (4marks)
  - b) Use a flow chart to represent the algorithm given above (7marks)
  - c) Differentiate between an algorithm and a computer program? (4marks)

**Event Programming (VB.net) = (5 marks)**

1. Write VB.NET code to declare a variable to store the age of a person. (3marks)
2. Write VB.NET code to prompt a user to input his/her name and then the output will be shown as an example below: Hello John! (2 marks)

**I- Structural programming [15marks]**

1. In the C programming language, data types refer to an extensive system used for declaring variables of different types.

- a) Define a C variable? (2 marks)
- b) State how a variable is defined in C programming. (2 marks)
- c) State two ways in which constants are being defined in C programming. (2 marks)
2. What is a data type as used in C programming? List four data types in C programming.(5 marks)
3. What is the main difference between call by value and call by reference? (1 mark)
4. Evaluate the following using operator precedence in C to come out with the output. (8marks)

```
#include <stdio.h>
main()
{
    int a = 20;
    int b = 10;
    int c = 15;
    int d = 5;
    int e;
    e = (a + b) * c / d;
    printf("Value of (a + b) * c / d is : %d\n", e);    q 0
    e = ((a + b) * c) / d;
    printf("Value of ((a + b) * c) / d is : %d\n", e);    q 0
    e = (a + b) * (c / d);
    printf("Value of (a + b) * (c / d) is : %d\n", e);    q 0
    e = a + (b * c) / d;
    printf("Value of a + (b * c) / d is : %d\n", e);    50
    return 0;
}
```

### **Object Oriented Programming (C++ or JAVA) (10 marks)**

1. A certain University is made up of Departments. The departments on their part have a name, programs, lecturers, students. **Implement a C++ or JAVA program** which takes University as a class and Departments as object with name, programs, lecturers, students as members. Initialize name as IT, program as HND, lecturer as Mr. P, student as Epie. The program should be such that it outputs the complete information of the University.(10 marks)

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

1. Think of an organizational database in which some of the fields in the CUSTOMER table must have the given data types. Explain the meaning of the following data types in the Customer table:
  - i) Customer ID (auto numeric field)

- ii) Customer Name (text field)
  - iii) Fee Paid (decimal field)
  - iv) Pay Date (date field). **(2 x 4 = 8 marks)**
2. Table 1 below contains sample data for vehicles and for operators who ply these vehicles. In discussing these data with users, we find that vehicle ID (but not descriptions) uniquely identify vehicles and that operator names uniquely identify operators.

<b>VehicleID</b>	<b>Description</b>	<b>Operator</b>	<b>Route</b>	<b>Tariff Per Mile</b>
V1	Luxury	Polax	Grand Trail	100
		Ubet	East Route	150
V2	Comfort	Polax	Grand Trail	45
		Ubet	East Route	60
		Minim	South Trunk	35

Table 1: Sample Data for Vehicles and Operations

- a) Convert this table to a relation (named VEHICLE OPERATOR) in first normal form. Illustrate the relation with the sample data in the table.(2 marks)
- b) List the functional dependencies in VEHICLEOPERATOR and identify a candidate key.(3 marks)
- c) For the relation VEHICLE OPERATOR, identify each of the following: an insert anomaly, a delete anomaly, and a modification anomaly.(3 marks)
- d) Draw a relational schema for VEHICLE OPERATOR and show the functional dependencies.(3 marks)
- e) In what normal form is this relation?(1 mark)

### **SECTION C: WEB DESIGN (54mins, 15 marks, 15%)**

1. List and briefly explain all the new form elements use in HTML5(2 marks)
2. CharSet is a new met a tag attribute in HTML5 which configures the character encoding. Give the tag for this meta tag char set (1 mark)
3. List and briefly explain all html elements that supports media content (4 marks)
4. Define canvas in the context of html and give its default border size (2 marks)
5. Differentiate between CSS and CSS3 (1 marks)
6. List and briefly explain the different types of CSS mostly used in web development(3 marks)
7. What is the difference between <window.onload> and <onDocumentReady>? (2 marks)

*a condition  
that will occur when  
a doc is ready*

## **SECTION D: NETWORKING 15marks)**

- 1) Explain the importance of layering in a network ( **2marks**)
- 2) Differentiate between each of the following
  - i. OSI model and TCP/IP model ( **2marks**)
  - ii. UDP and TCP ( **3marks**)
- 3) With details describe the data encapsulation process in OSI ( **2marks**)
- 4) For each of the following network give a sketch, two advantages ,two disadvantages and a network protocol or technology employing it ( **6marks**)
  - i. Ring topology
  - ii. Star topology

**National Exam of Higher National Diploma-New program – 2021 Session**

Specialty/option :Software Engineering (SWE)

Paper :System Analysis and Design

Duration : 4Hours

Credits : 7

**Instruction: Answer all questions**

**SECTION A: INFORMATION SYSTEM AND DATA BASE (50 marks)**

**Part I: Object modeling (25 marks)**

1. What is a model? **(1mark)**
2. Why is it important to always model computer system? **(2marks)**
3. What is Object Oriented Modelling? **(2marks)**
4. According to you what is UML Language? **(2marks)**
5. To understand UML diagrams and to learn UML, the user must have knowledge about the conceptual model of UML. The conceptual model consists of three parts.  
Name them **(3marks)**
6. UML Architecture can be best represented as a collection five views. Name the five **(05)**  
**(3marks)**
7. What is association? Illustrate with an example the concept of association. **(2marks)**
8. What is multiplicity in associations? Give example to explain multiplicity. **(2marks)**
9. Create the use case diagram according to the following elevator control system functional requirements: **(2X4=8 marks)**
  - a. The elevator control system shall allow the passenger to call the elevator and to select the destination floor;
  - b. When the passenger pushes the external button (to call the elevator), or the internal button (to select the destination floor), the central control system switches the button light on;
  - c. When the passenger calls the elevator or selects the destination floor, the central control system opens/closes the elevator door;
  - d. When the passenger calls the elevator or selects the destination floor, the central control system moves/stops the elevator to/at the passenger call floor or to/at the passenger destination floor.

When the passenger leaves the elevator, the central control system switches the button light off

## SECTION B: DATABASE: (25MARKS)

1. Based on the given table, solve the following queries.

Employee table

empld	empName	Age	Address
1001	Mekole	26	Delhi
1002	Etamo	30	Texas
1003	Ankit	27	Mumbai
1004	Gad	32	Nagpur

- a) Write the SELECT command to display the details of the employee with empid as 1004. (1mark)
- b) Write the SELECT command to display all the records of table Employees. (2marks)
- c) Write the SELECT command to display all the records of the employee whose name starts with the character 'R'. (2marks)
2. Consider the ER model given in Figure 1. This model represents the operations of a pharmacy chain. Please answer the following questions regarding this model.
- (a) Can a pharmaceutical company have multiple phone numbers? If not, what do you need to do to allow this? (5marks)

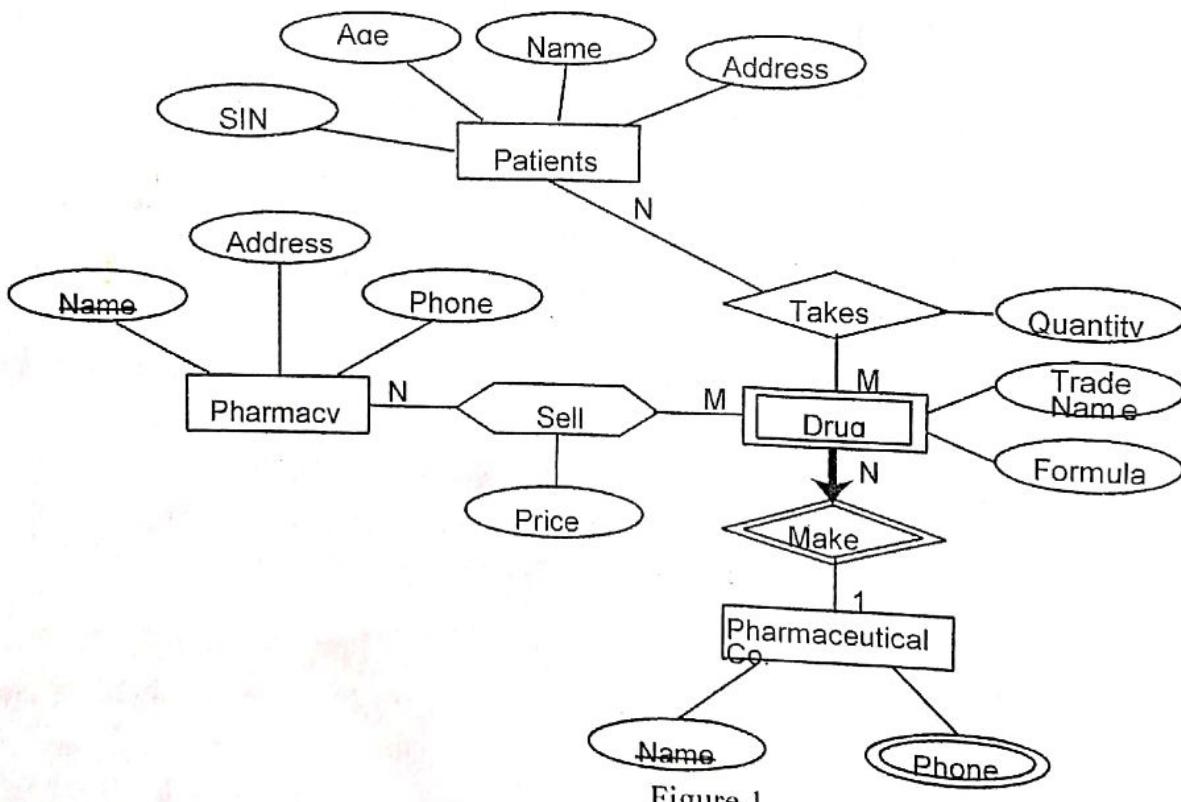


Figure 1

- (b) Modify the model (by adding to Figure 1, *not* by drawing another figure) so that you can represent the following

- Each patient has to have one and only one primary physician. Each physician has at least one patient. We want to know at least the specialty and the date of entry into the profession of each physician.
  - Instead of modeling only the fact that a patient takes certain drugs, model the fact that a patient takes certain drugs that are prescribed by a physician and the prescription date.
  - Pharmaceutical companies have long-term contracts with pharmacies. A pharmaceutical company can contract with several pharmacies, and a pharmacy can contract with several pharmaceutical companies. For each contract we want to store a start date, an end date. **(5marks)**
3. What is Data Integrity in database? **(2marks)**
  4. What are Entities and Relationships? **(3marks)**
  5. What is an Alias in SQL? **(2marks)**
  6. What are the various forms of Normalization? **(3marks)**

## **Part II: WEB PROGRAMMING (25 MARKS)**

1. What are tags? Give two HTML tags that don't come in a pair. **(4 marks)**
  2. What are style sheets? Explain three ways of applying style sheets in a web document. **(5marks)**
  3. What difference do you make between the followings: **(4 marks)**
    - Intranet and extranet?
    - Web page and web document?
  4. Define Internet and state four of its services. **(4 marks)**
  5. What are some of the common lists that can be used when designing a page? **(5 marks)**
  6. Write an HTML table tag sequence that outputs the following: **(3 marks)**
- 50 pcs 100 500  
10 pcs 5 50

## **II-MOBILE PROGRAMMING (25 marks)**

1. What are the main languages supported by Android for application development? **(2marks)**
2. Do all mobile phones support the latest Android operating system? Justify **(2marks)**
3. What is the difference between Mobile device testing and mobile application testing? **(2marks)**
4. What are the different states wherein a process is based? **(4marks)**
5. What are the four essential states of an activity? **(4marks)**
6. Android Architecture is made up of 4 key components. List them **(4marks)**
7. What do you understand by Native Mobile Application Development? **(2marks)**
8. Describe Android application Architecture? **(5 marks)**

National Exam of Higher National Diploma-New program – 2021 Session

Spécialty/option : SWE-NWS-EDM

Paper : Discrete Mathematics

Duration : 4hours

Credits : 4/4/10

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

**SECTION A: MCQS (20 MARKS)**

- 1) The probability of selecting a man at random in a crowd containing 20 men and 33 women is,  
A. 0.6226      B. 0.05      C. 0.3774      D. 1
  
- 2) The expectation of obtaining a 4 upwards with 3 throws of a fair dice is,  
A. 0.167      B. 0.750      C. 0.666      D. 0.500
  
- 3) The probability of selecting at random the winning horses in both the first and second races if there are 10 horses in each race  
A. 0.10      B. 0.20      C. 0.01      D. 0.02
  
- 4) The expectation E is equal to;  
A.  $pn$       B.  $\frac{\sum_{i=1}^n x_i}{\mu}$       C.  $\frac{\sum_{i=1}^n x_i}{\sigma}$       D.  $\mu x_i$
  
- 5) The probability of r successes in n trials in a binomial event is given by  
A.  $\binom{n}{r} q^{n-r} p^r$       B.  $\binom{r}{n} q^{n-r} p^n$       C.  $\binom{n}{r} q^{n-1} p^r$       D.  $\binom{n}{1} q^{n-1} p^r$
  
- 6) The probability distribution of tossing a fair coin n times is given by  
A.  $np$       B.  $n\sigma$       C.  $(p+q)^n$       D.  $(p+q)^{n+1}$
  
- 7) For the random variables  $x_i = \{1, 2, 3, 4, 5, 6\}$ , for the possible outcomes of throwing a fair die, what is the probability  $p(x \geq 3)$ ?  
A. 2/6      B. 3/6      C. 4/6      D. 1/6
  
- 8) The probability of having 0 head in two tosses of a fair coin is  
A.  $\frac{1}{4}$       B.  $\frac{1}{2}$       C. 1      D. 0

- 9) The Laplace transform  $\mathcal{L}\{\sin 2t\}$  is  
 A.  $\frac{2}{s^2+2^2}$       B.  $\frac{2s}{s^2-2^2}$       C.  $\frac{s}{s^2+2^2}$       D.  $\frac{s}{s^2-2^2}$

- 10) The probability of having at least 1 head in two tosses of a fair coin is  
 A.  $\frac{1}{4}$       B.  $\frac{1}{2}$       C.  $\frac{3}{4}$       D. 1

- 11) The following equations:  $\frac{\tan x + \sec x}{\sec x(1 + \frac{\tan x}{\sec x})}$  is equal to:  
 A.  $\cos x$       B.  $\cos 3x$       C. 1      D.  $\sin x$

- 12)  $\lim_{x \rightarrow 0} \left\{ \frac{\tan x - x}{x^3} \right\}$  is equal to  
 A. 3      B. 1/3      C. 2/3      D. 0

- 13) The Laplace transform  $\mathcal{L}\{2e^{7x-2}\}$  is equal to  
 A.  $\frac{2e^{-2}}{s-7}$       B.  $\frac{2e^2}{s-7}$       C.  $\frac{e^{-2}}{2(s-7)}$       D.  $\frac{e^2}{2(s-7)}$

- 14) The general term of the series  $1 + \frac{3}{2} + \frac{5}{2^2} + \frac{7}{2^3} + \dots$ , is  
 A.  $\frac{2n+1}{2^{n-1}}$       B.  $\frac{2n-1}{2^{n+1}}$       C.  $\frac{2n-1}{2^{n-1}}$       D.  $\frac{2n+1}{2^{n+1}}$

- 15) When the  $\lim_{x \rightarrow \pm\infty} f(x) = \pm\infty$ , it implies Possibility of  
 A. a vertical asymptote      C. a quadratic asymptote  
 B. a horizontal asymptote      D. an oblique asymptote

- 16) The Domain of definition of the function:  $f(x) = \frac{x^2 - 1 + \ln x}{e^x - e}$ , is  
 A.  $]0, 1[ \cup ]1, +\infty[$       C.  $]0, e[ \cup ]e, +\infty[$   
 B.  $]1, +\infty[$       D.  $]e, 1[ \cup ]1, +\infty[$

- 17) the parity of the function  $f(x) = \frac{x^3 - x}{|x| + 4}$  is,  
 A. even      B. odd      C. neither odd nor even      D. positive

- 18) The equation,  $\log(x-1) + \log(x+1) = 2\log(x+2)$  has as solution  $x =$   
 A.  $4/5$       B.  $-5/4$       C.  $5/4$       D.  $-4/5$

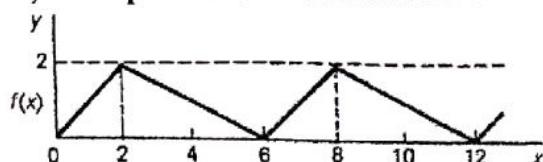
- 19) In the D'Alambert's theorem the  $\lim_{n \rightarrow \infty} \frac{u_{n+1}}{u_n} = < 1$  implies  
 A. Convergence      B. Divergence      C. Inconclusive      D. Constant

20) Three numbers are in arithmetic progression. Their sum is 9 and their product is 20.25.

What are the three numbers?

- A.  $\frac{5}{2}, \frac{1}{2}, \frac{3}{2}$     B.  $\frac{7}{2}, \frac{5}{2}, \frac{6}{2}$     C.  $\frac{3}{2}, 3, \frac{9}{2}$     D.  $\frac{5}{2}, 3, \frac{1}{2}$

21) The period of the function shown graphically below is

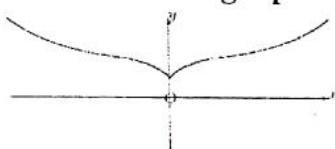


- A. 2    B. 8    C. 6    D. 3

22) The exact solution to the following;  $\int_{\frac{1}{2}}^1 \frac{x}{\sqrt{4x^2-1}} dx$  is

- A.  $\frac{\sqrt{3}}{2}$     B.  $2\sqrt{3}$     C.  $\frac{\sqrt{3}}{8}$     D.  $\frac{\sqrt{3}}{4}$

23) The function shown graphically below is



- A. an even function  
B. an odd function  
C. neither odd nor even function  
D. an asymmetric function

24) If  $\ln(1+y) = \frac{1}{2}x^2 + \ln 4$  then

- A.  $y = \frac{1}{2}x^2 + \ln 4 - 1$     C.  $y = 4e^{\frac{1}{2}x^2} - \ln 4$   
B.  $y = 4e^{\frac{1}{2}x^2} - 1$     D.  $y = \frac{1}{2}x^2 - 4$

25) Find the value(s) of  $\frac{dy}{dx}$  of  $x^2y + y^2 = 5$  at  $y = 1$

- A.  $-\frac{2}{3}$  only    B.  $\frac{2}{3}$  only    C.  $\pm \frac{2}{3}$     D.  $\pm \frac{4}{3}$

26) When  $f(t+T) = f(t)$ , T is called

- A. the fundamental period of  $f(t)$     C. constant of  $f(t)$   
B. the period of  $f(t)$     D. increment of  $f(t)$

27) Which theorem is verified if  $f(x)$  is continuous on  $[a,b]$ , differentiable on  $]a, b[$ ,  $f(a) = f(b)$  and there exist at least one number  $c$  within  $]a, b[$ , such that  $f'(c) = 0$ ,

- A. Cauchy's theorem      C. Rolle's theorem  
B. Green's theorem      D. Mean value theorem

28) The following equation,  $\oint Pdx + Qdy = \iint_R \left( \frac{\partial Q}{\partial x} - \frac{\partial P}{\partial y} \right) dxdy$ , expresses the;

- A. Cauchy's theorem      C. Rolle's theorem  
B. Green's theorem      D. Mean value theorem

29)  $\tanh^{-1} \left( \frac{x^2-1}{x^2+1} \right)$  is identical to

- A.  $\tan \left( \frac{x^2-1}{x^2+1} \right)$       B.  $\tan^{-1} \left( \frac{x^2-1}{x^2+1} \right)$       C.  $\ln x$       D.  $\ln(x^2 - 1) - \ln(x^2 + 1)$

30) If  $f(x) = 3^x$ , then  $f'(x) =$ :

- A.  $\ln 3x$       B.  $3^x \ln 3$       C.  $3^x$       D.  $3x^2$

31) The value of  $x$  in the equation  $3.72 = \ln \left( \frac{5.14}{x} \right)$  is

- A.  $x = \frac{5.14}{e^{3.17}}$       B.  $x = \frac{e^{3.17}}{5.14}$       C.  $x = 5.14e^{3.17}$       D.  $x = 3.17e^{5.14}$

32) If  $y = \ln(7 - 4x)$  then  $\frac{dy}{dx}$  is

- A.  $\frac{4}{7-4x}$       B.  $\frac{-4}{7+4x}$       C.  $\frac{4}{7+4x}$       D.  $\frac{-4}{7-4x}$

33) Consider the sequence  $U_n = \frac{1}{2n} - \frac{1}{2(n+2)}$ . The first term of the series  $S_1$

- A.  $S_1 = 1/2$       B.  $S_1 = 1/6$       C.  $S_1 = 1/3$       D.  $S_1 = 0$

34) The domain of definition of the function  $f(x) = \frac{x}{\sqrt{|x+2|}} - \frac{x}{\sqrt{|x+1|}}$  is :

- A.  $]-\infty, -2[U] - 2, -1[U] - 1, +\infty[$       B.  $] -2, -1[$   
C.  $] -2, -1[U] [-1, +\infty[$       D.  $]-\infty, -2]U] - 2, +\infty[$

35) From the Cauchy's criteria,  $\lim_{n \rightarrow \infty} \sqrt[n]{U_n} < 1$ , implies

- A. divergence      B. inconclusive      C. convergence      D. constant

36) The value(s) of  $x = C$  for  $f(x) = x^3 + 2x^2 - x$  on  $[-1, 2]$ , for which the mean value theorem is verified is

- A.  $C = \frac{-2 \pm \sqrt{19}}{3}$       B.  $C = \frac{-2 - \sqrt{19}}{3}$  only      C.  $C = \frac{2 \pm \sqrt{19}}{3}$       D.  $C = \frac{-2 + \sqrt{19}}{3}$  only

37) For three vectors  $v_1, v_2, v_3$  in a vector space and constants  $c_1, c_2, c_3$ , from the set of real numbers,  $c_1v_1 + c_2v_2 + c_3v_3 = 0$ ; with  $c_1, c_2, c_3$  not all zero then the set of vectors  $v_1, v_2, v_3$  are said to be

- A. linearly dependent    B. linearly independent    C. a kernel    D. an endomorphism

38) The gradient of the curve  $y = 3x^4 - 2x^2 + 5x - 2$  at the point  $(0, -2)$  is

- A. 2    B. 4    C. 5    D. 6

39) If  $y = \cosh^{-1}x$ , then:

- A.  $\cosh x = 1/x$     B.  $\cosh x = 1/y$     C.  $\cosh y = y$     D.  $\cosh y = x$

40)  $(x + \sqrt{x^2 - 1})(x - \sqrt{x^2 - 1}) =$

- A.  $x^2$     B. 1    C. 2    D.  $x^2 - 1$

## **SECTION B: STRUCTURAL (80 MARKS)**

### **1. ANALYSIS (30 Marks)**

1.1 (a) A real valued function  $f(x)$  is defined by  $f(x) = \sqrt{x^2 + x - 12}$ . Determine the domain and range of  $f(x)$ .

- (b) (i) Using any of the limit theorems, evaluate  $\lim_{n \rightarrow \infty} \frac{1+5*10^n}{5+3*10^n}$ .  
 (ii) If  $U_{n+1} = \sqrt{U_n + 1}$ ,  $U_1 = 1$ , prove that:  $\lim_{n \rightarrow \infty} U_n = \frac{1}{2}(1 + \sqrt{5})$ .  
**(5 + 5 marks)**

1.2 (a) Using the Laplace Transforms or the method of undetermined coefficients, solve the differential equation  $Y''(x) + Y(x) = x$ ,  $Y(0) = 0$ ,  $Y'(0) = 2$ .

- (b) Given the function,  $f(x)$ , where  $f(x) = \begin{cases} 0 & , -5 < x < 0 \\ 3 & , 0 < x < 5 \end{cases}$ , period = 10,

Determine the Fourier coefficients and write the corresponding Fourier series.**(5+5 marks)**

1.3 Consider the vector field  $\vec{F} = (y^2 \cos x + z^3)\vec{i} + (2y \sin x - 4)\vec{j} + (3xz^2 - 2)\vec{k}$ .

- (a) Show that the curl of  $\vec{F}$  is 0 i.e.  $\vec{\nabla} \times \vec{F} = 0$ .  
 (b) Determine the scalar field  $\phi$  such that  $\vec{F} = \vec{\nabla} \phi$ .  
 (c) Determine  $\nabla^2 \phi$  if  $\phi(x, y) = e^{\sqrt{x+y}}$ .  
**(3 + 4 + 3 marks)**

## 2. STATISTICS (30 Marks)

2.1 The table shows the marks, collected into groups, for 400 candidates in an HND examination. The maximum mark was 99.

Marks	No. of Candidates
0 - 9	10
10 - 19	25
20 - 29	45
30 - 39	65
40 - 49	80
50 - 59	70
60 - 69	55
70 - 79	30
80 - 89	15
90 - 99	5

- (i) Compile the cumulative frequency table and draw the cumulative frequency curve.  
Use your curve to estimate:
- (ii) Median.
- (iii) The 30th percentile.
- (vi) If the minimum mark for Grade A was fixed at 74, estimate from your curve the percentage of candidates who will obtain Grade A. **(6 + 4 + 4 + 4 marks)**

2.2 The following table summarizes the masses, measured to the nearest microgram ( $\mu\text{g}$ ), of 200 microchips of the same type.

Mass ( $\mu\text{g}$ )	Frequency
70 - 79	7
80 - 84	30
85 - 89	66
90 - 94	57
95 - 99	27
100 - 109	13

- (i) Calculate estimates of the median and upper quartile of the distribution.
- (ii) Estimate the number of microchips whose actual masses are less than  $81 \mu\text{g}$ .
- (iii) Calculate estimates of the mass and the standard deviation of the distribution. **(5 + 2 + 5 marks)**

### **3. PROBABILITY (20 Marks)**

- 3.1 An electronic assembly firm buys its microchips from three different suppliers; half of them are bought from firm X, whilst firms Y and Z supply 30 % and 20 % respectively. The suppliers use different quality – control procedures and the percentages of defective chips are 2 %, 4 % and 4 % for X, Y and Z respectively. The probabilities that a defective chip fail two or more assembly – line test are 40 %, 60 % and 80 %, respectively, whilst all defective chips have a 10 % chance of escaping detection. An assembler finds a chip that fails only one test. What is the probability that it came from supplier X? **(10 marks)**
- 3.2 The number of errors needing correction on each page of a set of proofs follows a Poisson's distribution of mean  $\mu$ . The cost of the first correction on any page is  $\alpha$  and that of each subsequent correction on the same page is  $\beta$ . Prove that the average cost of correction on a page is  $\alpha + \beta(\mu - 1) - (\alpha - \beta)e^{-\mu}$ . **(10 marks)**

National Exam of Higher National Diploma-New program – 2021 Session

Spécialty/option :Software Engineering (SWE)

Paper :Computer Technology

Duration : 4Hours

Credits : 6

**Instructions: Answer all questions**

**SECTION A: MCQ (40 MARKS).**

1. Which of the following correctly declares an array ?  
A) int array[10];      B) int array;  
B) array{10};      D) array array[10];
  
2. What is the index number of the last element of an array with 9 elements?  
A) 9      B) 8  
C) 0      D) Programmer-defined
  
3. Which of the following accesses the seventh element stored in array?  
A) array[6];      B) array[7];  
C) array(7);      D) array;
  
4. Where does the execution of the program starts?  
A) user-defined function    B) main function  
C) void function      D) none of the mentioned
  
5. What is meant by multiple inheritance?  
A) deriving a base class from derived class  
B) deriving a derived class from base class  
C) deriving a derived class from more than one base class  
D) none of the mentioned
  
6. What does polymorphism in OOPs mean?  
A) Concept of allowing overriding of functions  
B) Concept of hiding data  
C) Concept of keeping things in differnt modules/files  
D) Concept of wrapping things into a single unit
  
7. Which concept allows you to reuse the written code?  
A) Encapsulation      B) Abstraction  
C) Inheritance      D) Polymorphism

8. Which of the following explains Polymorphism?

A)

int func(int, int);  
float func1(float, float);

B)

int func(int);  
int func(int);

C)

int func(float);  
float func(int, int, char);

D)

int func();  
int new\_func();

9. Which of the following shows multiple inheritances?

- A) A->B->C      B) A->B; A->C  
C) A,B->CD B->A

10. Which of the following is / are the Characteristics of information?

- A) Accuracy and Relevance      B) Form of information and Timeliness  
C) Completeness and Purpose      D) All A, B & C

11. .... level supply information to strategic tier for the use of top management.

- A) Operational      B) Environmental  
C) Competitive      D) Tactical

12. In the relational modes, cardinality is termed as:

- A) Number of tuples.  
C) Number of tables.  
B) Number of attributes.  
D) Number of constraints.

13. Relational calculus is a

- A) Procedural language.  
C) Data definition language.  
B) Non- Procedural language.  
D) High level language.

14. Cartesian product in relational algebra is

- A) a Unary operator.      B) a Binary operator. C) a Ternary operator. D) not defined.

15. DML is provided for

- A) Description of logical structure of database.  
B) Addition of new structures in the database system.  
C) Manipulation & processing of database.  
D) Definition of physical structure of database system.

16. 'AS' clause is used in SQL for  
A) Selection operation.      B) Rename operation.  
C) Join operation.      D) Projection operation.
17. ODBC stands for  
A) Object Database Connectivity. B) Oral Database Connectivity.  
C) Oracle Database Connectivity. D) Open Database Connectivity.
18. Architecture of the database can be viewed as  
A) two levels.      B) four levels.      C) three levels. D) one level.
19. In a relational model, relations are termed as  
A) Tuples.      B) Attributes      C) Tables.      D) Rows.
20. Which of the following is an OSI layer one Device?  
A. Router  
B. Switch  
C. Hub  
D. Bridge
21. Which data unit exist in the OSI layer two?  
A. Packets  
B. Bits  
C. Frames  
D. All of the above
22. The set of data that the router consults before making decisions on the packets received is called?  
A. Decision table  
B. Decision support system  
C. Routing decision table  
D. Routing table
23. What is the maximum distance of a UTP cable?  
A. 10km  
B. 100m  
C. 100km  
D. None of the above
24. A program created with the intention to destroy the normal functioning of the computer is called?  
A. A virus  
B. A worm  
C. A malware  
D. A spyware

25. The unique address to a resource in a network such as the internet is called?

- A. Email address
- B. IP address
- C. MAC address
- D. URL

26. This tool is always used to troubleshoot a network for problems

- A. Netstat
- B. Ping
- C. Ncpa.cpl
- D. Ipcfg

27. It permits us to see the NIC adapter settings and all the configure settings in windows OS

- A. Ipcfg
- B. Ipcfg /release
- C. Ipcfg /all
- D. Ifconfig

28. It is a communication media that is best used for very high bandwidth demands

- A. Coaxial cable
- B. ADSL
- C. XDSL
- D. Optical Fiber

29. What protocol is used for the deployment of web services

- A. http
- B. www
- C. https
- D. both A and C
- E.

30. To refer to an external CSS file within an HTML document, we use:

- A. <CSS ...> ... </CSS>
- B. <LINK ...> ... </LINK>
- C. <Script...> ... </Script>
- D. <LINK />

31. Communication between client and server is usually initiated by

- A. The client
- B. http protocol
- C. The server
- D. Client and server

32. In hypertext, an anchor

- A. Is a link to another website
- B. Links to a specific part of the same page
- C. Links to another page in the same website
- D. Links to the first link of a page

33. Which of the following is not true about tags in html

- A. Is a keyword embedded between <>
- B. A tag can be open only or open close
- C. Tags can be single line or multiline (block)
- D. All open only tags are multiline

34. Which of the following is not a server-side technology  
A. DBMS      B. HTML/CSS  
C. Web server      D. SQL
35. Which of the following isn't a loop statement?  
A) for      B) if-else      C) while      D) do-while
36. What is a purpose of a Use Case diagram?  
A) Functional decomposition      B) Identification of functional requirements  
C) To define sequences of actions      D) To identify multiplicities
37. Activity diagram, use case diagram, collaboration diagram and sequence diagram are considered as types of  
A) Non-behavioral diagrams      C) Non structural diagrams  
B) Structural diagrams      D) Behavioral diagrams
38. Creating a new class by using the properties of an existing class is called?  
A) Association      B) encapsulation      C) inheritance      D) data hiding
39. Which of the following is also called a first in first out FIFO system?  
A) Tree      B) Queue      C) Stack      D) Graph
40. Which of the following is also called a Last in first out LIFO system?  
A) Graph      B) Queue      C) Stack      D) Tree

### SECTION B(60 marks)

#### **Data Structures and Programming (15 marks)**

1. Distinguish between the following as seen in computer programming with examples if necessary
  - i. High level and low level programming language (1 mark)
  - ii. C programming language and C++ (1 mark)
  - iii. Program interpretation and program compilation (1 mark)
2. Write a program to check whether a given number is even or odd. (4marks)
3. Explain the following data structures with examples:
  - a) Primary Data Structures? (3 marks)
  - b) Secondary Data Structures? (2 marks)
  - c) Static data structures? (3 mark)

#### **Operating System (15 marks)**

1. What is *deadlock*? What is *starvation*? How do they differ from each other? (5marks)
2. What are the four conditions required for deadlock to occur? (4marks)

3. Describe four general strategies for dealing with deadlocks. **(4marks)**
4. Differentiate between a Kernel mode and a user mode of operating system. **(2marks)**

### **Database System and Administration (20 marks)**

A hospital management system contains a database to manage patient. For each patient, data about the symptoms that the patient shows is registered: fever, headache, cough, chest pains, ... Symptoms can have different severity: low, middle, or high. A patient may show several symptoms, e.g., high fever, medium headache and some cough.

The database also contains data about diseases. Each disease is characterized by different symptoms: a patient with a cold should have fever and a cough, a malaria patient should have fever and fits of shivering, etc.

- 1) Describe this system in an E/R model. **(7 marks)**
- 2) Recall the rules to translate an E/R model into relational model **(6 marks)**
- 3) Translate the E/R model into a relational model. **(7 marks)**

### **Networking (10 marks)**

1. What is the difference between packet-switched and circuit-switched networks? **(2 marks)**
2. Explain what a MAC addresses is **(1 mark)**
3. Define Single-mode fiber (SMF) and Multimode fiber (MMF) **(2 marks)**
4. What do you understand by TCP over IP? (List and explain its working and relevance today) **(5 marks)**

1. A  
2. D

ERII

National Exam of Higher National Diploma – 2021 Session

Spécialty/option :CSN and SWE

Paper : Digital Electronics

Duration :4 hours

Credits : 7

SECTION A: NUMBER SYSTEMS AND CODES (20 MARKS)

MCQs, four (04) answers are proposed circle the correct answer.

- 1) The hexadecimal number for  $95.5_{10}$  is
  - A.  $5F.8_{16}$
  - B.  $9A.B_{16}$
  - C.  $2E.F_{16}$
  - D.  $5A.4_{16}$
- 2) Digital system is usually operated on ..... system
  - A. Binary
  - B. decimal
  - C. Octal
  - D. hexadecimal
- 3) The binary system uses powers of ..... for position values
  - A. 2B. 10 C. 8D. 16
- 4) After counting 0,1,10,11 the next binary is
  - A. 12
  - B.  $100_{10}$
  - C. 101
  - D. 110
- 5) The number  $1000_2$  is equivalent to decimal number
  - A. One thousand
  - B. eight
  - C. Four
  - D. sixteen
- 6) The binary addition 1+1+1 gives
  - A. 111
  - B. 10
  - C. 110
  - D. 11
- 7) The results of binary subtraction (100-011) is
  - A. 111
  - B. 111
  - C. 011
  - D. 001
- 8) The 2's complement of  $1000_2$  is
  - A. 0111
  - B. 0101
  - C. 1000
  - D. 0001
- 9) The code where all successive numbers differ from their preceding number by single bit is
  - A. Binary code
  - B. BCD
  - C. Excess -3
  - D. Gray
- 10) Octal coding involves grouping the bit's in
  - A. 5's
  - B. 7's
  - C. 4's
  - D. 3's

- 11) In Excess-3 code each coded number is..... than in BCD code.  
A. four larger      B. three smaller.      C. three larger      D. much larger.
- 12) which numbering system uses numbers and letters as symbols  
A. decimal B. binary. C. Octal      D. hexadecimal
- 13) To convert a whole decimal number into a hexadecimal equivalent, one should divide the decimal value by.....  
A. 2      B. 8      C. 10      D. 16
- 14) The number  $12_8$  is equivalent to decimal  
A. 12      B. 20      C. 10      D. 4
- 15) The result of binary multiplication  $111_2 \times 10_2$  gives  
A. 1101      B. 0110      C. 1001      D. 1110
- 16) A device which converts BCD to Seven Segment is called  
A. Encoder      B. Decoder      C. Multiplexer      D. Demultiplexer
- 17) 1's complement representation of decimal number of -17 by using 8 bit representation is  
A. 1110 1110      B. 1101 1101      C. 1100 1100      D. 0001 0001
- 18) The excess 3 code of decimal number 26 is  
A. 0100 1001      B. 01011001      C. 1000 1001      D. 01001101
- 19) How many AND gates are required to realize  $Y = CD + EF + G$   
A. 4      B. 5      C. 3      D. 2
- 20) How many select lines will a 16 to 1 multiplexer will have  
A. 4      B. 3      C. 5      D. 1

## SECTION B: COMPUTER FUNDAMENTALS (80 MARKS)

### Question 1 : Hardware (20 Marks)

- Give 3 basic functionalities of a computer (3 marks)
- Which computer component contains all the circuitry necessary for other components or devices to communicate with one another? (1 mark)
- what is the role of the chipsets? (2 marks)
- The computer memory can be classified into primary and secondary memory. Give two examples of each. (2 marks)
- Give 4 differences between the RAM and a HHD (4 marks)
- List 3 computer input and 3 computer output devices (3 marks)
- Explain briefly the steps necessary for a computer to boot (4 marks)
- What is a Bus? (1 mark)

### Question 2 : Network and Mobile Devices (40 Marks)

- Classify networks in terms of their geographic sizes and for each of the networks, describe them briefly (6 marks)
- What do you understand by network topology? (1 mark)

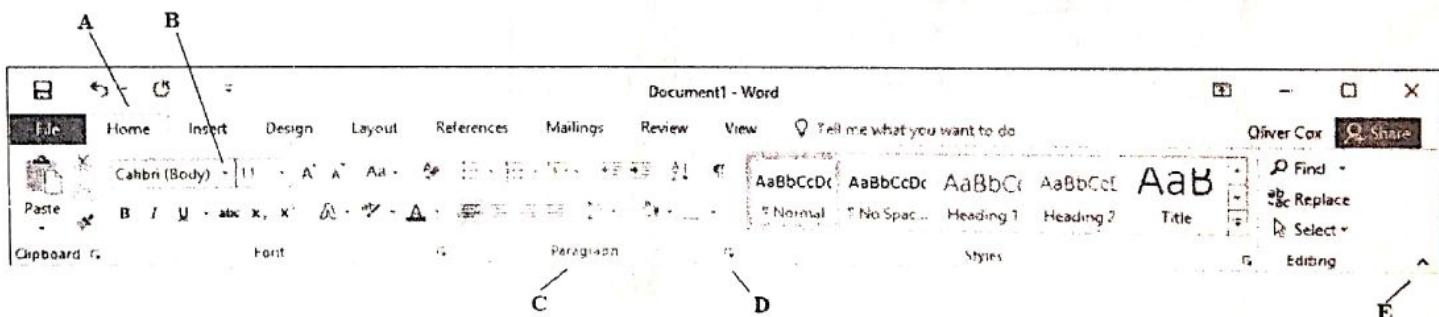
- c) Briefly explain the network topologies given below with the aid of diagrams
- Bus topology
  - Star topology
  - Ring topology
  - Meshtopology. ( $4 \times 2 = 8$  marks)

The OSI model breaks the various aspects of a computer network into seven distinct layers.

- What is the full meaning of OSI? (1 mark)
- Give the seven layers of the OSI model and describe them, in either ascending or descending order. (14 marks)
- The following are network connectivity devices briefly describe their role
  - Modem
  - Hub
  - Switches
  - Routers( $4 \times 2 = 8$  marks)
- What is GSM? (2 marks)

### Question 3 :Microsoft Word, Excel and PowerPoint (20 Marks)

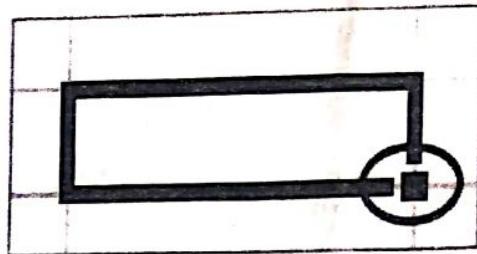
Consider the figure shown below.



- How do we call this figure?(1 mark)
- Name the part A through E?(3 marks)
- What is the difference between save as? (2 marks)
- What is the name and use of the symbols shown in the image below?(2 marks)



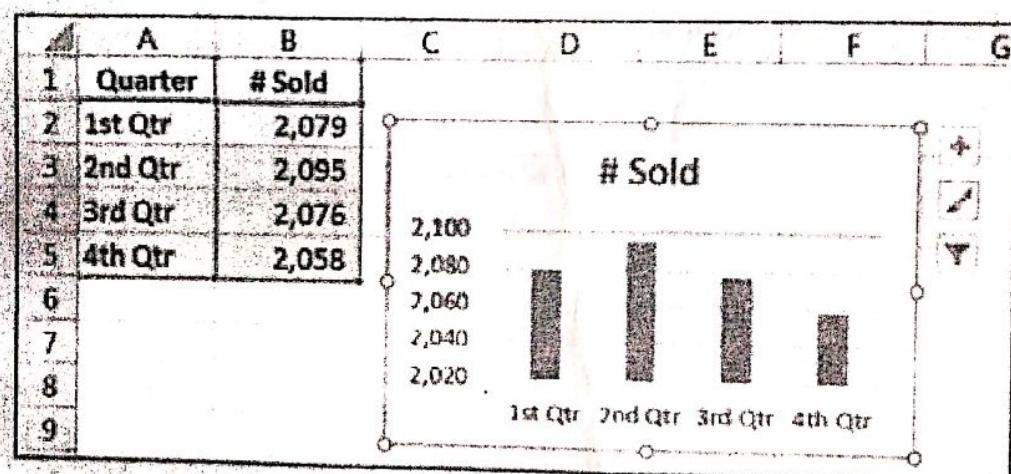
- What name is given to the figure in the circle below?(1 mark)



- f) Copy and complete the tables below when the symbol above is pulled downward.(3 marks)

Text	123	Exam 1	2/1/02	February	Friday

- g) Consider the image below, what is the procedure necessary to obtain the chart shown on the diagram(2 marks)



- h) What is the use of the function autoSum? (2 marks)  
i) What is the importance of a PowerPoint? (2 marks)  
j) What are the extensions of a word, excel and PowerPoint file? (2 marks)

**National Exam of Higher National Diploma-New program – 2021 Session**

Spécialty/option :Software Engineering (SWE)

Paper :Information System

Duration : 3Hours

Credits : 6

*Instruction: Answer all questions*

**SECTION A: SYSTEM ARCHITECTURE** /40 marks

1. What is network architecture? (2 marks)
2. List and describe the two types of widely used network architectures illustrating the diagram of each (1+4x2=9 marks)
3. Give the meaning of OSI as designed by the International standard organization. List and explain the different layers of the OSI model in descending order. And precise the unit data at each layer (1+7+3.5=11 marks)
4. In computing most of time people are using the word cloud. Explain what is a cloud? (2 marks)
5. What is Cloud Computing? Give an illustration of it (2+2=4 marks)
6. From the experience that you have acquired when learning cloud computing, list and explain 4 benefits of Cloud Computing? (1.5x4=6 marks)
7. Answer true or false on the following questions (0.5x12=6 marks)
  - a. Hardware as a Service is not a major type of cloud computing usage T
  - b. Virtual Machine Ware (VMware) is an example of software Service F
  - c. API stand for Analysis Programming Interface F
  - d. A Cloud application relies onRemote Servers T
  - e. A Cloud app is Hardware program F
  - f. A Google Apps Engine is a type of CaaS T
  - g. A good cloud computing network cannot be adjusted to provide bandwidth on demand F
  - h. IBM Bluemix is a cloud platform as a service developed by IBM T
  - i. Cloud Service has a many to many Relationship with their customers F
  - j. Google doc is a type of Cloud computing T
  - k. Cloud providers provide cloud services to cloud users. T
  - l. Cloud applications can function offline F

## **SECTION B: OPERATING SYSTEMS. (40 marks)**

1. What is an operating system (5marks)
2. What is memory management? (5marks)
3. State the activities performed by the operating system for processor management (5marks)
4. Differentiate between general purpose operating system and mobile operating system (5marks)
5. List the five (5) components of information system (10marks) *people, data, hardware, software*
6. Why study the human use of computers systems? (5marks)
7. List the four (4) key components of android architecture (5marks)

## **SECTION C: PROJECT MANAGEMENT AND LEGAL REGULATIONS (20 marks)**

### **Part 1: Short Structurals( 10marks)**

1. Define the following terms as used in project management? (2marks)
  - a. Project portfolio
  - b. Project manager
  - c. Project plan
  - d. Project charter
2. List and explain at least 2 project management knowledge areas (2marks)
3. List and explain 2 major phases of a project management life cycle (2marks)
4. Who is an intervenor in legal terms? (1mark)
5. List and explain 3 types of intervenors you know (3marks)

### **Part 2: Essay (10 mks)**

1. You are the new project manager for the construction of 2 classrooms at ABC Higher Institute. Draft a project plan showing all the phases, task activities, resources, time allocation, resource allocation, and necessary charts for the project. From your time frames, calculate the optimistic, pessimistic and most likely estimates for the first and last activity on your plan (5marks)
2. Using your knowledge of market research, suggest to your school a marketing research plan that allows them increase the number of international student admission (5 marks)

**National Exam of Higher National Diploma 2021 Session**

Spécialty/option : FOT, APT, CPT, APA, AGE, AGP, CET, UPL, BST, CAR, JOC, RCE, MEM, CHM, CHP, ELT, EPS, ACR, QOP, PSE, PLO, ASM, PMA, HUR, ACC, MTS, BFI, INT, BFP, FCT, TAT, HMC, DCT, EMA, SPE, NWS, SWE, CSN, HWM, ICA, CWD, EDM, NGO, AND, OPT, BCR, SPW, BMW, CUT, ISM, LGA, PCH, TOP

Paper: Law and Citizenship Education

Duration : 2 hours

**Credits: 1/2**

***INSTRUCTIONS: Attempt all questions.***

**SECTION A: (Introduction to Law and Fundamental Rights) 20mk**

1. Critically examine five sources of law in Cameroon (10mks)
2. Compose a paper on the classification of criminal offences in Cameroon (10mks)

**SECTION B: (Civics, Ethics and Moral Education, Citizenship Education) 20mks**

1. What is normative ethics (2mks)
2. State any two method of acquiring Cameroon citizenship (2mks)
3. Define a nation. (2mks)
4. List any two functions of parliament. (2mks)
5. What is a bill (2mks)
6. Give any two causes of climate change (2mks)
7. What do you understand by the term good governance (2mks)
8. List any two obligations of a citizens (2mks)
9. State any two features of human right (2mks)
10. What does the colour green on the national flag symbolised (2mks)

**SECTION C: (Labour law) 20mks**

1. Distinguish between contract of specified and unspecified duration. (5mks)
2. Explain any four ways through which a contract of employment can be terminated.(15mks)

**SECTION D: (Business Law) 20 mks**

1. State and explain any five ways through which a contract can be discharge . **(20mks)**

**SECTION E: (Company Law) 20 mks**

1. Explain any four types of companies created under the OHADA Uniform Act. **(20mks)**

### National Exam of Higher National Diploma 2021 Session

Spécialty/option : All Specialties

Paper: English Language

Duration : 2 hours

Credit : 1/2

*Instructions: Answer all questions in serial order, while watching your grammar.*

#### SECTION A: READING COMPREHENSION (20Marks)

Read the passage below and answer the questions that follow.

Dr Frederick Nganito plunged into the affairs of the hospital with frightening ardour. Although he had always believed in discharging his duties wholeheartedly, irrespectively of where he was working, the fact that this was his hospital, his personal property, added more impetus to his natural propensity for hard, relentless work. He had recruited two more doctors, young graduates from the National School of Health Science, to add to the three volunteers, every single one of them sworn to make the clinic unique in its success in handling patients. The three volunteers worked cheerfully and tirelessly, but they were easily outdone by Fred. They could not match his breathless pace. They advise him to slow down, take it easy, to pace himself. He really had no special responsibilities. Whatever any doctor or nurse did was his responsibility. Not that he was meddlesome, but he believed in cross-checking prescriptions, treatments, operations and the like, just so that no error on the part of any of his staff may tarnish the reputation of the hospital, which rose to the sky within a few months of its existence. When a doctor had a difficult case in the theatre he made sure he hung around and gave advice where necessary. On his part, he carried out five delicate surgeries a day in addition to his administrative duties, in addition to making his round in all the wards.

The fear of letting down his donor friends forced him to be always alert, it goaded him into redoubling his efforts and energies, advancing still another step higher than expected. The hours of his rounds were seen by many as the high spot of the hospital's day. Nurses on duty, visitors, patients and even the three volunteers, made an admiring procession in his wake. He had a special touch which all patients recognised and appreciated and felt very sad if he passed their beds without touching them. They would smile and chuckle. His jokes to patients were endless, many of them declaring themselves cured even without taking their medications, just from the humour he generated in their presence. For the children to whom he was specially devoted, he was irresistible: He had a peculiar whistle, to which some of them came to learn to respond, a prearranged signal to warn them that he was approaching

their wards and that they should be ready to laugh and giggle. Whenever he picked up a syringe and approached a child he intended to inject, he started by screaming himself and he would do it so seriously that the child would burst out laughing and, before he noticed, he had finished his job and was moving to the next ...

He continued to see things so differently and correctly that he was permanently assigned to Dr. Hart Cromwell, the Specialist who handled very complicated and baffling cases. Dr. Hart Cromwell considered him an asset to the profession and made no secret about it. He spoke to Fred very often about medicine and about his future. He gave Fred the addresses of the editors of respectable journals many of whom he knew personally.

### **QUESTIONS**

1. Give a suitable title to the above topic. (2Marks)
2. i) What is a thesis sentence? (2Marks)  
ii) What is a topic sentence? (2Marks)
3. Why did Fred recruit two more doctors? (2Marks)
4. Why was he admired by all in the hospital? (2Marks)
5. In not more than 60 words, give a summary of the above passage. (10Marks)

### **SECTION B: Grammar and Vocabulary (30Marks)**

#### **I- GRAMMAR**

1. **Common Errors: Correct the following sentences (10Marks)**
  1. The school comprises of four Faculties.
  2. The chicken was grinded last evening.
  3. The Nurses submitted their reports after the dateline.
  4. Dorcas will loose her purse if she is not careful.
  5. Their arguement has resulted to a fight.
  6. Yesterday, the boy break his right leg due to the fall.
  7. Nurses can still temporal jobs at the other clinics.
  8. It was in the meeting that we heard the news.
  9. You people have to pick up all the dirts around you.
  10. I not James is responsible for the accident.
2. **Put the words in brackets in their appropriate forms to complete the sentences. (5Marks)**
  - a. Had the police \_\_\_\_\_ the thieves before you arrived? (take)
  - b. After he \_\_\_\_\_ in that company for years, he gave up the job. (work)
  - c. As soon as she \_\_\_\_\_ the film tomorrow, she will leave for the village. (watch)
  - d. If I were you, I \_\_\_\_\_ the doctor immediately. (see)
  - e. Had my teacher worn a safety belt, he \_\_\_\_\_ his hand. (to break)
3. **Rewrite the sentences as started for you without changing their original meanings. (5Marks)**
  - a. Protein makes new cells.

- New cells \_\_\_\_\_
- b. "Don't leave the office before time" said the bank's director to his cashier.  
The bank's director \_\_\_\_\_
- c. She advised her to stop eating sweet things.  
Stop eating sweet thing, \_\_\_\_\_ ?
- d. The man complained that his wife didn't cook well.  
The man's \_\_\_\_\_
- e. Mr Henry and Mr James didn't attend the meeting.  
Neither \_\_\_\_\_

### **VOCABULARY (10 Marks)**

1. Complete the sentences with appropriate words of your own. (5 Marks)
  - a. The prices of raw materials have fallen whereas those of manufactured goods have surprisingly \_\_\_\_\_.
  - b. Although my father \_\_\_\_\_ a good salary, he cannot make both ends meet as he is the breadwinner of an extended family.
  - c. In hospitals, \_\_\_\_\_ are medical agents who care for pregnant women.
  - d. Money can be safe in a deposit account or a \_\_\_\_\_.
  - e. During the holidays, many companies offer \_\_\_\_\_ to their clients. Some prices fall down by 50%.
2. Do as indicated. (2Marks)
  - a. Write in words the fraction  $\frac{2}{3}$ . \_\_\_\_\_
  - b. Write in words the football match score: 4 – 0. \_\_\_\_\_
3. Use the correct form of the words in brackets to fill in the blanks. (3Marks)
  - a. I am sorry that I'll be \_\_\_\_\_ to attend the meeting tomorrow. (able)
  - b. Drug \_\_\_\_\_ is prohibited in sport competition. (consume)
  - c. The performance of our team was \_\_\_\_\_ we won all our opponents. (satisfy)

### **SECTION C: SPOKEN ENGLISH (20marks)**

1. Subject-verb Agreement/Pronouns: Choose the appropriate verb or pronoun from the brackets to fill in the blanks. (10Marks)
  - a. You who \_\_\_\_\_ (know/knows) Grace Decca should be proud.
  - b. The scissors Juan used last night to cut Sophia's hair \_\_\_\_\_ (was/were) too old.
  - c. Neither my friends nor my uncle \_\_\_\_\_ (like/likes) bananas.
  - d. I who \_\_\_\_\_ (am/are/is) ready will go first.
  - e. The woman with her four children \_\_\_\_\_ (is/are) at your gate.
  - f. Tell me \_\_\_\_\_ (who/whom) you saw at the party.
  - g. The money was sent to Pius, Livinus and \_\_\_\_\_ (I/me).

- h. Sure, Andrew is short, but he is not as short as \_\_\_\_ (I/me).
- i. The girls prepared better for the party than \_\_\_\_ (them/they/us).
- j. Blasius, Ignasius, Aloysius and \_\_\_\_ (he/him) should divide the money.

**2. Translate into English. (5Marks)**

- a. Il y a trop d'embouteillages sur nos routes.
- b. Les entreprises brassicoles prospèrent dans les pays pauvres.
- c. Le chômage en milieu universitaire résulte de l'inadéquation entre la formation reçue et les besoins du marché de l'emploi.
- d. Les petites et moyennes entreprises constituent le socle d'une économie créatrice d'emploi.
- e. Pourquoi les pays dits amis ne s'accordent pas toujours le transfert des technologies à moindre coût ?

**3. Traduisez en français. (5Marks)**

- a. His timely intervention prevented us from borrowing money at such a high rate of interest.
- b. The aim of the after sales services is to keep in contact with the customers.
- c. Sales were thriving when our main competitor launched his new product.
- d. In this company, any shareholder brings his or her contribution to its growth.
- e. People go to auctions expecting to get the goods very cheaply

**SECTION D: WRITING (30Marks)**

Write an essay of about 350 words on any one of the following topic.

- 1. As president of your school's Science Club, you have been invited to address the students on the importance of a multimedia center in your school. The school is ISMTA and your name is Tamfu Amidou. You may want to demonstrate how the center can help the students in their studies.
- 2. Do you feel that the post office is up to date in your society?
- 3. You have witnessed some instances of corruption in your school. Write a letter of complaint to the managing director of your school citing the instance and suggest what can be done to stop this practice. Your school is higher institute of Advanced Technologies and the post office box is 157 Dikimeneki. Your name is Paul Yabi.

**National Exam of Higher National Diploma 2021 Session**

**Spécialty/option :** All Specialties

**Paper:** French Language

**Duration :** 2 hours

**Credit :** 1/2

**INSTRUCTIONS**

1. This paper carries four sections. You are required to answer all questions.
  2. You are reminded of the necessity for good French and orderly presentation in your answers.
  3. Any student who attempt to fraud or caught cheating shall be penalized till further noticed.
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**SECTION A: QCM (40pts). Ecrivez la lettre correspondante à la bonne réponse.**

1. Dans quelle phrase le verbe « manger » est conjugué au futur de l'indicatif ?
  - a) Je mangerais des cerises
  - b) Jaurais mangé des cerises
  - c) Je mangerai des cerises
  - d) Je mangeais des cerises.
2. Donne le temps du verbe dans la phrase suivante ; « la pièce de théâtre a plu au public »
  - a) Imparfait
  - b) Passé simple
  - c) Passé composé
  - d) Futur antérieur
3. Quel est le pronom personnel utilisé dans la phrase suivante ; « oh, comme elle est gentille »
  - a) 1<sup>ère</sup> personne du singulier
  - b) 2<sup>ème</sup> personne du singulier
  - c) 3<sup>ème</sup> personne du singulier
  - d) 3<sup>ème</sup> personne du pluriel
4. A quel mode est conjugué le verbe dans la phrase suivante « sors de cette pièce »
  - a) Indicatif
  - b) Impératif
  - c) Subjonctif
  - d) Passif

5. Donne le groupe du verbe « croire ».

- a) 1<sup>er</sup> groupe
- b) 2<sup>ème</sup> groupe
- c) 3<sup>ème</sup> groupe
- d) Aucun

6. Dans quelle phrase le verbe « boire » est conjugué au présent de l'indicatif ?

- a) Nous buvions du soda
- b) Nous buvons du soda
- c) Nous boirons du soda
- d) Nous avons bu du soda

7. Donne le groupe du verbe « finir »

- a) 2<sup>ème</sup> groupe
- b) 3<sup>ème</sup> groupe
- c) Aucun
- d) 1<sup>er</sup> groupe

8. A quel temps les deux verbes sont-ils conjugués dans la phrase ; « quand tu étais petit, tu aimais bien les berceuses »

- a) Passé simple
- b) Imparfait
- c) Plus que parfait
- d) Passé composé.

9. Donne le groupe du verbe « dormir »

- a) 1<sup>er</sup> groupe
- b) 2<sup>ème</sup> groupe
- c) 3<sup>ème</sup> groupe
- d) Aucun

10. Donne le groupe du verbe « descendre »

- a) 1<sup>er</sup> groupe
- b) 2<sup>ème</sup> groupe
- c) 3<sup>ème</sup> groupe
- d) Aucun

11. « je lui ai demandé s'il était prêt ». cette phrase est

- a) Déclarative
- b) Interrogative
- c) Exclamative
- d) Impérative

12. Parmi les phrases suivantes, laquelle contient un participe passé mal accordé ?

- a) Les pièces que j'ai vu jouer
- b) Combien avez-vous rencontré de personnes ?
- c) Elle s'est construit une maison ?
- d) Elles se sont lavées les mains

13. Une personne qui lit avec peine, en hésitant est une personne qui
- Grommelle
  - Marmonne
  - Anonne
  - susurre
14. Parmi les quatre propositions ci-après, laquelle exprime la forme passive de la phrase suivante ; «toutes les parties en présence analyseront la situation dans son contexte».
- toutes les parties en présence n'analyseront pas la situation dans son contexte.
  - La situation ne sera pas analysée dans son contexte par toutes les parties en présence
  - La situation sera analysée dans son contexte par toutes les parties en présence.
  - Toutes les parties en présence analyseront-elles la situation dans son contexte ?
15. L'adjectif « demi » placé devant le nom est invariable et s'y joint par un trait d'union.
- Placé après le nom, il s'accorde avec celui-ci en genre.
- Quelles propositions sont correctement orthographiées ?
- Demi-finales
  - Demi-frères
  - Deux heures et demie
  - Deux pains et demi
16. Laquelle des phrases suivantes comprend un verbe intransitif ?
- Il est parti hier du service
  - Elle arriva enfin à son bureau
  - Il serait resté à son cabinet toute la journée
  - Elle allait au travail d'un pas lent
17. Quel est le sens du mot « sagacité » ?
- Amabilité
  - Facilité
  - Naïveté
  - Perspicacité
18. Parmi ces quatre mots, un seul est masculin. Lequel ?
- Echappatoire
  - Urticaire
  - Planisphère
  - Alcôve
19. Une empathie est :
- un ensemble d'affections neurologiques et psychiques consécutives à des lésions de l'encéphale
  - une hostilité instinctive à l'égard de quelqu'un
  - une faculté intuitive de se mettre à la place d'autrui
  - un procédé d'étude ou d'analyse de la structure des corps opaques au moyen de rayon gamma
20. Un mange-tout est :
- un ogre
  - une variété de haricot vert
  - un électrophone portatif à fonctionnement automatique
  - une plante des régions chaudes

21. Un subside est :

- a) ce qui peut remplacer autre chose
- b) un démon femelle qui séduit les hommes pendant leur sommeil
- c) une somme d'argent versée à titre de secours et de subvention
- d) une plante des régions chaudes

22. Une cimaise est :

- a) un lieu où l'on expose des tableaux
- b) une urne qui contient les cendres d'un corps
- c) une plante dont les feuilles ventrues servent de condiment
- d) un ornement qui forme la partie supérieure d'un casque

23. La question de l'insertion professionnelle des jeunes se pose aujourd'hui avec d'autant plus d'acuité que le temps du plein emploi est révolu

- a) est revenu
- b) est terminé
- c) a évolué
- d) a changé

24. Choisissez le synonyme du mot en gras dans la phrase suivante : « On assiste, ce dernier trimestre, à une **recrudescence** de la rougeole »

- a) Complication
- b) Disparition
- c) Diminution
- d) Aucun

25. Quel est le synonyme du mot « **réitérer** »

- a) expliquer
- b) répéter
- c) expliquer
- d) annuler

26. Quelle est la haute chambre du parlement camerounais ?

- a) La cour suprême
- b) Le sénat
- c) La mairie
- d) L'assemblée nationale.

27. Le président de la république du Cameroun a un mandat de combien d'années ?

- a) 5 ans
- b) 3 ans
- c) 7ans
- d) 6 ans

28. Qui dirige une S.A

- a) Un président
- b) Un chef
- c) Un directeur général
- d) Un directeur

29. Qui dirige une SARL ?

- a) Un directeur
- b) Un président
- c) Un leader
- d) Un Directeur général

30. En quelle année le Cameroun a-t-il eu son Indépendance ?

- a) 1950
- b) 1972
- c) 1960
- d) 1914

31. Quel rang occupe le Cameroun dans le classement 2020 du Doing Business ?

- a) 1
- b) 10
- c) 5
- d) 167

32. C'est une contribution versée à l'Etat, sans affectation à une dépense particulière

- a) Dividende
- b) Impôts
- c) Bénéfices
- d) Profits

33. Quelle est la durée du mandat d'un député au Cameroun ?

- a) 10 ans
- b) 8 ans
- c) 3 ans
- d) 5 ans

34. Combien de gouverneurs compte le Cameroun ?

- a) 15
- b) 12
- c) 8
- d) 10

35. Quel est l'organe en charge de la lecture des résultats des élections présidentielles au Cameroun.

- a) Cour constitutionnelle
- b) Cour suprême
- c) Le sénat
- d) Le conseil supérieur de l'Etat

36. Il se décrit comme l'augmentation du niveau général des prix

- a) Crise économique
- b) Déflation
- c) Inflation
- d) Croissance

37. Quand on dit «l'entreprise a mis les clés sous le paillasson », que veut-on dire ?

- a) Elle a grandi
- b) Elle a fermé
- c) Elle s'installe
- d) Elle est saturée par la demande

38. C'est un marché qui assure la liaison entre les agents capacité de financement et les agents qui ont besoin de financement.

- a) Le marché noir
- b) L'assurance
- c) Le marché des capitaux
- d) La banque

39. Dans l'entreprise, ce secteur est chargé de garder les rapports financiers, tracer le budget et bilan de l'entreprise.

- a) Ressources Humaines
- b) Direction Générale
- c) Comptabilité
- d) Vente

40. C'est l'ensemble des salaires et des cotisations sociales des employeurs.

- a) Loyer
- b) Pension
- c) Masse salariale
- d) Dépenses

## **SECTION B : COMPREHENSION DE TEXTE (10pts)**

Lisez attentivement le texte ci-dessous et répondez aux questions qui suivent.

Consommation : Le gouvernement oppose un non catégorique à l'importation du poulet.

Selon le gouvernement, il y a suffisamment de poulet dans le pays pour couvrir la demande.

Voilà une nouvelle qui va rassurer les aviculteurs. Le gouvernement camerounais est formel sur la question de l'importation du poulet qui fait actuellement des vagues. En effet, depuis la déclaration de l'épidémie de grippe aviaire le 22 mai 2015, la filière avicole perd environ 10 milliards de FCFA par jour, selon les spécialistes.

Alors qu'une protestation des principaux acteurs de la filière vient d'être étouffée dans la région de l'ouest, principal bassin de production (80 % de la production nationale), des informations faisaient état de ce que des opérateurs économiques sollicitaient du gouvernement l'agrément pour procéder à l'importation du poulet. Le ministre de l'élevage, des pêches et des industries animales (MINEPIA) assure qu'il n'en est rien.

Joint au téléphone par nos confrères de Cameroun Tribune, le Dr Taiga assure que c'est à lui qu'il revient d'accorder des autorisations d'importation de poulet au Cameroun et qu'aucune demande ne lui est adressée dans ce sens. « et même, nous ne l'accordons pas. Il y a suffisamment de poulet dans le pays. En dehors des foyers de la grippe, le marché local tourne

assez bien. Il n'y aura donc aucune importation. Encore que le problème sanitaire est en train de se résoudre positivement », assure le MINEPIA.

En effet, d'après François Djonou, président de l'Interprofession Avicole (IPAVIC), la production, nationale en poulet de chair est passée de 31 millions de têtes 50 millions en 2015 et le cheptel de poules pondeuses est passé de 3.5 millions en 2012 5.5 millions en 2015. A cause de la grippe aviaire, elle connaît une nette régression. « Nous avons enregistré des pertes de l'ordre de 10 milliards de FCFA », indique-t-il.

Actuellement, le gouvernement est en train de prendre des mesures pour le redressement et la relance de la filière avicole. Cependant, aucune date n'a encore été avancée, concernant le retour autorisé de la volaille dans les marchés des départements affectés. Juste que les pouvoirs publics et les responsables de la filière y travaillent.

Onana N. Aaron

### **QUESTIONS :**

1. De quoi parle-t-on dans le texte ?
2. Expliquez les mots suivants ; importation-régression-cheptel
3. A quel secteur d'activité appartiennent les entreprises avicoles ?
4. A votre avis, pourquoi l'Etat s'oppose-t-il à l'importation du poulet au Cameroun ?
5. Face à une telle crise, que peut être l'apport des banques ?

### **SECTION C : REDACTION (30pts)**

Le candidat choisira UN SEUL des deux sujets proposés et le traitera

**Sujet 1** ; le rôle des banques dans le développement économique d'un pays

**Sujet 2** : le rôle du transport dans la réalisation du commerce