

## **JS1 RESEARCH TOPICS FOR FIRST TERM 2023/2024 ACADEMIC YEAR**

### **JS1 FRENCH**

- 1a. A the study of French language is not relevant in an English speaking country like Nigeria true or false?
  - b. if your answer is true give five reasons if your answer is false give five reasons
2. list any 20 French speaking countries of the world with their capitals

### **JS1 BUSINESS STUDIES**

1. Explain an Office
2. With the aid of a diagram draw an organization chart

### **JS1 MATHEMATICS**

- 1a. Suppose today is Tuesday. What day of the week will be in holidays
  - b. Write your birth year in Roman numerals
2. Arrange the following fractions in ascending order  $\frac{2}{5}$  ,  $\frac{5}{8}$  ,  $\frac{7}{8}$  ,  $\frac{13}{20}$

### **JS1 SOCIAL STUDIES/SECURITY EDUCATION**

- 1a. Define common crimes
- b. Explain five common crimes

### **JS1 COMPUTER**

Explain early counting devices and its problems

### **JS1 BASIC TECHNOLOGY**

1. State briefly the historical development of technology (including local examples)
2. What is an alloy  
Mention four alloy materials  
Draw a free and its important parts
3. Explain the difference between basic technology and technology

### **JS1 P H E**

List ten deferent sports and games you know

### **JS1 HISTORY**

From the work books JSS1 pages 13 and 14 history.

### **JS1 C R S**

Topic: Disobedience

- (i) Meaning of disobedience
- (ii) Biblical account of first human disobedience (Gen. 3:1 – 9)
- (iii) Consequences of Adam and Eve’s disobedience including the serpent (Gen 3: 3: 14 – 19)
- (iv) Learners disobedience and consequences
- (v) Disobedience against national laws and the consequences

### **JS1 MUSIC**

1. Get a white cardboard paper and sketch only the keys found on the organ (piano)
2. Label with the exact alphabet on each black and white keys

### **JS1 CCA**

What do you understand by the term “teamwork” and explain any five importance of team work. What are the elements needed in the accomplishment of a group task

## **JS1 BASIC SCIENCE**

1. What is sanitation?
2. Define Drug?
3. Define air, soil and water pollution
4. List out and two consequences of pollution

## **JS1 CIVIC EDUCATION**

1. What is civic education
2. List 5 importance of civic education to our country
- 3a. What is contentment
- 3b. List and explain 4 attributes of contentment

## **JS1 IGBO**

1. Kedu ndi bu ndi Igbo?
2. Kedu ka ndi Igbo si malite zawa ndi Igbo
3. Kedu ndi bu ndi agbata obi ha

## **JS1 ENGLISH LANGAUGE**

Mention 20 different animals, their sounds and homes.

## **JS1 AGRICULTURAL SCIENCE**

TOPIC: Classes and uses of farm animals

Steps to take

1. Introduction
2. Types of farm animals
3. Basic characteristics of farm animals
4. Classification of farm animals based on sizes, habitats, mammals and non-mammals
5. Draw (a) goat and label it (b) A bird and label it.

## JS2 RESEARCH TOPICS FOR FIRST TERM 2023/2024 ACADEMIC YEAR

### **JS2 FRENCH**

1. using Google translator write any 15 sentences of your choice in French with their English meanings.
2. list 20 daily verbs in French with their English meanings

### **JS2 BUSINESS STUDIES**

1. In details explain computer. And parts of computer
- 2a. Who is a receptionist?
- b. Explain the qualities of a receptionist

### **JS2 MATHEMATICS**

1. Find the smallest number that 504 must be multiplied by so that the product is a perfect square
2. An article is bought for N225 and sold for N275. Find the profit percent. Find the price at which it should be sold to make a profit of 16%

### **JS2 SOCIAL STUDIES**

- 1a. What is a social group
- b. Explain types of social groups
- c. Mention two characteristics of each of the social groups

### **JS2 COMPUTER**

Write on computer software, types and examples

### **JS2 BASIC TECHNOLOGY**

1. Construct a triangle ABC such that  $AB = 8\text{cm}$ ,  $\angle C = 60^\circ$  and  $BC = 6\text{cm}$ , measure AC
2. Explain First Aid and its materials
- 3a. Define angle
- b. Construct angle  $75^\circ$ ,  $60^\circ$

### **JS2 P H E**

Draw skeletal system of human being

### **JS2 HISTORY**

From the work books JSS2 pages 13 and 14 history.

### **JS2 C R S**

Topic: (i) Temptations of Jesus Mk 4:1 – 11, 12 – 13, Lk 1 – 13 Lk 4. 1 – 13

(ii) Significance of the temptation of Jesus

(iii) Temptation in Nigeria today and ways of overcoming tem

Topic: (2) The call of the disciples

(i) Jesus calls first four disciples Mtt 4: 18 – 22, Mk 1 : 14 – 20 ; Lk 5 : 1 – 11

(ii) Jesus calls the twelve Apostles Mk 3 : 12 – 19

(iii) The demand of discipleship Mtt 8 : 18 – 27, Lk 9 : 57 – 63, 14 : 25 – 33

### **JS2 MUSIC**

1. Explain the chromatic scale
2. Construct the chromatic scale with alphabet and secondly with solfa notation

### **JS2 CCA**

Produce a mosaic picture that can serve as a wall hanging or decoration

### **JS2 ENGLISH LANGUAGE**

what is a noun? Mention types of noun with examples

## **JS2 BASIC SCIENCE**

1. Define Ecology
2. List out three examples of habitats and explain two (2)
3. Mention four (4) safety measures when using chemicals
4. Write short on the following:
  - i. Infancy
  - ii. Adolescence
  - iii. Adulthood

## **JS2 CIVIC EDUCATION**

1. List four Agencies of government that help to control negative behaviours in our society, and explain them.
2. What is courage and list the various types of courage

## **JS2 IGBO**

1. Kowa ihe bu Akunauba
2. Kedu ka akunauba ndi Igbo si amubanyere ha
3. Deputa ka ndi Igbo si emeputa akunauba ha

## **JS2 AGRICULTURAL SCIENCE**

TOPIC: Animals pests and disease control

Steps to take

1. Introduction
2. Diseases of farm animals
3. Modes of transmission of farm animals disease
4. Effects of diseases on farm animals
5. Modes of control and prevention of farm animals diseases

## **JS3 RESEARCH TOPICS FOR FIRST TERM 2023/2024 ACADEMIC YEAR**

### **JS3 FRENCH**

With the help of Google translator, write a composition of 20 lines on any of the following topics in French and write the English version of the same composition.

mon pere/my father  
ma mere /my mother  
mon village /my village  
mon ecole /my school

if you need the Google translator whatsapp this number 07062496100,strictly for the project matter, no other business is allowed to be discussed here.

### **JS3 BUSINESS STUDIES**

1. In details explain the followings with features
  - i. Memorandum (memo)
  - ii. Electronic mail (E-mail)
2. Write on office procedure. Give the importance of office procedure

### **JS3 SOCIAL STUDIES**

- 1a. Explain the meaning of human trafficking?
- b. Outline five factors responsible for children and women trafficking
- c. Suggest three ways of preventing human trafficking

### **JS3 COMPUTER**

Computer virus, types, example and sources

### **JS3 BASIC TECHNOLOGY**

1. Undertake industrial visit, mention possible career opportunities in field of technology and list, explain technology related careers with examples
2. Illustrate and sketch methods of processing timber
- 3a. Explain moisture content in a wood
- b. Take the weight of the fresh wood, that weight, let the weight to the dry wood be 50gms. Find the percentage moisture content.

### **JS3 P H E**

Discuss Nigeria Sports Heroes and Heroines.

### **JS3 HISTORY**

From the work books JSS3 pages 13 and 14 history.

### **JS3 C R S**

- (1)Topic: Persecution of the Early Believers
  - (i) Arrest of Peter and John Acts 4: 1 – 31
  - (ii) Reasons for their arrest
  - (iii) Arrest and martyrdom of Stephen Acts 6: 8 – 15 ; 7: 1 – 60
  - (iv) Summarize Stephen's defence

### **JS3 MUSIC**

1. Get a white cardboard paper and sketch the diagram of an acoustic guitar
2. Also sketch the fingering chart in playing an acoustic guitar

### **JS3 CCA**

Explain the term "unity" and identify four forms of unity and explain them in what four ways can unity be maintained

### JS3 ENGLISH LANGAUGE

Read and summarize the book “Integrity Campaign” the author of the book is Evaristus Eshiwu  
Summit the research with your own copy of the Integrity Campaign.

**NOTE:** Get your copy from the school Librarian and write your name as you purchase it.

### JS3 BASIC SCIENCE

1. What is family traits?
2. Define soil erosion, and causes of soil erosion
3. Write short notes on this followings:  
(i) Bush burning (ii) Deforestation (iii) Desertification (iv) Flooding

### JS3 CIVIC EDUCATION

1. What is a constitution? 2. What is the difference between the colonial constitution and post independence constitution?
3. List four colonial constitution you know

### JS3 IGBO

1. Kowa ihe omenaala Igbo putara
2. Deputa ufodu mgbanwe na-abata n’omenaala Igbo
3. Deputa uru din a mgbanwe na-abata n’omenaala Igbo

### JS3 AGRICULTURAL SCIENCE

TOPIC: Consumer challenges and rights

Steps to take:

1. Definition of consumer
2. Consumer education
3. Importance of consumer education
4. Rights of the consumer
5. Challenges of the consumer
6. Redress options for consumers
7. Procedure for seeking redress

### JS3 MATHEMATICS

Instruction: Do any two questions.

1. What is the fractional difference between 0.3 and 0.3?
2. Evaluate  $1 + \frac{1}{3}$

$$2 + \frac{\quad}{5}$$
$$4 + \frac{\quad}{6}$$

3. It takes 5 hours for three ice-cream dispensers to dish out 180 cups of ice-cream. How many hours would it take 8 dispensers to dish out 600 cups of ice-cream?

## **SS1 RESEARCH TOPICS FOR FIRST TERM 2023/2024 ACADEMIC YEAR**

### **SS1 ECONOMICS**

1. What is Economics?
2. Discuss why it is important to include the study of economics in the senior secondary school curriculum
3. Is Economics a science or social science or both. Espandiate on this statement No3

### **SS1 COMPUTER**

1. Write on the concept of number system
2. Draw a complete set of a computer system
3. Draw the background of M.S. Word

### **SS1 LITERATURE-IN-ENGLISH**

1. Write to detail, the history of literature
2. State and explain, the purposes for studying literature

### **SS1 IGBO**

- 1a. Gini bu njirimara
- b. Deputa uzo di iche iche ejirimara ndi Igbo ma kowa ha nke oma dika asusu ekike, Nri, Omenaala, aka oru, okpukperechi wdg.
- 2a. Kowa ihe bu nkebiokwu
- b. Deputa nkenaudi (udi) nkebiokwu di iche iche ma kowaa ha nke oma ma nyekwa omumaatu ha n'otu n'otu

### **SS1 FURTHER MATHS**

An operation  $*$  is define on the set of real numbers  $R$  such that if  $x, y \in R$  then  $x * y = \frac{x + y}{2}$

Determine (a)  $3 * 2$  (b)  $-5 * 4$  (c)  $7 * 3$  (d)  $\frac{1}{2} * \frac{1}{2}$

### **SS1 AGRICULTURAL SCIENCE**

TOPIC: Subsistence and commercial agriculture

- i. Meaning of subsistence agriculture
- ii. Meaning of commercial agriculture
- iii. Differences between subsistence and commercial agriculture
- iv. List the problems of subsistence agriculture
- v. State the advantages and disadvantages of commercial agriculture

### **SS1 GEOGRAPHY**

Buy "Macmillan Nigeria Secondary Atlas"

### **SS1 ENGLISH LANGUAGE**

Write extensively on the various parts of speech in English Language

### **SS1 GOVERNMENT**

TOPIC: The meaning, explanation and scope of government

Content:

- (i) Government as an institution of the state (ii) Government as a process or an art of government (iii) government a an academic field of study

### **SS1 CIVIC EDUCATION**

Define Civic Education, Objective of civic education

Meaning of values and types of values

Meaning of HIV/AIDS, methods of transmission of HIV/AIDS

Treatment and preventive measures

Stigmatization of people living with HIV/AIDS

## SS1 PHYSICS

1. A sphere of radius  $r$  moving with a velocity  $V$  under streamline conditions in a viscous fluid experiences a retarding force,  $F$ , given by  $F = KrV$  where  $K$  is a constant.

Derive the S.I Units of  $K$  in terms of the base unit

2. A car moves with a velocity of  $72\text{KMhr}^{-1}$ . It is brought to rest in 10s. find,

(i) The velocity in  $\text{MS}^{-1}$  (ii) The retardation

## SS1 C R S

Read, study and summarize with their significance on the following with their bible quotations

(a) Sovereignty (b) Covenant (c) Leadership

## SS1 MATHEMATICS

1. Find the value of  $x$  if  $(22x)(4x+1) = 32$

2. Use logarithm table to evaluate  $\frac{28.61 \times 74.23}{355.9 \times 2.547}$

## SS1 CHEMISTRY

1. What is chemistry?

2. Why do we study chemistry

3. Application of chemistry in the life we live

4. Adverse effects of chemistry in our environment

5. Career choice in chemistry

## SS1 BIOLOGY

TOPIC: Classification of living-things

1. Explain the meaning of classification (Taxonomy)

2. Classify the organisms into the followings kingdoms

(a) Kingdom Monera (b) kingdom protista (c) kingdom plantae

The following are so important in the research work, (i) sub-division of the kingdoms, characteristics of the organisms, examples and diagrams

## SS2 RESEARCH TOPICS FOR FIRST TERM 2023/2024 ACADEMIC YEAR

### SS2 CHEMISTRY

TIN: Occurrence in Nigeria, Ores, Extraction, Properties and Uses

### SS2 LITERATURE-IN-ENGLISH

1. Critically analyse the play-FENCES and bring out (a) the plot (b) the theme (c) Character sketch (d) languages and styles used in the work
2. Do poems with the thematic intents of war or love

### SS2 ECONOMICS

Briefly discuss inflation under the following heading:

Meaning / definition

Types of inflation

Causes of inflation

Effects of inflation

How to checkmate or control inflation

Deflation

Effects and control

### SS2 COMPUTER

1. Write on file organization
2. Draw a local Area Network
3. Draw the background of M.S. Excel

### SS2 IGBO

- 1a. Gini bu dibia ?
  - b. Gini bu dibia odinaala
  - ch. Deputa udi dibia di ichie ichie ma kowaa uru na oghom di n'dibia
- 2a. Gini bu iri ekpe na ikpe ekpe
  - b. Deputa ndi na-eri ekpe na ihe ndi na-erite n'ekpe
  - ch. Dee nduhie di n'etiti iri ekpe na ike ekpe

### SS2 ENGLISH LANGUAGE

#### ESSAY WRITING

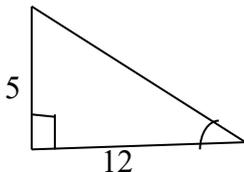
Instruction: Your answer should NOT be less than 450 words

1. Write an article suitable for publication in a national daily on the factors responsible for poor reading culture among students and proffer solutions to them.
2. A new chairman has been in your local government area. As the president of a youth development association in your community, write a letter, congratulating him on his victory, highlighting some of the problems faced by the youths in the community and suggesting how these problems could be solved.

**NOTE:** Use long note or foolscap sheet to write the two essays separately. No short sheet should be used

### SS2 FURTHER MATHS

1. From the diagram below find  $\sin \Theta + \cos \Theta$



2. If the determinant of  $\begin{pmatrix} 6 & 4 \\ -3 & x \end{pmatrix} = 36$   
Find  $x$

## **SS2 AGRICULTURAL SCIENCE**

TOPIC: Agricultural pollution

- i. Meaning of agricultural pollution
- ii. Identify pollutants or sources of agricultural land/pond pollution
- iii. State the effects of pollution on farmers and farming activities
- iv. Explain how pollution of land / pond can be minimized

## **SS2 C R S**

1. What is Miracle?

What is discipleship?

Who is a disciple?

Write short note on the temptations of Jesus Christ

2. Make a note on the topic "Sermon on the mount"

## **SS2 GOVERNMENT**

TOPIC; The Legislature

Content:

(a) Definition and explanation of the legislature with examples of different names called in different countries (b) Types of legislature with explanation and the merits and demerits of each

## **SS2 CIVIC EDUCATION**

Meaning of citizenship education

Importance of citizenship education

Fundamental issues in citizenship education, obligations and duties of citizens

Skills necessary for preservation of over tradition and customs. How to promote National Consciousness, National Unity and National Integration

## **SS2 GEOGRAPHY**

Study the page of the Atlas that corresponds with your position in the third term's result.

NOTE: Those that came 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> position should study the pages 94, 95, and 96 of the atlas, respectively.

## **SS2 PHYSICS**

An aircraft shell is fired vertically upward with a muzzle velocity of  $1000\text{MS}^{-1}$

Calculate: (a) The maximum height it can attain (b) The time taken to reach this height (c) The instantaneous velocities at the end of 20sec and 50sec (d) When will its height be 37.5km? integrate your result. Neglect air resistance

2. Name four physical quantities that are associated with the equations of linear motion.

## **SS2 MATHEMATICS**

1. In a A.P the 10<sup>th</sup> term is 68 while its 4<sup>th</sup> term is 26 (a) Find the common difference (b) Find the first term

2. If  $16/9$ ,  $x$ , 1,  $y$  are in geometric progression (GP) find the product of  $x$  and  $y$

## **SS2 BIOLOGY**

TOPIC: Ecological concepts

The topic should be discussed under the following sub-topics

(i) Major Biomes of the world (ii) population studies by sampling method (iii) Ecological factors

The following are important in the above research work: characteristics features, example and structures.

### SS3 RESEARCH TOPICS FOR FIRST TERM 2023/2024 ACADEMIC YEAR

#### SS3 GOVERNMENT

- 1a. Define a bill (b) State and explain the five stages through which a bill must pass before it becomes a law
2. Discuss six factors that limit the application of rule of law in a sovereign state
3. In six ways, differentiate between a citizen and an alien
4. Identify and explain six functions of an electoral commission in a democratic state
5. Explain six reasons why democratic government is more popular than military administration
- 6a. Define local government authority (b) Identify and explain five features of 1976 local government reform in Nigeria
7. State and explain six reasons for the success of the indirect rule in northern Nigeria during the colonial administration

8. Discuss six agreements reached at the London Constitutional Conference of 1957
9. Explain six factors responsible for the success of organization of petroleum exporting countries since inception
10. Itemize and discuss six functions performed by the secretary General of the United Nations.

### SS3 MATHEMATICS

1. A trader needs N300,000.00 to improve her business, she deposits N110,000.00 in her savings account at 5% per annum compound interest. She then adds N50,000.00 to her savings at the end of each year.
  - (a) Find her total savings after 3 years
  - (b) By how much is her savings greater or less than N300,000.00 at the end of the third year?
2. A man 1.5 m tall, standing on top of a mountain 298.5 m high, observes the angles of depression of two flying boats D and C to be 28° and 34° respectively. Calculate the distance between the boats, correct to 1 decimal place
3. Calculate the variance and standard deviation of the frequency distribution below, correct to 2 decimal places.

Mark

1 – 5

1 – 10

11 – 15

16 – 20

21 – 25

26 – 30

Frequency

6

4

5

5

6

4

4a. A Geometric progression X has a first term of  $4a$  and its sixth term is 256. Another Geometric Progression Y has a first term of  $3a$  and its fifth term is 48.

(i) First term of X (ii) Sum of the first four terms of X

4b. Differentiate  $(4 + 2)^{-3}$  with respect to  $x$ . Hence, find the value of  $\frac{dy}{dx}$  when  $x = 1$

5a. Solve the simultaneous equations:  $4x - 9y = 19$   
 $2x + 3y = 1$

5b. Use logarithm table to evaluate

$4.033$

$0.611 \times 0.356$

6a. Solve the following inequalities (i)  $x + 1 \geq \frac{2}{3}$   $2 \leq \frac{1}{3}$   $-1 \leq \frac{1}{4}$  (ii)  $4 - \frac{1}{3} - 1 + 2 \geq \frac{8}{5} + 2$

6b. Find the gradient of the line joining (3, 7) and (6, 9). Hence, find the acute angle it makes with the positive x-axis

7a. After  $t$  seconds, a particle has covered a distance of  $S$  meters, where  $S = t^3 - 3t^2 + 9t + 1$

Determine the time when: (i) Velocity is zero (ii) Acceleration is zero

7b. Find its velocity and acceleration when  $t = 2$  seconds (c) What is the acceleration after 6 seconds?

8. Using a ruler and a pair of compasses only:

(a) Construct a  $\triangle PQR$  such that  $PQ = 7$  cm,  $PR = 9$  cm and  $\angle RPQ = 105^\circ$  (b) Construct the locus  $L_1$  of points equidistant from P and Q (c) Construct the locus  $L_2$  of points equidistant from Q and R (d) Locate T, the point of intersection of  $L_1$  and  $L_2$ , and draw a circumcircle (e) Measure  $\angle PQR$

9. Two fair dice, each of which has its face numbered 1,2,3,4,5,6, are tossed at the same time

- (a) Construct a table for sample space of the product of the numbers shown (b) Find the probability of the products which are perfect cube (c) What is the probability of obtaining the products which are divisible by 5 or a multiple of 3?

10. The scores of 50 students in a mid-term test were as shown below:

11 20 30 24 12 28 33 40 23 28  
40 8 30 13 15 34 8 34 32 22  
26 21 25 18 26 10 19 3 27 18  
18 24 26 25 27 29 28 13 35 24  
9 24 14 28 27 38 40 32 33 34

(a) Construct a frequency table using the class intervals 1 – 5, 6 – 10, 11 – 15, ...

(b) Estimate the: (i) Mean score, (ii) Median score, (iii) Modal score,

### SS3 PHYSICS

- 1a. Mention two applications of solar energy (b) Differentiate between a natural and an artificial satellite  
(c) A transformer with 200 turns in its secondary coil delivers 300 V when the primary coil is connected to a 60 V a.c. source. Calculate the number of turns in the primary coil  
2a. What is force? (b) Distinguish between contact force and field force  
3a. Define the maximum range of a projectile motion (b) Give one example of an object in: (i) Stable equilibrium (ii) Unstable equilibrium  
4a. What is meant by the statement “the melting point of glycerine is 130C”? (b) Distinguish between mass and weight  
5. Explain with the aid of a diagram how the lower fixed point of a thermometer is determined  
6a. List two instruments that make use of plane mirror(s) in their mode of operation (b) Differentiate between opaque and translucent materials  
7a. State one of Kepler’s laws (b) How are artificial satellite launched into space?  
8a. Why does water rise in a narrow bore tube? (b) State two assumptions of Rutherford’s atomic model  
9a. State Faraday’s law of electromagnetic induction (b) Enumerate two devices that use electromagnetic induction for its operation  
10. Show with the aid of a diagram how white light is dispersed into its component colours by a triangular glass prism.

### SS3 LITERATURE-IN-ENGLISH

#### AFRICAN DRAMA

##### JOHN K. KARGBO: LET ME DIE ALONE

1. Write on any three dramatic techniques employed in the play
  2. Discuss the theme of colonial imperialism in the text
- ##### WOLE SOYINKA: THE LION AND THE JEWEL
3. With adequate textual illustrations, discuss the use of irony in the play
  4. Discuss any three themes employed in the play

##### FRANK OGODO OGBECHE: HARVEST OF CORRUPTION

5. “Justice Odili is a corrupt judge,” Discuss
6. Explain the theme of female exploitation and how it contributes to the development of the play?

#### NON-AFRICAN DRAMA

##### OLIVER GOLDSMITH: SHE STOOPS TO CONQUER

7. With close references to the text, discuss any three instances of dramatic irony and its significance
8. Write short notes on any two characters in the text

##### LORRAINE HANSBERRY: A RAISIN IN THE SUN

9. Discuss the theme of racism in the play
10. Discuss the character and role of Ruth in the text

### SS3 IGBO

- 1a. Deere nwanne gi no n’obodo ozo leta kooro ya mbo goomenti etiti gbaalara iji hu na oku latrik na-enwu mgbe obula

1b. Komishona na-ahu maka mmuta na-abia n'uloakwukwo unu igbape ulo omumu sayensi goomenti ruoro unu. Diks onyeisi umuakwukwo dee okwu i ga-ekwu n'ogbako e ji anabata komishona ahu

1c. Kowaa ihe a ga-eme ka oke itoro mmadu di ugbu a kwusi

1d. Dee edemede kowari ilu a "Onye umengwu kpuchie ute, aguu ekpughee ya."

1e. Nwaanyi kwesiri isionye na ndorondoro ochichi obodo. I kwenyere ka o bu na kwenyeghi.

2. Tinye akaraudaolu n'okwu ndi a iji gosi nghota e nyere ha:

(i) Ego (money)

(ii) Oke (male)

(iii) Ozo (gorilla)

(iv) Otu (group)

(v) Akwa (egg)

3a. Gini bu ndagba myiriudaume? (b) Were okwu ano mee ka nkowa gi doo anya

4. Were ahiriokwu abuo ziputa (i) Tensi ndinihu (ii) Tensi ndinaazu

5a. Gini bu mofim? (b) Were omumaatu abuo abuo ziputa (i) Mofim nkwuruonwe/Nnoronwe (ii) Mofim ndabe

6a. Deputa uzo abuo mmadu nwere ike isi nweta ihe enwemenwe dika nkwa, ukwa, ulo dgz (b) Deputa uru ato omu nkwa bara n'ala Igbo

7a. Deputa otu ano so n'usoro ochichi odinaala ndi Igbo (b) Kedu ihe ato nwere ike ibute igba ndu?

8a. Deputa udi abu odinaala ato i maara (b) Were otu omumaatu gosiputa abuo n'ime ha

9a. Gini bu agumagu odinaala? (b) Deputa akpaalaokwu ato i maara

IDUUAZI

OFOMATA, C.E. ACHOWA ISI OCHU

10a. Deputa ntaramahuhu ato nne na nna Odiirichukwu nyere ya mgbe o ji abali lota n'ulo Chigozie ha

10b. Deputa ihe abuo mere Chigozie mgbe nna ya gwara ya wetara ya otu puku naira ahu o were n'akpa ya

### SS3 GEOGRAPHY

1a. What is water table? (b) With the aid of diagram, explain the following features (i) Springs; and (ii) Artesian Basin

2a. List four components of Glacier deposition in lowland areas (b) Using a diagram, describe the mode of formation of capes and Bays

3a. Define Environment Conservation (b) Outline any four natural resources that need to be conserved (c) Discuss four methods of natural conservation

4a. Discuss four features of Geographical information system (GIS) (b) In a tabular form list two advantages and disadvantages each of Geographical information system (GIS)

5a. Explain with examples metamorphic rocks under the following headings: (i) Mode of information; and (ii) Characteristics

6a. Elucidate four ways climate affects housing development (b) Identify four economic activities in the warm temperate climate western margins (Mediterranean type)

7a. Discuss the development of a river system with aid of diagram (b) Explain two factors that determine the regime of a river

8a. Distinguish between endogenic and exogenic factors as they affect weathering (b) Discuss two causes of landslide (c) State two problems of weathering (d) Proffer two solutions to the problems identified in (c) above

9a. With relevant examples, explain the following in relation to rock: (a) Texture (b) Structure (c) Colour (b) Highlight two differences between plutonic and volcanic rocks

10a. State two differences between weather and climate (b) Discuss three ways in which elements of weather and climate influences (i) Animal husbandry (ii) Aviation

### SS3 ECONOMICS

1. Discuss any four challenges of HIV/AIDS to the Nigeria economy

2. Discuss any four lessons Nigeria can learn from Asian Tigers

3a. Define an industry (b) Explain five ways in which government can encourage industrialization

4a. What is labour market? (b) With the aid of a diagram, explain how wage rates are determined in a competitive labour market

5a. What is Monopoly? (b) Explain four causes Monopoly

6a. Define co-operative society (b) Explain any three types of cooperative society

7. State and explain five reasons why we study economics

8. The table below shows a hypothetical population distribution of a local government area within Niger State

Age group

0 – 17

18 – 35

36 – 60

61 and above

Population

15,000

11,000

25,000

9,000

(i) Represent the above data in a pie chart

(ii) Determine the dependency ratio of the population

(iii) What is the economic implication of your answer in (ii)

(iv) What percentage of the population constitutes the labour force?

9. (i) What is scale of preference? (ii) Explain four reasons why scale of preference is necessary

10a. What is Division of labour (b) Mention and explain three merits and two demerits of specialization

### SS3 CHEMISTRY

1a. (i) What is super saturated solution? (ii) 25 cm<sup>3</sup> of distilled water at 300C dissolved 15 g of lead (II) trioxonitrate(IV), calculate the solubility of the solute in moldm<sup>-3</sup> (Pb = 207, N=14, O = 16)

(iii) Give three examples of complex ions

1b. (i) State three evidence to show that air is a mixture of gases (ii) State two constituents of air (iii)

Calculate the number of hydrogen ions produce by 0.1 mole of H<sub>2</sub>SO<sub>4</sub> in water (Avogadro constant is

6.0x10<sup>23</sup> mol<sup>-1</sup>) (iv) Mention two types of chemical combinations (v) State the constituents and one use of the following alloys: (i) Brass (ii) Bronze

2a. (i) What is a base? (ii) Give two examples of basic oxides (iii) State two uses of iodine (iv) Mention one difference between an aliphatic and aromatic hydrocarbon (v) An element X has relative atomic mass of 10.8. Calculate the vapour density of its chloride XCl<sub>3</sub>

(b) (i) Mention three factors that affect the rate of a chemical reaction (ii) State the law of conservation of energy (iii) Give two examples of chemical change

(c) Compounds A and B react to form activated complex AB producing compounds C and D. Given that the enthalpy change is positive, draw the energy profile diagram

(a) (i) Give two characteristics of homologous series (ii) Write the two geometric isomers of the molecule BrCH<sub>2</sub>CH = CHCH<sub>2</sub>Br (iii) Name three types of iron

(b) (i) Calculate the mass of CuSO<sub>4</sub> that is required to prepare 500 cm<sup>3</sup> solution of 0.25 moldm<sup>-3</sup> CuSO<sub>4</sub> (Cu = 64, S = 32, O = 16) (ii) List two sources of hydrocarbons (iii) mention two advantages of catalytic cracking over thermal cracking (iv) Give one property of elements in the same period (v) What is the family name of group 2 elements?

(c) (i) Write an equation for the reaction of sulphur with hot concentrated tetraoxosulphate(VI)acid (ii) Write a balanced equation for the reaction between hydrogen sulphide and sulphur(IV) oxide (iii) State the:

(i) Oxidizing agent in c(ii) (ii) Reducing agent in c(ii)

(iv) How many electrons are present in the following ions? (i) 2412Mg<sup>2+</sup> (ii) 32 16 S<sup>2-</sup>

3a. (i) Name two allotropes of carbon (ii) Mention two amorphous carbon (iii) State two postulates made by Mendeleev on periodic table

(b) (i) Define periodicity (ii) How many atoms of oxygen is present in 0.5 moles of oxygen (Avogadro's constant = 6.023x10<sup>23</sup>)

(c) (i) State Faraday's first law of electrolysis (ii) What volume of oxygen at s.t.p. would be liberated in the electrolysis of dilute sodium hydroxide solution by 20, 300 C of electricity? (Relative molar volume = 22.4dm<sup>3</sup>, If = 96, 500 C)

(d) (i) Write a balanced half cell ionic equation for the liberation of oxygen gas when dilute acid is electrolysed (ii) Classify the following as electrolyte and non-electrolyte (i) Tetraoxosulphate(IV) acid (ii) Ester (iii) Phenol

(e) (i) Name a metal that exists as a liquid at room temperature (ii) An element Y has an atomic number 16 and contains 18 neutrons (i) Determine the number of electrons in Y (ii) What is the mass number of element Y? (iii) Identify the element Y

4a. (i) Define basicity of an acid (ii) What is the basicity of the following compounds (i)  $\text{H}_3\text{PO}_4$  (ii)  $\text{HCOOH}$  (iii)  $\text{H}_2\text{SO}_4$

(b) (i) Name three factors that affect the rate of attaining equilibrium in a reaction (ii) Give three factors that affects the rate of chemical reactions

(c) (i) Copy and complete the table below:

S/N	Indicator	Colour in Acid	Colour at end point	Colour in base	Suitable for
-----	-----------	----------------	---------------------	----------------	--------------

(I)  
Methyl orange

Orange

Strong acid and weak base

(II)  
Phenolphthalein  
Colourless  
Colourless

(ii) Using the electrons sublevels, illustrate the (i) Nitrogen (ii) Fluorine (iii) Aluminum

(d) (i) State what is observed when: (i) Sodium metal reacts with ethanol (ii) Hydrogen sulphide reacts with potassium tetraoxomanganate(VII) (iii) Glucose is heated with concentrated  $\text{H}_2\text{SO}_4$

(ii) Give two uses of glucose

5a. (i) Write the equation for the reaction of sodium hydroxide with chlorine gas (ii) State the colour change when iron (II) chloride is exposed in air for a long time (iii) With the aid of a diagram only, outline the preparation of oxygen from catalytic decomposition of potassium trioxochlorate(v)

(b) (i) Give two advantages of hard water (ii) Mention two sources of air pollution (iii) State one reagent used to test for: (i) Starch (ii) Fats and oil

(c) (i) State why standard solutions of  $\text{NaOH}$  and  $\text{H}_2\text{SO}_4$  cannot be accurately prepared in a laboratory

(ii) Write the IUPAC names of the following (i)  $\text{CH}_3\text{C}(\text{Br})_2\text{C}(\text{CH}_3)_3$  (ii)  $\text{CH}_3(\text{CH}_2)_3\text{CH}(\text{CH}_3)_2$

(iii)  $\text{CH}_3\text{CH}_2\text{COCH}_2\text{CH}_3$  (iv)  $\text{CH}_3\text{COCH}_2\text{CH}_3$

(d) (i) State Boyle's Law (ii) A gas occupies  $400 \text{ cm}^3$  at  $300^\circ\text{C}$ . calculate its volume at  $500^\circ\text{C}$  at constant pressure

6a. (i) Give one difference between (i) Burning and corrosion (ii) Boiling and evaporation (b) (i) Define a concentrated solution (ii) State three factors that affect electrolysis

(c) (i) Calculate the relative molecular mass of the compound  $\text{Al}_2(\text{SO}_4)_3$  ( $\text{Al} = 27$ ,  $\text{S} = 32$ ,  $\text{O} = 16$ ) (ii) Name the compound in (c)(i) (iii) What are the products of hydrolysis of fats and oils?

(d) (i) Give two differences between soapless detergent and soap (ii) Identify the functional groups present in the compound below:  $\text{CH}_2\text{CH}_2\text{CH}_2\text{COOH}$

(iii) A sample of gas occupied 300 cm<sup>3</sup> at a pressure of 760 mmHg. Calculate the volume it would occupy at 800 mmHg if the temperature remains constant (iv) What is the charge on an ion if it contains 13 protons and 10 electrons/ (v) Identify the ion in (d)iv

7a. (i) Classify the following into primary, secondary and tertiary alkanols (i) Butan – 2- ol (ii) 2 – methylpropanol (iii) 2 – methylpropan-2-ol

(ii) State two methods by which ethanol can be prepared commercially (iii) If hydrogen diffuses 6 times as fast as a gas Z at the same temperature and pressure, calculate the relative molecular mass of Z. (Relative molecular mass of hydrogen = 2)

(b) (i) Write the electronic configuration of oxygen, using s,p,d,f notation (ii) List three physical properties of oxygen (iii) Give two rules of naming alkenes (iv) Write an equation to show oxidation reaction of ethane

(c) (i) Define an endothermic reaction (ii) Write the equation for the laboratory preparation of hydrogen by the action of dilute tetraoxosulphate(VI) acid on zinc (iv) State three uses of hydrogen

8a. (i) List three uses of sulphur (ii) Mention two physical properties of hydrogen sulphide (iii) State one difference between soaps and detergents (iv) Give one use of detergents

(b) (i) What is the number of neutrons in the following element:

(i)  ${}_{23}^{11}X$  (ii)  ${}_{39}^{19}Y$  (ii) Consider the reaction  $4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$  what is the mass of oxygen needed to burn 9.2 g of sodium? (Na = 23, O = 16) (iii) Calculate the number of moles of calcium chloride that can be obtained from 50 g of limestone in the presence of excess hydrogen chloride (Ca = 40, C = 12, O = 16, H = 1, Cl = 35.5)

(c) (i) Mention two types of colloidal solutions (ii) State the law of definite proportions (iii) Calculate the relative molecular mass of the following (i) Sodium trioxonitrate(V) (ii) Copper(II) tetraoxosulphate(VI) pentahydrate

9a. (i) Mention the phenomenon involved in the following processes when: (i) Salts lose part or all of their water of crystallization (ii) Atoms of an element exhibit different mass numbers but have the same atomic number (iii) Two or more compounds with the same molecular formula but different molecular structures (ii) Name the apparatus used in the production of a gas for intermittent supply (ii) Mention two factors that determine the value of G in a reaction

(b) (i) Define the term polymerization (ii) Mention two types of polymerization (iii) Calculate the PH of a solution whose  $[OH^-]$  is  $4.583 \times 10^{-5}$  moles dm<sup>-3</sup> (P<sub>Kw</sub> = 14)

(c) (i) Sample X was turned brick-red when millon's reagent was added to it. (i) Which class of food does X belong? (ii) Give two functional groups contained in X

(ii) State the composition and one use of the following alloys: (i) Brass (ii) Steel (iii) List two methods by which ethanol can be prepared commercially (iv) Give a reason why hydrogen chloride does not form acidic solution in benzene

10a. (i) Calculate the mass of silver deposited when a current of 4.6 A is passed through a solution of a salt for 90 minutes (Ag = 108, 1 Faraday = 96,500C) (ii) Give two factors that affect the discharge of ions during electrolysis (iii) Identify the oxidizing and reducing agents in the reaction below:



(iv) Write the half cell equation in 2a9iii)

(b) (i) Draw and label the apparatus that can be used for the separation of two immiscible liquids (ii)

Mention three properties of gases (iii) State Faraday's second law of electrolysis (iv) Name two amorphous forms of carbons (v) Arrange the following metals in order of decreasing chemical reactivity; Mg, Al, Ca, Na.

### SS3 AGRICULTURAL SCIENCE

1a. Define farmstead (b) Enumerate four principles of farm layout (c) Outline four ways in which inadequate processing facilities affect agricultural development in Nigeria (di) Give three reasons for the enactment of the land use act (ii) State three advantages of land tenancy at the will of government in Nigeria

2a. Define agriculture (b) Name six agricultural research institutes in Nigeria (c) Mention five daily maintenance practices of a tractor (d) State three factors that affect the efficiency of draught animals

3a. Enumerate three problems that affect cooperation societies (b) State five qualities of a good extension worker (c) List four channels of marketing farm produce (d) Enumerate four types of farm account

4a. Mention soil types which have the following physical properties at the highest level (i) Porosity (ii) Water holding capacity (iii) Capillarity (iv) Organic matter (b) State four farming practices that expose agricultural land to erosion (c) List three ways through which carbon dioxide is lost to the atmosphere (d) Enumerate five disadvantages of surface drainage

- 5a. List three forest management practices (b) State three side effects of chemical control measure of pests (c) Discuss cocoa production under the following headings: (i) Soil requirement (ii) Method of propagation (iii) Planting date (iv) Spacing (v) Two stages of processing (d) Give four reasons for controlling weeds on the farm
- 6a. State four reasons for the enforcement of land use legislation by government in Nigeria (b) Give four ways non-governmental organization contribute to be production in Nigeria (c) Enumerate four advantages of using tree puller over bulldozer for land preparation
- 7a. Mention four ways by which the application of science and technology has contributed to high food production in Nigeria (b) Enumerate four major factors that are responsible for low cattle production in Southern Nigeria (c) Give four reasons for planning a farmland before establishment (d) List four farm operations that require wind power
- 8a. State four principles of crop rotation (b) State one difference between the following ecological associations (i) Commensalism and symbiosis (ii) Predation and parasitism (c) List four benefits of rocks in agriculture (d) Mention four advantages of irrigation

- 9a (i) Define soil pollution (ii) Name four methods of controlling water pollution (b) List four sequential procedures in carrying out BDH soil test in the laboratory (c) Copy and complete the table below:

#### Surface Drainage

##### Three advantages

- (i)
- (ii)
- (iii)

##### Three disadvantages

- (i)
- (ii)
- (iii)

- 10a. Itemize four functions of blood in farm animals (b) Give two economic importance each of the following animals by-products (i) Hides (ii) Egg (iii) Tail (c) Copy and complete the table below

S/NO

Mineral

One function

One deficiency symptom

1

Iodine

2

Magnesium

3

Calcium

## SS3 BIOLOGY

- 1a. Define the following terms; (i) Habitat (ii) Temperature (iii) Population (b) (i) Outline the step by step procedure for conducting pollution studies (ii) List any six measuring instruments used in ecological studies (iii) State six characteristics of tropical rainforest
- 2a. Describe: (i) The light stage of photosynthesis (ii) The process involved in straightening and bending of the arm
- (b) (i) List three industrial applications of anaerobic respiration (ii) Give five economic importance of insects (iii) State four similarities between plant and animals cells
- 3a. (i) State four differences between bone and cartilage (ii) Mention three types of skeletons in animals
- (b) (i) Make a labelled diagram (8-10cm long) of the longitudinal section of a dicotyledonous root. (ii) list five types of supporting tissues in plants
- 4a. (i) Copy and complete the table below
- |                 |  |
|-----------------|--|
| Enzyme          |  |
| Source          |  |
| Site of Action  |  |
| Substrate       |  |
| --              |  |
| Saliva          |  |
| --              |  |
| Starch          |  |
|                 |  |
| Pepsin          |  |
| --              |  |
| Stomach         |  |
| --              |  |
|                 |  |
| Lactase         |  |
| --              |  |
| Small intestine |  |
| --              |  |
- (ii) Mention three types of heterotrophic nutrition (iii) Give three examples of fluid feeding animals
- (b) Draw a well labelled diagram (8 to 10cm long) of human alimentary canal
- 5a. (i) Define commensalism (ii) Give one example of commensalism (iii) State three methods of conserving water (iv) Enumerate three importance of root to plants
- (b) (i) Define the term conservation (ii) State three methods of controlling air pollution (iii) Name the source and effects in each case, of the following pollutants (i) Sulphur dioxide (ii) Nitrogen oxide (iii) Pesticide
- 6a. (i) State the cell theory (ii) Name two scientists that contributed to the development of the cell theory
- (b) (i) List five characteristics of an entomophilous flower (ii) Name the organ of vegetative propagation of the following plants Ginger, Banana, Sweet potato.
- (c) Describe the process of digestion of bread from the mouth to the anus
- 7a. (i) Using arrows, rearrange the following in order of their increasing complexity Tilapia, Hydra, Snake, Amoeba, toad (ii) List three features of *Tridax procumbens* fruit that makes it adapted for wind dispersal method
- (b) Describe an experiment to show that shoot of plant is positively phototropic under the following headings: Aim, Apparatus, Method / procedure, Observation, Conclusion.
- (c) In a tabular form state two differences between aerobic and anaerobic respiration
- 8a. (i) List two examples of fresh water habitat (ii) In a tabular form, state two differences between complete and incomplete metamorphosis
- (b) Describe an experiment to show that chlorophyll is necessary for photosynthesis to take place under the following headings: Aim, Apparatus, Method/ procedure, Observation, Conclusion.
- (c) (i) State four harmful practices that deplete soil fertility (ii) Enumerate two effects of noise pollution
- 9a. (i) State three principles to be observed in a crop rotation system (ii) List five adaptive features of xerophytes

- (b) (i) Enumerate three evidence of convergent evolution to show that birds might have descended from reptilian ancestors (ii) List five function of the liver  
(c) Give four methods of conserving forest resources

10a. A pure breed of dominant white coloured rabbit (WW) was crossed with a pure breed of recessive black coloured rabbit (ww) By means of crossing, show the genotypic and phenotypic ratios of F1 F2 generations.

- (b) (i) State two functions of calyx in plant (ii) Name five animal hormones  
(c) (i) Enumerate two ways in which the principles of heredity has contributed to the field of medicine (ii) Give three structural adaptations of leaves for photosynthesis

### SS3 ENGLISH LANGAUGE

1. Write an article suitable for publication in a national daily on the factors responsible for poor reading culture among students and proffer solutions to them
2. You are a chief speaker in a debate on the topic: The Card Reader should continue to be used in the conduct of elections in Nigeria. Write your argument for or against the motion.
3. A new chairman has been elected in your local government area. As the president of a youth development association in your community, write a letter congratulating him on his victory, highlighting some of the problems faced by the youth in the community and suggesting how these problems could be solved.
4. Narrate a story that illustrates the saying: An empty barrel makes the loudest noise.
5. Write a story to illustrate the saying: Do not bite the hand that feeds you
6. You are a chief speaker in a debate on the topic: A female president is better than a male president. Write your argument for or against the motion.

When it was cuddling and comforting. I went to my grandmother. Out of her grey frailty she doled out kindness and warmth from her kitchen and fireside, her two appointed places. She served us as if she had nothing else to do. Weak in mind and limb, she loved and protected us with the heart of a lion.

Asthma was her curse. It kept her shackled to the house all day long and all her days. It was a chain that you could hear rattling inside her, a chain forged from grey gaspings and breathlessness and wild wheezing cries. It kept her chair for hours at a time some days, with head bowed, her hand over her eyes, shoulders shaking, the drowning going on in her mouth as she battled for air like a spent fish.

When she was a girl of twenty, her father died at sea on the way home from Yarmouth. There was no telegram to warn the family that the skipper lay dead in his boat. When she heard it coming in, she ran down to the harbour early in the morning, waiting on the pier to welcome him, and the present he always brought. But it was a body draped in oilskins that was brought ashore and given her. She fled home with her grief from the sea, shut herself in the store, and threw herself face down on an old mattress which had lain there for years. She cried herself to sleep on that on that damp dismal bed, soaking it with her tears. Exhausted, she lay there till night. They couldn't rouse her nor make answer the door. Fever blazed through her for a week afterward and for a month or more, she could scarcely walk about the house. Her constitution was ruined, a prey to asthma ever since, so the doctor said. When I was born, she was barely fifty. Now I realized that she always looked eighty.

7. What did the writer want from grandmother?
8. Why was grandmother always in the kitchen?
9. With reference to the passage, state two symptoms of asthma
10. What was grandmother's reaction when her father's corpse was presented to her?
11. When she was a girl of twenty.... (i) What grammatical name is given to this expression? (ii) What is its function in the sentence? (iii) What was responsible for grandmother's ailment? (iv) ..... soaking it with her tears. What figure of speech is used in the above expression (v) Find one word or phrase which is nearest in meaning to and can at the same time replace each of the following words as (i) doled out (ii) shackled (iii) battled (iv) draped (v) exhausted (vi) constitution

### SS3 C R S

- 1a. Discuss Joshua's farewell address to the people of Israel (b) Highlight three leadership qualities manifested by Joshua on that occasion
- 2a. Describe the story of the greed of Ahab (b) Outline three ways by which we can eliminate greed in our society
- 3a. Discuss how the book of the law was discovered during the reign of King Josiah (b) Identify three reforms carried out by the king

- 4a. Discuss how Saul's opposition to the gospel led to his conversion (b) Indicate three significance of Saul's conversion to the early church
- 5a. Discuss John's teaching on God's love for man (b) Outline four ways God still manifest His love for us
- 6a. How did St. Paul deal with the problem of Corinthians who did not believe in the resurrection? (b) State any three significance of the resurrection of Jesus Christ to Christians
- 7a. How did Jesus Christ describe Himself as the "True Vine"? (b) Identify any three significance of the teaching
- 8a. Discuss the teaching of St. Paul concerning individual talents in his letter to the Romans (b) Outline any three ways this teaching can be applied to Christians living today
- 9a. Explain Jesus Christ's teaching on the following in Sermon on the Mountain (i) Almsgiving (ii) Prayer (iii) Fasting
- 10a. Narrate the story of the resurrection of Jesus Christ according to the gospel of St. Luke (b) Identify any three lessons that can be derived from the story

### SS3 CIVIC EDUCATION

- 1a. What is the full meaning of UDHR? (b) Discuss three roles of government in UDHR
2. Explain five advantages of national integration
- 3a. Define Representation Democracy (b) Explain four activities of a political party
- 4a. State three fundamental rights of a citizen (b) Discuss four political rights of a citizen
- 5a. Define Rule of law (b) Enumerate and explain four advantages of rule of law
- 6a. What is popular participation in politics? (b) Discuss four ways through which popular participation in politics can be encouraged
7. Mention and explain five types of human rights
8. Discuss five ways pf preventing the spread of corona-virus
9. List and explain five functions of the legislature
- 10a. Explain the phrase 'Respect for constituted authority' (b) Discuss four examples of constituted authority

### SS3 DATA PROCESSING

- 1a. (i) Explain database management system (ii) Give two examples of data  
(b) Briefly explain the following terms as related to database (i) field (ii) Record (iii) primary key
- 2a. (i) Define the term transitions in presentation package (ii) state four qualities of computer professionals  
(b) (i) Explain the following procedures for information processing: (i) Collation of information (ii) Analysis of information
- 3a. Briefly explain any five features of word processor stated below (i) insert text (ii) delete text (iii) cut and paste (iv) copy (v) page size and margins (vi) word wrap (vii) search and replace (viii) print  
(b) (i) Define computer antivirus (ii) List four warning signs that signal the presence of virus in a computer system (iii) Outline two electronic means of transmitting information
- 4a. (i) Enumerate two importance of number systems (ii) List two early counting devices and state one function of each (b) Explain the three fundamental types of cardinality in entity relationship models
- 5a. (i) Give two examples of audio-visual materials (ii) Highlight two uses of ICT each in banking and educational sectors (b) (i) Define data integrity (ii) State four ways through which data may lose its integrity
- 6a. (i) Mention four functions of an operating system (ii) Highlight the steps involved in copying a document using drag and drop method  
(b) Use diagram to explain the following configurations as related to networking: (i) Star (ii) Ring
- 7a. (i) State two functions of the spell checker feature in Microsoft word (ii) List four features of a word processor (iii) Differentiate between cut and copy in word processing  
(b) (i) State four types of keys in a database system (ii) Outline two uses of spreadsheet in database management
- 8a. (i) List two types of communication channels in telecommunication and explain one of them (ii) state four examples of transmission media  
(b) (i) What is Word Processing? (ii) List two examples of word processors (iii) Mention two methods of saving document in MS- Word
- 9a. (i) Mention two programming platforms used in front end web design (ii) Explain three HTML tags used in web design  
(b) (i) List four functional stages of data processing cycle (ii) Explain any two mentioned in 3b(i) above

10a. (i) Enumerate four types of operating system (ii) Explain two scheduling strategies of an operating system

(b) (i) What is data modeling? (ii) List four data modeling approaches.

### SS3 FURTHER MATHS

1. Evaluate:

$$\lim_{x \rightarrow -2} \frac{(-2)x + 3 - 2}{2 - 4}$$

2. Find the dy/d of the following

(a)  $2 + 5 - 2$  (b)  $2 + 4 - 5$