

Instruction: Choose the best option from the following options lettered A – D

1. The amount of energy divided by the time it takes to supply the energy is called ____
A. Current B. Power C. Watt D. Horsepower
2. What is the primary source of wind energy?
A. the sun B. the earth C. the moon D. the sea
3. Whose activities are the major contributors to global air pollution?
A. spirits B. birds C. humans D. Animals
4. _____ are sources from which pollutants are released at one identifiable spot.
A. Non – point B. Sewages C. Waste disposal D. Point sources
5. The two stages of oil exploration are ____
A. the search and recovery stages B. the search and production stages
C. the recovery and finishing stages D. the production and draining stages
6. The environmental and economic effects of oil spillage include the following except ____
A. devegetation B. eutrophication C. abandonment of aquatic lives D. Land and crop fertilization.
7. Which of the following is not among the deleterious effects of gas flaring?
A. heat radiation B. ozone depletion C. sound pollution D. generation of particulates.
8. Who laid the foundation for our modern concept of inheritance?
A. Gregory Mandel B. Robert Brown C. Robert Hooke D. Newton
9. Which of the following does not include in any major scientific investigation?
A. observation B. measurement C. argumentation D. experimentation
10. Science and technology have threatened man on the surface of the earth through ____
A. depletion of ozone layer B. moral decadence C. unemployment D. All (A-C) of the above
11. A world in which all the life processes growth, metabolism, reproduction, and transference of traits are performed at the microscopic level is called ____
A. spiritual world B. scientific world C. celestial world D. microbial world.

- 47) _____ professeur (a) la professeur (b) le professeur (c) l' professeur (d) las professeur
 48) _____ Chaise (a) la chaise (b) le chaise (c) l'chaise (d) las chaise
 49) _____ sac (a) l' sac (b) la sac (c) le sac (d) las sac

Replace the definite article with the correct indefinite article (un, une or des)

- (50) La craie (a) un craie (b) une craie (c) des craie (d) le craie
 (51) La règle (a) Un règle (b) des règle (c) une règle (d) mes règle
 (52) L'œil (a) une œil (b) une œil (c) des œil (d) mon œil

Put the correct form of the adjective ex: un-enfant = un bel enfant

- (53) une...file (petit) (a) petits (b) petite (c) petitee (d) petitil
 (54) une...femme (grand) (a) grand (b) grands (c) grande (d) grandes
 (55) une ... homme (grande) (a) grandes (b) grand (c) grande (d) grandee

Choose the English equivalents of the underlined French expressions of Tourism

- 56) La Réserve faunique de Yankari :
 a. Yankari People's Reserve b. Yankari Game Reserve c. Yankari Football Reserve
 d. Yankari Flower Reserve.
 57) La Chute d'eau de l'État de Cross River :
 a. Shooting Fields in Cross River State b. Water Supply in Cross River State c. Water Falls in Cross River State
 d. Water Ways in Cross River State.
 58) Le Musée d'Art de Nike à Lagos :
 a. Nike's Art Gallery in Lagos b. Nike's Musical Arts in Lagos c. Nike's artificial music in Lagos
 d. Nike's Artful tricks in Lagos.
 59) Le premier bâtiment à étages au Nigéria :
 a. The first stage battalion in Nigeria b. The first storey buiding in Nigéria
 c. The first stage battle in Nigeria
 d. The first stage battle in Nigeria.
 60) Le Ranch de bétail à Obudu :
 a. Obudu Waterfalls b. Obudu Cattle Ranch c. Obudu Beatle Ranch d. Obudu Game Reserve

Choose the correct options to fill the blank spaces.

- 61) La mère de ma nièce est ma _____ a. Mère b. sœur c. tante d. belle-mère.
 62) Le frère de mon père est mon _____ a. Grand-père b. père c. oncle d. neveu
 63) La sœur de ma mère est. Ma tante b. ma cousine c. ma nièce d. ma mère
 64) Le fils de mon frère est a. Mon cousin b. mon oncle c. mon beau-frère d. mon neveu.
 65) Mon époux est _____ a. Mon grand frère b. mon neveu d. mon petit frère d. mon mari

Pick the correct masculine or feminine form of the following

- 66) Beau (a) beaux (b) belle (c) belles (d) joli

- 23) b fille
24) c université
25) a garçon

Select the correct answers to the questions

- 26) Je suis un "Boy" (a) fille (b) sistre (c) Mère (d) garçon
27) Quelle est votre profession ? (a) médecin (b) père (c) Mère (d) le football
28) Quel est le nom de votre ecole ? (a)Aba (b) Abia State University (c) Amadu Bello University (d) l' university l' tat d' Abia
29) what is the French equivalent of "lecturer"? (a) L'enseignant (b) Le professeur (c) l'oncle (d) J'n'étudie pas le français
30) Je suis avocate, means? _____ (a) I'm a sister (b) I'm a professor (c) I'm a law (d) I'm a lawyer
31) Je suis infirmier, means, I'm a _____ (a) sister (b) teacher (c) nurse (d) doctor
32) Ma mere est une Chimiste Industrieele, Means, my mother is _____ (a) Chemist (b) Chemistry (c) Industrial Chemist (d) Chemist industrial
33) I work in a bank, means? (a) Je travaille (b) Je ne travaille pas (c) Je travaille à la banque (d) je ne travaille pas a la banque
34) Je suis une femme ingénieur, means, I'm a _____ (a) female engineer (b)engineer (c) worker (d) job man
35) Je suis soldat du Nigeria, Means, I'm a _____ (a) Army (b) Nigerian army (c) Soldat of Nigeria (d) Nigerian soldier
36) Je ne suis pas policier, is? (a) I'm a man (b) I'm a police man (c) I'm not a man (d) I'm not a police man
37) I study French, Means? (a) J'étudie le Français (b) J'étudie (c) J'étudie l'Anglais (d) J'étudie la langue
38) Je Vais au Bureau Means ? (a) My office (b) I'm not in the office (c) I'm going to the office (d) This is my office
39) How do we say welcome in french? (a) Bienvenue (b) Aurevoir (c) Viens ici (d) bon venue
40) what is an infinitive form? (a) main verb (b) conjugated verb (c) surfix (d) prefix
41) How many verb endings do we have in french? (a) 5 (b) 6 (c) 3 (d) 4
42) Past tense means what in French? (a) présent (b) Passé composé (c) future (d) le passé
43) What is present tense in French? (a) présent (b) passé composé (c) présent et future (d) l' imparfait
44) what is a "pronom personnel" in English? (a) pronouns (b) noun (c) present persons (d) personal pronoun

Write the correct article (le, la, l')

- 45) _____ cahier (a) le cahier (b) la cahier (c) l'cahier (d) une cahier
46) _____ école (a) la école (b) le école (c) les école (d) l'école

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ABIA STATE UNIVERSITY, UTURU
DIVISION OF GENERAL STUDIES

SECOND SEMESTER EXAMINATION FOR 2020/2021 SESSION

GST 122- COMMUNICATION IN FRENCH TIME ALLOWED: 1 HR 20Mins.

INSTRUCTION: ANSWER ALL THE QUESTIONS.

- 1) L'après-midi is _____ in French A) Bonne nuit B) Bonjour C) Bonsoir D) Bon midi
2) Which of the following is meant by 'Bonjour' A) Hi B) Goodnight C) Good morning D) Hello
3) « Henry est étudiant » means _____ a) Henry is a student b) Henry is studious c) Henry is a scholar d) Henry is a pupil
4) Comment vous appelez-vous ? A) Je m'appelles Sandra B) Je m'appelle Sandra C) Je m'apele Sandra D) Je m'apelle Sandra
5) Comment vas-tu ? A) Je vais bien, merci B) Il va bien, merci C) Elle va bien, merci D) Ils vont bien, merci

Choose the correct plural form of the following adjectives

- 6) Respectueux A) Respectueux B) Respecteus C) Respectese D) Respects
7) Grande A) Grand B) Grands C) Grandes D) Grandex
8) Un beau garçon A) Uns beaux garçons B) Des beaux garçons C) Des beaux garçon D) Uns beau garçons
9) La petite fille A) Les petites filles B) La petite filles C) Las petites fille D) Les petite fille.
10) Une grande maison A) Une grandes maison B) Une grande maisons C) Les grandes maisons D) Des grandes maisons

A. Fill in the gaps with the correct form of the adjectives.

a) Intelligent b) Intelligents c) Intelligente d) Intelligentes

- 11) Mademoiselle Ada est c
12) Monsieur Obi est a
13) Monsieur Paul et Monsieur Obi sont b
14) Mesdemoiselles Ada et Ngozi sont d
15) Madame Florence est c

B. Replace the underlined nouns with the correct personal pronoun

- 16) Monsieur Obi est dans la classe a) Elle b) Il c) Elles d) Ils
17) Madame Oke est dans la chambre a) Je b) Tu c) Elle d) Il
18) Mesdemoiselles Ada et Ngozi sont dans la classe a) Elles b) Ils c) Nous d) Tu
19) Madame Eva et Monsieur Obi sont dans la chambre a) Tu b) Ils c) Elle d) Je
20) Le professeur est présent a) Il b) Nous c) Vous d) Je

C. Fill in the gaps with the correct definite article

a) Le b) La c) L' d) Les

- 21) e professeur
22) d étudiants

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DIVISION OF GENERAL STUDIES

SECOND SEMESTER EXAMINATION FOR 2020/2021 SESSION

COURSE: GST 122- COMMUNICATION IN FRENCH TIME ALLOWED: 1 HR 20Mins.

INSTRUCTION: ANSWER ALL THE QUESTIONS.

- 1) Good afternoon is _____ in French A) Bonne nuit B) Bonjour C) Bonsoir D) Bon midi
- 2) Which of the following is meant by 'Bonjour' A) Hi B) Goodnight C) Good morning D) Hello
- 3) « Henry est étudiant » means _____ a) Henry is a student b) Henry is studious c) Henry is a scholar d) Henry is a pupil
- 4) Comment vous appelez-vous ? A) Je m'appelles Sandra B) Je m'appelle Sandra C) Je m'apele Sandra D) Je m'apelle Sandra
- 5) Comment vas-tu ? A) Je vais bien, merci B) Il va bien, merci C) Elle va bien, merci D) Ils vont bien, merci

Choose the correct plural form of the following adjectives

- 6) Respectueux A) Respectueux B) Respecteus C) Respectese D) Respects
- 7) Grande A) Grand B) Grands C) Grandes D) Grandex
- 8) Un beau garçon A) Uns beaux garçons B) Des beaux garçons C) Des beaux garçon D) Uns beau garçons
- 9) La petite fille A) Les petites filles B) La petite filles C) Las petites fille D) Les petite fille.
- 10) Une grande maison A) Une grandes maison B) Une grande maisons C) Les grandes maisons D) Des grandes maisons

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A. Fill in the gaps with the correct form of the adjectives.

a) Intelligent b) Intelligents c) Intelligente d) Intelligentes

- 11) Mademoiselle Ada est c
- 12) Monsieur Obi est a
- 13) Monsieur Paul et Monsieur Obi sont b
- 14) Mesdemoiselles Ada et Ngozi sont d
- 15) Madame Florence est c

B. Replace the underlined nouns with the correct personal pronoun

- 16) Monsieur Obi est dans la classe a) Elle b) Il c) Elles d) Ils
- 17) Madame Oke est dans la chambre a) Je b) Tu c) Elle d) Il
- 18) Mesdemoiselles Ada et Ngozi sont dans la classe a) Elles b) Ils c) Nous d) Tu
- 19) Madame Eva et Monsieur Obi sont dans la chambre a) Tu b) Ils c) Elle d) Je
- 20) Le professeur est présent a) Il b) Nous c) Vous d) Je

C. Fill in the gaps with the correct definite article

a) Le b) La c) L' d) Les

- 21) o professeur
- 22) d étudiants

Instruction: Choose the best option
1. The amount of energy divided by time is
A. Current B. Power
What is the primary source of wind energy?
A. the sun B. the earth C. the moon

55. The most effective way to control land pollution is ____ a. burning b. ocean dumping
c. recycling d. cleaning
56. Scientific technology and social material production are what characteristics of ____ a.
technological revolution b. scientific breakthrough c. technological breakthrough
d. scientific revolution
57. Scientific progress is characterized with ____ a. accumulation of new knowledge b.
verifiability principle c. confirmability principle d. testability principle
58. Inductive method is characterized with ____ a. degree of reliance b. observation c.
probability d. all of the above
59. Indiscriminate refuse disposal is a typical example of ____ a. water pollution b. land
pollution c. air pollution d. environmental pollution
60. The major focus of philosophy of science is on ____ a. how we arrive at scientific truth
b. goal or purpose of science c. nature of scientific knowledge d. all of the
above.
61. The 21st century is known as ____ A. Stone age B. Bronze age C. Computer age D. Middle age
62. ____ is regarded as the great circle of latitude A. Antarctic circle B. equator C. arctic circle D.
Greenwich circle
63. The largest asteroids are? A. vesta B. mynah C. ceres D. Pallas
64. How many universes supports life A. 2 B. 3 C. 1 D. 9
65. The Earth's crust are mostly immersed by A. Water B. Atmosphere C. Sand D. Wind
66. Mercury belongs to the galaxy called A. clouds B. atmosphere C. milky way D. all of the above
67. The genetic makeup of an individual refers to. A. Phenotype B. Genotype C. Microsome D. All
of the above
68. One of these scholars is not a contributor in philosophy A. Hipparchus B. Erasthothenes C.
Theophrastus D. None of the above
69. The process of cell division that gives rise to growth is called. A. Meiosis B. Mitosis C.
Mutation D. Metabolism
70. Ebola virus appeared in A. 1975 B. 1977 C. 1976 D. 1978

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FOR STUDENTS TO HAVE RESULTS.

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19. ___ is the most dangerous piece of equipment at home a. Radio b. cooker c. TV
d. fridge
20. ___ is not a planet a. Irenus b. Mars c. Jupiter d. Saturn
21. What type of electromagnetic rays is emitted by Television at home a. Beta-rays b. X-rays
c. B-rays d. alpha-rays
22. ___ makes water to be hard a. Fluoride b. Potassium phosphate c. chlorine
d. calcium carbonates
23. ___ is an example of household appliance that uses only two wires a. Fridge b.
cooker c. hair dryers d. electric iron
24. Neutral wire is important because a. it stops charges electrocuting the user b. it is
neutral and harmless c. it holds current d. none of the above
25. Bronze age was associated with ___ a. catapult b. swords c. javelins d. all of
the above
26. ___ is known as the regulator of the earth's heat a. ozone layer b. x-rays c.
albedo d. troposphere
27. ___ is an example of the effect of air pollution a. eye irritation b. stroke c.
diarrhea d. itching of the ear
28. ___ causes mental addiction a. opium b. cigar c. snuff d. Marijuana
29. Which type of waste disposal involves burning a. sanitary landfill b. incineration
c. ocean dumping d. open dump
30. ___ is a primary air pollutant a. ozone b. Sulphur oxides c. nitrogen oxides
d. all of the above
31. Various measures to control the negative effects of science and technology include a.
control of drugs through national and international agreements b. disarmament and the
peace movement c. conservation of natural resources and wild life d. all of the
above
32. Pure science enables us to ___ a. build a coherent world view b. satisfy our curiosity about
the world and equips us with know-how to transform the world c. understand, explain and
predict the course of nature d. all of the above
33. Global warming is the result of ___ a. rise in the sea level and the flooding of coastal plains
b. retaining heat generated by the absorption of sunlight by the earth's surface c.
increase in temperature of lower levels of atmosphere d. all of the above
34. The main branches of philosophy are ___ a. epistemology, aesthetics, cosmology b. logic, ethics,
metaphysics c. metaphysics, epistemology, axiology d. B and A
35. Philosophy of science can be defined as ___ a. explanation and prediction of nature b.
systematic body of knowledge derived from observation and verification of facts c.
inference, observation and experimentation d. all of the above
36. Homo sapiens belong to the animal kingdom known as ___ a. rational beings b.
primates c. apes and monkeys d. all of the above
37. Science major focus is on the ___ a. regularity in occurrence in nature b. why and how
things occur c. A and B d. none of the above

ABIA STATE UNIVERSITY, UTURU
DIVISION OF GENERAL STUDIES

SECOND SEMESTER EXAMINATION FOR 2020/2021 SESSION

COURSE: GST 106- HISTORY AND PHILOSOPHY OF SCIENCE TIME ALLOWED: 1 HR 20Mins.

INSTRUCTION: ANSWER ALL THE QUESTIONS.

1. Inhalation by non-smokers of tobacco smoke released into the atmosphere by smokers is called ____ a. active smoking b. passive smoking c. hidden smoking d. none of the above
2. Over 97% of water of the world is found in ____ a. mountains b. ice caps c. glaciers d. seas/oceans
3. ____ disease is associated with change in chromosome number a. down's syndrome b. sickle cell anemia c. galactosemia d. diabetes
4. Effect of alcoholism on reproductive system in man is ____ a. shrinkage of testicles b. stroke c. malaria d. ejaculation
5. The second layer of the earth is called ____ a. core b. barysphere c. mesosphere d. lithosphere
6. ____ is the single largest source of carbon monoxide a. air planes b. automobiles c. bicycles d. keke
7. Lines of latitude are drawn from ____ to ____ a. north to south b. south to north c. west to south d. east to west
8. The foremost and best known disease associated with alcoholism is ____ a. stomach ulcer b. memory loss c. intestinal ulcer d. cirrhosis of the liver
9. Which of these is NOT a household drug a. feldene b. codene c. Panadol d. paracetamol
10. Who among these is NOT a Greek philosopher a. Socrates b. Plato c. Mark Zucherberg d. Aristotle
11. Which branch of philosophy is concerned with beauty a. Aesthetics b. ethics c. social d. political
12. Memory loss associated with alcoholism is caused by damage to ____ a. eye b. heart c. brain d. lungs
13. Three colour coded wire used in the house are ____, ____, and ____ a. yellow, Black and blue b. red, green and blue c. green, purple and blue d. yellow, brown and grey
14. Which of these are floatables a. trash b. plastics c. garbage d. all of the above
15. Alcohol blood level of ____ and above are bad for human health a. 2% b. 1% c. 4% d. 0.7%
16. Most household appliances operate at what voltage a. 200 and 300 volts b. 230 and 240 volts c. 120 and 160 volts d. 220 and 340 volts
17. ____ is an organic water pollutant a. diesel b. fats c. detergent d. all of the above
18. Assembly of stars is known as ____ a. galaxy b. milky way c. clusters d. keloid

ABIA STATE UNIVERSITY, UTURU
FACULTY OF BIOLOGICAL AND PHYSICAL SCIENCES,
SECOND SEMESTER EXAMINATION 2017/2018
SESSION

BIO 102: Introductory Biology II

Instruction: Answer question 1 and any other one.

SECTION B

- 1
 - a) Diagrammatically represent a typical Flowering plant
 - b) List the 2 major regions of a flowering plant
 - c) Write briefly on any one listed above
- 2
 - a) Classify gymnosperms based on their 4 major groups with at least one example each
 - b) Mention the 2 groups of Angiosperms with 2 examples each
 - c) Give 2 differences between Gymnosperms and Angiosperms
- 3 Define the following:
 - i) Pollination
 - ii) Fertilization
 - iii) Placentation
 - iv) Adaptation
 - v) Photosynthesis

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FACULTY OF BIOLOGICAL AND PHYSICAL SCIENCES
SECOND SEMESTER EXAMINATION 2016/2017 SESSION
BIO 102: Introductory biology II

Answer 2 questions from Section A. Time allowed for Sections A and B is two (2) hours

SECTION A

1. (a) List the general characteristics of members of the Chordata, highlighting the similarities and differences from named invertebrate groups.
(b) Draw and label the transverse section of Amphioxus. Comment on the diagnostic features only

CHUKWU ANTHONY

2. (a) What classifies animals as Gnathostomes? Do they possess any derived characters?
(b) Shark eggs are fertilized internally but embryos can develop in different ways. Discuss.
3. Write short biological notes on any two of the following-
- (a) Amniotes.
 - (b) Derived characters of birds
 - (c) Variations in gas exchange systems of animals,

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ABIA STATE UNIVERSITY, UTURU
FACULTY OF BIOLOGICAL AND PHYSICAL SCIENCES,
2016/2017 SECOND SEMESTER EXAMINATION
BIO 102 (SECTION B)

Instructions: Answer two questions in this section, question 1 is compulsory (Give answers only).

1. (i) ----- are group of plants that do not bear flowers or seeds.
(ii) ----- and (iii) ----- are called the Spermatophytes.
(iv) ----- are group of plants that bears flowers.
Angiosperms belongs to sub-division (v)-----.
Gymnosperms belong to sub-division (vi) -----.
(vii) ----- bears "True Fruits".
The flowering plants are classified into (viii) ----- and (ix) -----.
Roots function mainly in (x) ----- and (xi) -----.
(xii) ----- and (xiii) ----- are the two fundamental regions of a land plant
The reproductive organ of a plant is known as (xiv)-----.
Bud arising at the tip of a shoot is called (xv)-----.
(xvi) ----- is the area of stem where a leaf is attached.
(xvii) ----- is the transfer of seeds away from the parent plants
- CHUKWU ANTHONY
- 2 a. Classify gymnosperms according to their four major groups with one example each
b. In a tabular form, diagrammatically differentiate between monocotyledons and dicotyledons
- 3 a. (i) Define Phyllotaxy
(ii) Why is phyllotaxy important to plants?
b. (i) Draw and label a typical angiosperm plant showing the four major organs.
(ii) State the functions of any two organs labeled above.

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FACULTY OF BIOLOGICAL AND PHYSICAL SCIENCES
SECOND SEMESTER EXAMINATION 2017/2018 SESSION

BIO 102: Introductory biology II

Answer 2 questions from Section A and 2 questions from Section B

Time allowed for Sections A and B is two (2) hours

SECTION A

1. (a) Draw and label the cross-section of *Amphioxus*.
(b) Comment on the diagnostic characteristics.

2. (a) Draw and label the amniotic egg showing different membranes and other internal features.
(b) List and explain the different ways of egg development in *Chondrichthyans*.

3. Write short biological notes on any two of the following-
 - (a) Derived characters of birds.
 - (b) Different respiratory strategies in vertebrates.
 - (c) Lampreys (*Ptarmozontida*)

monocot	dicot
Taproot	Scalroot
Long leaf	Wide short leaf
Scattered	Netlike
1 seed cotyledon	2 seed cotyledons

SECTION B

Instructions: Answer Questions i—x (Give Answers Only)

i is the science of classification of living things.

ii is the basic unit of classification.

The binomial system of classification makes use of two names, iii and iv.

v and vi are the eternal features that distinguish Angiosperms from other seed plants.

During the process of photosynthesis, solar energy is converted to vii energy.

viii and ix are the two types of respiration.

x is the arrangement of leaves on a stem or branch.

Instructions: Answer any two questions

- 1a) Outline three (3) general characteristics of seed plants. *have seed*
 b) List the two classes of Angiosperm. *monocot dicot*
 ii) In a tabular form, give four (4) differences between the two classes of Angiosperm listed above.

2a) Draw and label a typical Leaf

b) Using diagram, represent the three different types of leaf

c) List three types of phyllotaxy. *Whorled opposite alternate*

3a) List (in hierarchical order), the seven major groups used in the classification of living things.

b) Why is the binomial system of classification important?

c) State the different classification system you have studied.

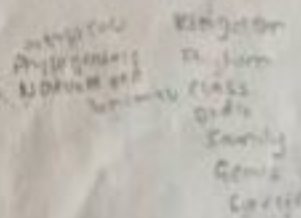
d) Write the following scientific names correctly:

i. *manihot esculenta*

ii. *homo sapiens*

iii. *curcubita pepo*

iv. *canis lupus*



Handwritten notes at the bottom of the page, partially obscured and difficult to read. Some visible words include 'classification', 'system', 'important', 'study', 'help'.

ABIA STATE UNIVERSITY UTURU

FACULTY OF BIOLOGICAL SCIENCES

SECOND SEMESTER EXAMINATION 2019/2020 SESSION

BIO 102: INTRODUCTORY BIOLOGY II

SECTION A

Answer objective questions (i to x) and any other two questions from section A, then turn to section B. Time allowed for Sections A & B - 2 hours

- (i) Birds have ^{gesthau} ~~two~~ number of ovaries, (ii) Craniates possess _____ clusters of Hox genes (iii) The modern Amphibian belongs to how many separate orders? (iv) ^{3 - osteichthyes, apochthyes, and chondrichthyes} Osteichthyans have cartilaginous skeleton. True or False? (v) Lampreys are agnathous. True or False? (vi) Gland that releases their secretion into ducts or tubes are called _____? (vii) Locomotion in snakes are produced by _____ ^{undulating motion} (viii) What is the function of quill feathers in birds? ^{to make flight} (ix) Eggs that hatch outside the mother's body are said to be ^{oviparous} (x) _____ were the first vertebrates with mineralized

- Describe the following (a) the respiration in Amphibians (b) the pancreas in Mammals, (c) General characteristics of bird.
- Write on the organs for gas exchange in (i) Earthworm (ii) Flatworms
- Using a labelled diagram, concisely describe any Cephalochordate you have studied.



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12. An application of biology for human purposes is called _____.
A. microbiology B. biotechnology C. technology D. biastechnology
13. Household hazards are accidents that normally occur at _____.
A. office B. home C. in a room D. school
14. Man left Stone Age and entered _____ age.
A. Computer B. bronze C. Brass D. modern
15. There are two parts of a computer, namely software and _____.
A. typeware B. hardway C. hardware D. laptop
16. The programmes that run on a computer telling it what to do is called _____.
A. software B. memory C. floppy disk D. system
17. We get the following from the forest except _____.
A. shelter B. fruits C. paper D. fish
18. _____ is among the modern medicine derived from traditional drug plants.
A. panadol B. codein C. digitoxine D. B and C (are among).
19. What are the two forms of drugs from plant origin?
A. natural and herbal B. modern and orthodox C. natural and orthodox D. liquid and tablets
20. Which of the following *is not among* the advantages of herbal treatment?
A. disease prevention B. artificial and side effect
C. effectiveness D. complete elimination of disease
21. The environmental factors that lead to cancer include the following except _____.
A. dietary factors B. occupational factors C. genetic factor D. lifestyle and habits
22. State your overall assessment of this course, pointing out, at least, three things you have derived from it. State how you would implement any two of what you have learnt.

23. What are the ^{top} health benefits of charcoal which we discussed in the class?

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- 23) b fille
24) c université
25) a garçon

Select the correct answers to the questions

- 26) Je suis un "Boy" (a) fille (b) sistre (c) Mère (d) garçon
27) Quelle est votre profession ? (a) médecin (b) père (c) Mère (d) le football
28) Quel est le nom de votre école ? (a) Aba (b) Abia State University (c) Amadu Bello University (d) l' university l' tat d' Abia
29) what is the French equivalent of "lecturer"? (a) L'enseignant (b) Le professeur (c) l'oncle (d) J'n'étudie pas le français
30) Je suis avocate, means? _____ (a) I'm a sister (b) I'm a professor (c) I'm a law (d) I'm a lawyer
31) Je suis infirmier, means, I'm a _____ (a) sister (b) teacher (c) nurse (d) doctor
32) Ma mere est une Chimiste Industrieele, Means, my mother is _____ (a) Chemist (b) Chemistry (c) Industrial Chemist (d) Chemist industrial
33) I work in a bank, means? (a) Je travaille (b) Je ne travaille pas (c) Je travaille à la banque (d) je ne travaille pas a la banque
34) Je suis une femme ingénieur, means, I'm a _____ (a) female engineer (b) engineer (c) worker (d) job man
35) Je suis soldat du Nigeria, Means, I'm a _____ (a) Army (b) Nigerian army (c) Soldat of Nigeria (d) Nigerian soldier
36) Je ne suis pas policier, is? (a) I'm a man (b) I'm a police man (c) I'm not a man (d) I'm not a police man
37) I study French, Means? (a) J'étudie le Français (b) J'étudie (c) J'étudie l'Anglais (d) J'étudie la langue
38) Je Vais au Bureau Means ? (a) My office (b) I'm not in the office (c) I'm going to the office (d) This is my office
39) How do we say welcome in french? (a) Bienvenue (b) Aurevoir (c) Viens ici (d) bon venue
40) what is an infinitive form? (a) main verb (b) conjugated verb (c) surfix (d) prefix
41) How many verb endings do we have in french? (a) 5 (b) 6 (c) 3 (d) 4
42) Past tense means what in French? (a) présent (b) Passé composé (c) future (d) le passé
43) What is present tense in French? (a) présent (b) passé composé (c) présent et future (d) l' imparfait
44) what is a "pronom personnel" in English? (a) pronouns (b) noun (c) present persons (d) personal pronoun

Write the correct article (le, la, l')

- 45) _____ cahier (a) le cahier (b) la cahier (c) l'cahier (d) une cahier
46) _____ école (a) la école (b) le école (c) les école (d) l'école

- 67) Bon (a) Bons (b) bonne (c) bon (d) bonnes
- 68) Mince (a) mince (b) minces (c) mon (d) mes
- 69) Travailleurs (a) travailleuses (b) travailleurs (c) travaulleus (d) travail
- 70) Courte (a) courtes (b) courts (c) court (d) jolis

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COMPULSORY FOR STUDENTS TO HAVE RESULTS.

ABIA STATE UNIVERSITY, UTURU
FACULTY OF PHYSICAL SCIENCES
DEPARTMENT OF PURE AND INDUSTRIAL CHEMISTRY

SECOND SEMESTER EXAMINATION 2019/2020 SESSION

CHE 102: General Chemistry II (3 Units)

TIME: 2 Hours

INSTRUCTION: Answer six (6) questions in all, two (2) questions from each section

SECTION A

1. a. State seven functional groups in Organic Chemistry with their general formulae. (14 mks)
b. Describe the operational forces (bonds) that hold the following molecular together
i. $H-H$ ii. Cl_2 iii. $CH_2=CH_2$ (3 mks)
2. a. State the criterion/criteria on which the following isomers are classified (give one example of each case)
i. Constitutional/structural/positional isomer (3 mks)
ii. Geometric isomers (3 mks)
iii. Topological isomers (3 mks)
iv. Optical isomer (3 mks)
v. Conformational/Rotational isomers (3 mks)
b. Give the structural formulae of
i. 4-Ethyl-2,3-dimethyl hexane (1 mks)
ii. 2-chloro-3-ethyl-4methylhexane (1 mks)
3. a. Recrystallization (a major purification process of crude organic precipitate) follows seven steps. State the seven steps (7 mks)
b. Phenol, a general disinfectant has a composition of 76.57% C, 6.43% H and 17.00% O by mass. Calculate the empirical formula (7 mks)
c. What is the relationship between percentage yield and theoretical yield of synthesized product? (3 mks)

SECTION B

4. a. Enumerate four (4) distinct features of Organic Chemistry. Give three (3) reasons for these special features. (8 mks)
b. Write equation of Wholer's experiment that disproved the theory of vital force. Write two other equations that supports Wholer experiment (3 mks)
c. Give three (3) examples each of atoms or group of that exhibit +I Effects and -I Effects (6 mks)
5. a. Predict the possible type of bond fission in the following molecules
i. CH_3-Cl iii. $Cl-Cl$ iii. CH_3-F (5 mks)
iv. CH_3-CN v. $Br-Br$
b. Write out the mesomeric (canonical)
i. Benzene ii. $R-NO_2$ iii. CO_2 (3 mks)
c. Arrange the following in order of stability and give a reason why? (2 mks)

$\begin{array}{c} H \\ | \\ H_3C-C^+ \\ | \\ H \end{array}$
i

$\begin{array}{c} H_3C \\ | \\ H_3C-C^+ \\ | \\ H_3C \end{array}$
ii

$\begin{array}{c} H \\ | \\ H_3C-C^+ \\ | \\ H_3C \end{array}$
iii

(1 mks)

Give one name for the species
6. a. Give reasons for the following observations (5 mks)
i. Allyl cation is more stable than propyl cation

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Diabetes is caused by deficiency of (g) insulin (b) water (c) sugar (d) vitamin

The two main parts of evolution are ____ and _____. (e) Inorganic and organic (b) man and animals (c) heaven and earth (d) monkeys and chimpanzees

The _____ is the only planet in the solar system that is known to harbour life (a) sun (b) moon (c) earth (d) stars

The cell theory states that all living things are _____. (a) composed of cells (b) composed of bones (c) composed of blood (d) composed of water

_____ is the day-to-day state of the atmosphere and its short term changes (a) climate (b) weather (c) ionosphere (d) stratosphere

The instrument used to measure the intensity of an earthquake is called _____. (a) seismograph (b) seismometer (c) seismic scale (d) seismic impulse

Examples of fossil includes all except (a) coal (b) petroleum (c) natural gas (d) hydropower

Some environmental issues and factors that threaten the existence of life on earth includes all except (a) natural environment (b) flooding (c) drought (d) earthquake

_____ is defined as any substance that can produce heat when it is burned in air (oxygen). (a) fuel (b) oil air (c) energy air (d) fossil air

_____ and _____ are described as non-biodegradable pollutants. (a) water and oil (b) oil and gas (c) heavy metals and nuclear wastes (d) air and fire

_____ radiation can cause skin cancer (a) fire (b) ultra-violet (c) skin torch (d) carcinogens

The primary source of wind energy is _____. (a) the sun (b) the moon (c) the stars (d) the wind

21. PH of acid rain is ____ (a) 5.7 (b) 4.6 (c) 7.0 (d) 8.0
22. Thinning of ozone layer can cause ____ (a) eye cataract (b) skin cancers (c) weak immune systems (d) all of the above
23. ____ is the most serious indoor air pollutant (a) radon (b) carbon monoxide (c) asbestos (d) nitrogen dioxide
24. Forest resources are used in ____ (a) latex (b) gums (c) vegetable oil (d) all of the above
25. Marsh gas refers to ____ (a) carbon dioxide (b) biogas (c) sulphur dioxide (d) none of the above
26. Biogas is made up of ____ percentage of methane (a) 10-20% (b) 50-60% (c) 40-50% (d) 70-30%
27. Purification of crude oil involves ____ (a) removal of sulphur compounds (b) removal of water (c) polymerization (d) none of the above
28. Prolonged exposure to methyl mercury compounds causes ____ (a) kidney failure (b) loss of sight (c) mental retardation in children (d) all of the above
29. Lines of latitude are drawn from ____ (a) North to South (b) East to West (c) South to North (d) North to west
30. Example of sedimentary rock is ____ (a) quartz (b) coal (c) marble (d) slate
31. ____ is an example of disorders due to change in chromosome structure (a) down syndrome (b) turner's syndrome (c) diabetes mellitus (d) all of the above
32. Disadvantage of science and technology include (a) wars (b) accidents (c) manufacture of deadly weapons (d) all of the above
33. Which of these is not an effect of noise pollution on humans (a) hearing impairment (b) sleep disturbances (c) hypertension (d) diabetes

ABIA STATE UNIVERSITY, UTURU

DIVISION OF GENERAL STUDIES

SECOND SEMESTER EXAMINATION FOR 2012/2013 SESSION

COURSE: GST 106 HISTORY AND PHILOSOPHY OF SCIENCE: 1 HOUR

INSTRUCTION: ANSWER ALL THE QUESTIONS

1. Science can be defined as (a) Systemized body of knowledge derived from observation and verification (b) Arts and history (c) Philosophy and aesthetics (d) Observation of experiment
2. Science helps to (a) destroy property (b) fight wars (c) produce weapons of mass destruction (d) know and do things
3. All but one was the contribution of Hipparchus (a) Precision for the equinoxes (b) Estimation of the size and distance of the sun and the moon (c) the art of alphabetic writing (d) Devised the geometric epicycles and eccentrics
4. Axiology is the branch philosophy that _____ (a) concerns the study of beauty (b) concerns the study of nature, method, origin, validity and the extent of human knowledge (c) concerned with the study of laws and values (d) concerned with the meaning of origin, structure and the composition of the universe
5. One of these is not an aspect of philosophy (a) Axiology (b) Metaphysics (c) Epistemology (d) Criminology
6. One of this is not a Jovian planet (a) Jupiter (b) Saturn (c) Uranus (d) Venus
7. _____ is an apostle of deductive reasoning (a) Thales (b) Plato (c) Parmenides (d) Aristotle
8. _____ propounded the theory of change (a) Isaac Watts (b) Socrates (c) Hippocrates (d) Heraclitus
9. _____ used mathematical equality signs to express some abstract philosophical problems (a) Plato (b) Hipparchus (c) Socrates (d) Heraclitus
10. Pollution can be defined as (a) Generation of waste (b) Waste disposal (c) Sewage treatment (d) Introduction of foreign harmful materials into the environment
11. Anything that has utility value which can be used by man is known as (a) Resource (b) Deposit (c) Material (d) Utility
12. Primary air pollutants include the following except (a) Carbon dioxide (b) Nitrogen oxides (c) Sulphur dioxide (d) Fertilizers
13. What is the milky way? (a) A Galaxy (b) an assembly of stars (c) Sun's galaxy (d) all of the above
14. Of the domains of the environment, which is referred as the home of man? (a) Earth (b) Biosphere (c) Lithosphere (d) Atmosphere

ABIA STATE UNIVERSITY, UTURU
DIVISION OF GENERAL STUDIES
SECOND SEMESTER EXAMINATION FOR 2016/2017 SESSION
COURSE: GST 106 HISTORY AND PHILOSOPHY OF SCIENCE
TIME ALLOWED: 1 HOUR INSTRUCTION: ANSWER ALL THE QUESTIONS

1. Which of these type of smog is known as industrial smog (a) nitric acid (b) grey air (c) ozone (d) hydrocarbons
2. Whatsapp as founded by an American called ____ (a) Robert Lawyer (b) Alistair Lawyer (c) Jan Kaun and Brain Action (d) Hanebrink and Co.
3. ____ founded the facebook (a) Mark Zucherberg (b) Socrates (c) Tony Fadell (d) Lionel Tiger
4. Wikipedia was founded in 2001 by ____ (a) Niklas Zennstrom (b) Julius Sachs (c) Jimmy Wale and Lamy Sanger (d) Thomas Mrogan
5. An example of Brown air type of smog is ____ (a) soot (b) sulphur oxides (c) Nitric acids and Nitric oxides (d) smoke
6. Which of these is non-metal found in the Lithosphere (a) copper (b) zinc (c) sulphur (d) Gold
7. Example of metallic mineral found in the Lithosphere is ____ (a) Diamonds (b) Gems (c) Granite (d) Coal
8. Which of these is formed from decayed vegetation (a) Diesel (b) petrol (c) natural gas (d) Coal
9. Ozone and PAN Oxidants can cause ____ (a) Headaches (b) eye irritations (c) respiratory infections (d) all of the above
10. ____ is the main source of photochemical smog (a) automobile (b) bakeries (c) A and B (d) none of the above

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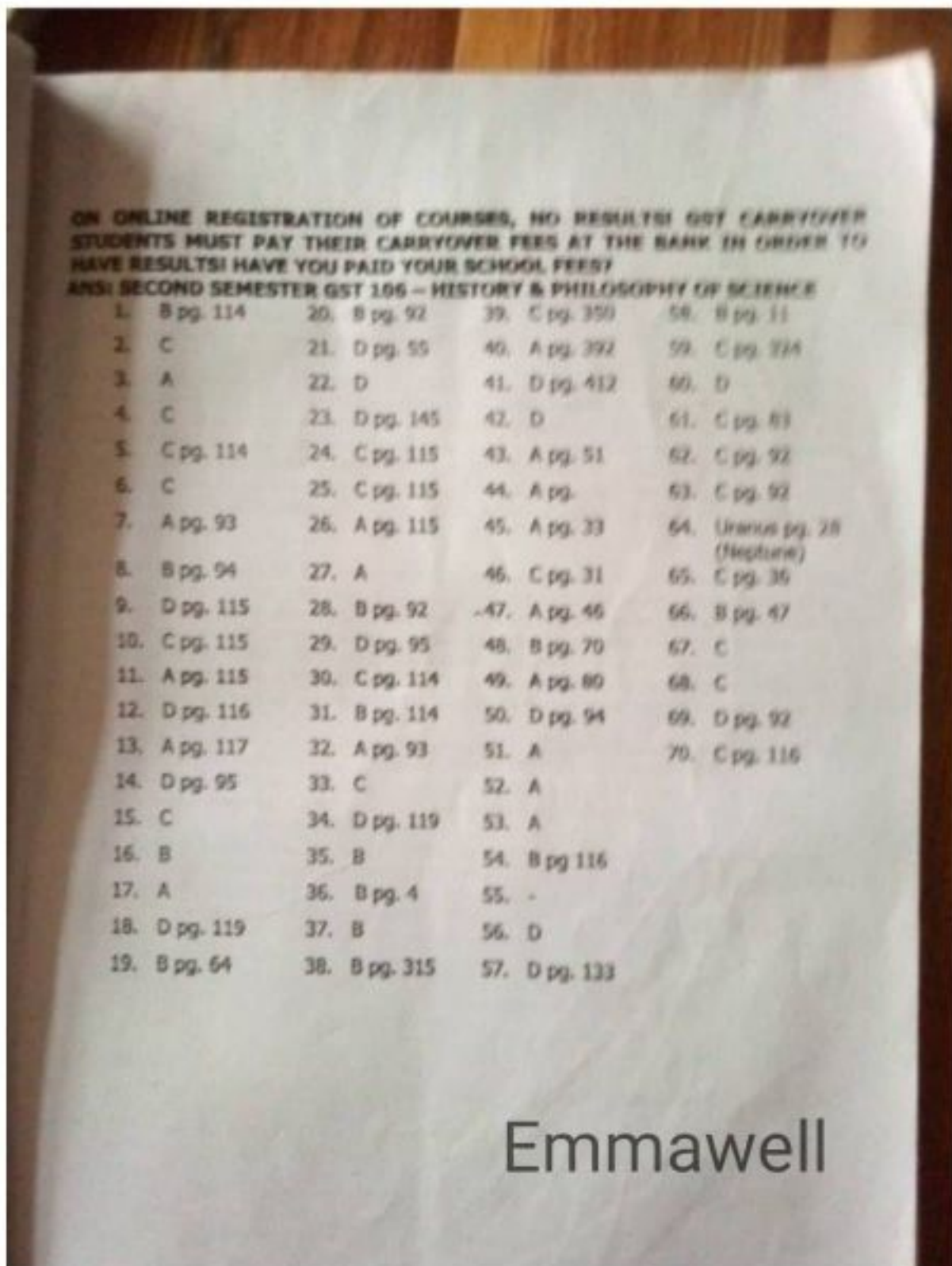
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45. A great thinker, philosopher and scientist who was believed to have fallen into a well gazing into the sky is _____. (a) Thales of Miletus (b) Copernicus (c) Pythagoras (d) Anaximenes
46. A point on the earth's surface directly above the source of the earthquake shock is known as _____. (a) Caldera (b) Locus (c) Focus (d) Epicentre
47. The first book written on geometry was titled _____. (a) The elements (b) Deductive Reasoning (c) Spatial Quantity (d) Shapes and Angles
48. In a computer, all but one are input operations (a) Keyboarding (b) Scanning (c) Mouse (d) Printing
49. The main difference between Science and Philosophy is _____. (a) both explore facts (b) Science is objective (c) both explore natural laws (d) all of the above
50. The first man credited with the observation of bacteria and protozoans and who described micro-organisms as animalcules is (a) Louis Pasteur (b) Aristotle (c) Anthony Van Leeuwenhoek (d) Robert Hooke
51. The various methods of treating surface water to remove pollutants include the following except (a) dredging (b) physical isolation of sediments (c) Chemical treatment of sediments (d) disposal of water into water channels
52. Which of these is true? (a) the time along each line of latitude is the same from east to west (b) the time along each line of longitude is the same from north pole to south pole (c) the time along each line of latitude and longitude is the same at every point (d) All of the above
53. The theory of evolution proposes the following except (a) that life originated spontaneously (b) that life originated from inanimate matter by a gradual process (c) that as the environment continuously change, the organisms which could adapt survive and reproduce (d) that variation/diversity was a result of the adaptation by different organisms
54. Methods of science consist of processes involving _____. (a) Experimentation, observation and inference (b) observation, experimentation and inference (c) experimentation, inference and observation (d) observation, inference and experimentation
55. The Greek Mathematician who wrote the first book on geometry was _____. (a) Socrates (b) Euclid (c) Ptolemy (d) Erasthones
56. A catastrophic event occurring near the end of a life of a star in which the star collapses and explodes is called _____. (a) Disaster (b) Eclipse (c) Supernova (d) Earthquake
57. _____ was the first to define 'force' as the prime cause of change in motion, and thus invented calculus (a) Sir Isaac Newton (b) Galilee (c) Iohannes Kepler (d) Nicolaus Copernicus

71. The mercury unit of the computer is for strong programmes while the output unit is for (a) Feeding information into the system (b) displaying processed information (c) processing information (d) deleting information
72. The following encourage household accidents except (a) using old frayed wiring with exposed loose ends (b) spilling liquids on floors (c) overloading of electric circuits (d) the use of built into application
73. Some causes of oil spillage include the following except (a) blow outs of oil wells (b) pipeline vandalism (c) corrosion and leakages from pipelines (d) excess rainfall
74. Around 460 – 370BC _____ introduced the use of plants for curing different types of diseases (a) Plato (b) Zeno (c) Demarcritus (d) Hippocrates
75. _____ occurs when the sun, earth and the moon are in a straight line (a) Eclipse (b) revolution of the earth (c) rotation of the earth (d) earthquakes
76. The process of gradual and continuous orderly succession of changes is called _____ (a) generation (b) regeneration (c) revolution (d) evolution
77. Which of these scientists insisted that not immutability is the rule of the universe (a) Charles Darwin (b) Jean Lamarck (c) Alfred Wallace (d) Anton Leuwenhoek
78. The process by which organisms inheritable characters that suit them in a given environment survive, while the less suited are eliminated is known as _____ (a) Organic evolution (b) Biological development (c) spontaneously organism (d) Natural selection
79. The acronym DNA stands for (a) Deoxyribonucleic acid (b) Deoxyribonitrogen acid (c) Distinctoxyribonucleic acid (d) Deoxyribonucleic add
80. _____ is regarded as the father of engineering (a) Pythagoras (b) Archimedes (c) Ptolemy (d) Euclid
81. The origin of science and technology can be traced to the _____ (a) Industrial evolution (b) Stone age (c) Middle age (d) Bronze age
82. _____ is the application of scientific and engineering principles to the processing of materials by biological agents to provide goods and services (a) Engineering (b) Science (c) Biotechnology (d) Economic
83. Charles Darwin and _____ jointly wrote the paper that revolutionized biological thought (a) Gregor Mendel (b) Wallale (c) Isaac Newton (d) Aristotle
84. An but one are evidence of Biological evolution (a) Fossils (b) Genetics (c) Cell structure (d) Adaptation
85. State one of the texture of the sedimentary rock (a) light coloured rocks (b) dark coloured rock (c) angular pebbles (d) high plastic index
86. _____ is a hereditary material (a) DNAase (b) DNA (c) RNA (d) RNAase

15. State 2 components of cell theory (a) All living things are made of cells and cells are mutations (b) All Pre-existing cells are source of cells and living things are made of cells (c) Cell growth is continuous and non-living things has static cells (d) Cell growth in living things depends on age and they rarely die.
16. What is responsible for man's adaptation to new environment (a) Gene mutation (b) culture (c) Geographical location (d) Latitudinal location
17. Earth revolution causes? (a) Rising and falling tides (b) Deflection of the wind and ocean currents (c) seasons (d) Differences of one hour between two meridians
18. Convert 30°C to Fahrenheit (a) 86°F (b) 87°F (c) 88°F (d) 85°F $\frac{9}{5}(30+32)$
19. Chemistry as a course of study affects only? (a) the physical form of life (b) All forms of life (c) the mixing/reaction of chemicals in the laboratory (d) Petroleum industry
20. Who invented aero planes and year? (a) Markfinely 1800 (b) Wilbur and Orville Wright 1900 (c) Maxwell Carridge 1605 (d) John Kennedy 1708
21. _____ is an auxiliary device to the keyboard (a) Mouse (b) Printer (c) Scanner (d) UPS
22. What produces fossil fuels? (a) Heated rocks (b) A collision of two or more galactic particles (c) Product of organic decay in the absence of oxygen (d) Excessive solar radiation
23. All but one are the consequences of oil prospection in the Niger Delta region of Nigeria (a) Lowering in life expectancy (b) fall in fertility rate due to hydrocarbons and other noxious gases (c) higher incidence in child mortality (d) High birth rate
24. What is a file? (a) anything in computer (b) any work produced using computer application (c) any work saved in the computer (d) all of the above
25. What is the contribution of Lady Ada Lovelace in computer development? (a) Designed the analytical engine (b) configured the first robotic engine (c) founder of the computer hardware (d) founder of the computer software
26. State the two main kinds of philosophy (a) separation and precise (b) Dispersion and scientific (c) specific and theoretical (d) Crystallization
27. The organic matter load of a water body is described as (a) Total solids (b) Total salts (c) Biochemical Oxygen demand (d) Carbon extraction
28. Empiricism is _____ (a) Belief in knowledge gained through thinking (b) Belief in knowledge gained through logical reasoning (c) Belief in knowledge gained through experience in the immediate environment (d) belief in the knowledge of law

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87. Biotechnology has impacted soil fertility by (a) reducing toxicity through the use of synthetic fertilizers (b) reducing the fertility of the soil (c) increasing the toxicity of the soil (d) none of the above
88. The instrument used in measuring sun's intensity is called (a) Sun guage (b) strokes recorder (c) meteorological station (d) Telescope
89. Convert 140°F to centigrade (a) 60°C (b) 65°C (c) 58°C (d) 63°C
90. The chemical life of a cell is called (a) Centuries (b) Protoplasm (c) Nucleous (d) none of the above
91. Who invented the Telescope, (a) Galilee Galileo (b) Isaac Newton (c) Aristotle (d) Louis Pasteur
92. _____ radiation can cause skin cancer (a) fire (b) ultraviolet (c) skin touch (d) carcinogen
93. In computer science, two types of software are (a) CPU and RAM (b) background and general purpose software (d) System and Application software (d) ENIAL and UNIVAL software
94. _____ are responsible for man's ability to adapt to new environment (a) Adequate life (b) Gene Mutations (c) Adaptation.
95. The cell theory states that all living things are _____ (a) composed of cells (b) composed of blood (c) composed of bones (d) composed of water
96. The instrument used to measure the internship of earthquake is called (a) Seismograph (b) Seismic scale (c) Seismic scale (d) Seisomometer
97. Diabetes is caused by deficiency of (a) Glucose (b) Insulin (c) Vitamin B (d) Melatonin
98. The DNA molecule is made of _____ (a) 1-sugar, 4-nitrogenous bases, 3 Phosphate (b) 1-sugar, 4-nitrogenous bases, 1 phosphate (c) 2 sugar, 3-nitrogenous bases, 2 phosphate (d) 1 sugar, 5 nitrogenous bases, 1 phosphate
99. _____ and _____ are described as non-biodegradable pollutants (a) oil and water (b) oil and gas (c) heavy metals and nuclear wastes (d) air and fire
100. Examples of natural renewable resources are (a) Rock and waterfalls (b) food and sand beaches (c) soil and water (d) Minerals and Landforms

NO ONLINE REGISTRATION OF COURSES, NO RESULTS! GST CARRYOVER STUDENTS MUST PAY THEIR CARRYOVER FEES AT THE BANK IN ORDER TO HAVE RESULTS! HAVE YOU PAID YOUR SCHOOL FEES?

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27 | P a g e



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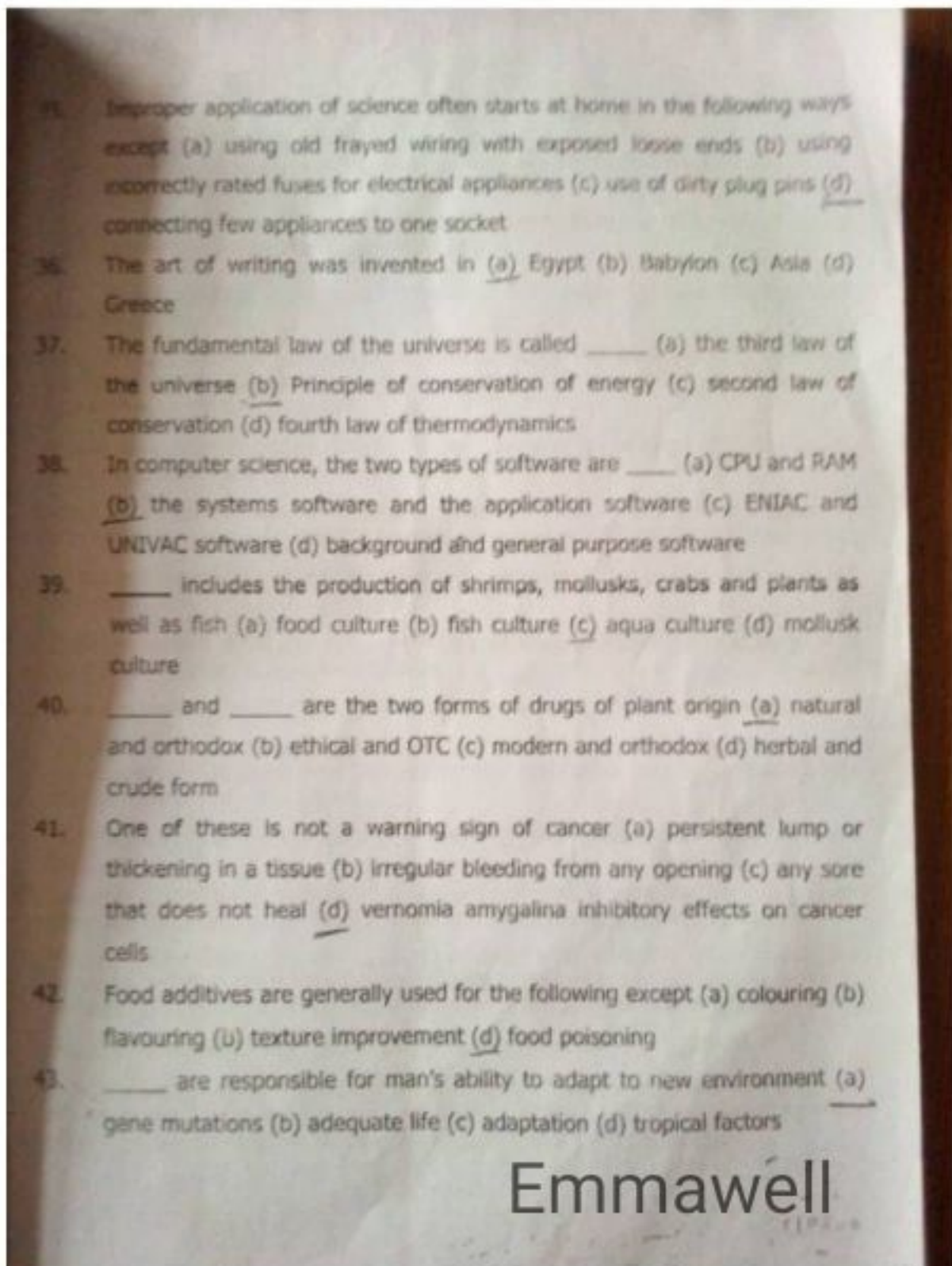
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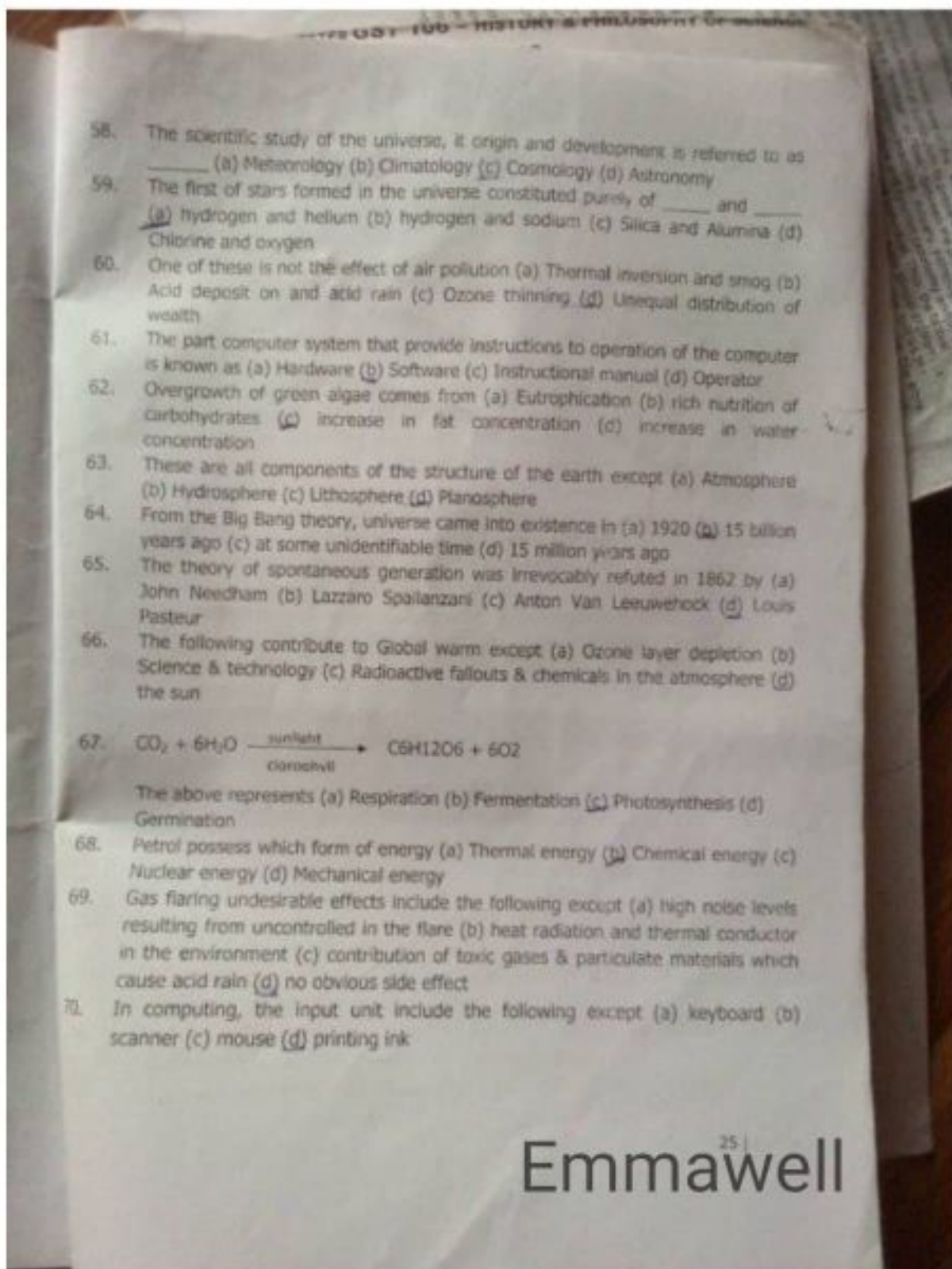
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4. _____ founded the facebook (a) Mark Zuckerberg (b) Socrates (c) Tony Fadell (d) Lionel Tiger
5. _____ is the main source of photochemical smog (a) automobile (b) bakeries (c) A and B (d) none of the above
16. PH of acid rain is ____ (a) 5.7 (b) 4.6 (c) 7.0 (d) 8.0
17. Purification of crude oil involves ____ (a) removal of sulphur compounds (b) removal of water (c) polymerization (d) none of the above
28. Example of sedimentary rock is ____ (a) quartz (b) coal (c) marble (d) slate
29. Forest resources are used in ____ (a) latex (b) gums (c) vegetable oil (d) all of the above
30. An example of Brown air type of smog is ____ (a) soot (b) sulphur oxides (c) Nitric acids and Nitric oxides (d) smoke
31. Which of these type of smog is known as industrial smog (a) nitric acid (b) grey air (c) ozone (d) hydrocarbons
32. Example of metallic mineral found in the Lithosphere is ____ (a) Diamonds (b) Gems (c) Granite (d) Coal
33. Which of these is non-metal found in the Lithosphere (a) copper (b) zinc (c) sulphur (d) Gold
34. Prolonged exposure to methyl mercury compounds causes ____ (a) kidney failure (b) loss of sight (c) mental retardation in children (d) all of the above

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11. pH of acid rain is _____. (a) 5.7 (b) 4.6 (c) 7.0 (d) 8.0
12. Thinning of ozone layer can cause _____. (a) eye cataract (b) skin cancers (c) weak immune systems (d) all of the above
13. _____ is the most serious indoor air pollutant (a) radon (b) carbon monoxide (c) asbestos (d) nitrogen dioxide
14. Forest resources are used in _____. (a) latex (b) gums (c) vegetable oil (d) all of the above
15. Marsh gas refers to _____. (a) carbon dioxide (b) biogas (c) sulphur dioxide (d) none of the above
16. Biogas is made up of _____ percentage of methane (a) 10-20% (b) 50-60% (c) 40-50% (d) 70-30%
17. Purification of crude oil involves _____. (a) removal of sulphur compounds (b) removal of water (c) polymerization (d) none of the above
18. Prolonged exposure to methyl mercury compounds causes _____. (a) kidney failure (b) loss of sight (c) mental retardation in children (d) all of the above
19. Lines of latitude are drawn from _____. (a) North to South (b) East to West (c) South to North (d) North to west
20. Example of sedimentary rock is _____. (a) quartz (b) coal (c) marble (d) slate
21. _____ is an example of disorders due to change in chromosome structure (a) down syndrome (b) turner's syndrome (c) diabetes mellitus (d) all of the above
22. Disadvantage of science and technology include (a) wars (b) accidents (c) manufacture of deadly weapons (d) all of the above
23. Which of these is not an effect of noise pollution on humans (a) hearing impairment (b) sleep disturbances (c) hypertension (d) diabetes

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ABIA STATE UNIVERSITY UTURU

FACULTY OF BIOLOGICAL SCIENCES

SECOND SEMESTER EXAMINATION 2019/2020 SESSION

BIO 102: INTRODUCTORY BIOLOGY II

SECTION A

Answer objective questions (i to x) and any other two questions from section A, then turn to section B. Time allowed for Sections A & B - 2 hours

(i) Birds have ^{yellow} ~~two~~ number of ovaries, (ii) Craniates possess ----- clusters of Hox genes (iii) The modern Amphibian belongs to how many separate orders? (iv) Osteichthyans have cartilaginous skeleton. True or False? (v) Lampreys are agnathous. True or False? (vi) Gland that releases their ^{enzyme} secretion into ducts or tubes are called -----? (vii) Locomotion in snakes are produced by ^{undulating movement} ----- (viii) What is the function of quill feathers in birds? ^{to take flight} (ix) Eggs that hatch outside the mother's body are said to be ^{oviparous} ----- (x) ----- were the first vertebrates with mineralized

1. Describe the following (a) the respiration in Amphibians (b) the pancreas in Mammals, (c) General characteristics of bird.
2. Write on the organs for gas exchange in (i) Earthworm (ii) Flatworms
3. Using a labelled diagram, concisely describe any Cephalochordate you have studied.



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ABIA STATE UNIVERSITY, UTURU
DEPARTMENT OF PHYSICS
2019/2020 SECOND SEMESTER EXAMINATION
PHY 102: GENERAL PHYSICS II

INSTRUCTIONS: ATTEMPT 5 QUESTIONS IN ALL. QUESTION ONE IS COMPULSORY.

TIME: 2hrs

Use the following constants where necessary:

Planck's constant (h)	$= 6.63 \times 10^{-34} \text{ J.s}$
Speed of light (c)	$= 3.0 \times 10^8 \text{ m/s}$
1 electron volt (eV)	$= 1.6 \times 10^{-19} \text{ J}$
1 Angström unit	$= 10^{-10} \text{ m}$
Electronic charge (e)	$= 1.6 \times 10^{-19} \text{ C}$
Permittivity of free space (ϵ_0)	$= 8.85 \times 10^{-12} \text{ C}^2 \text{N}^{-1} \text{m}^{-2}$
Mass of an electron (M_e)	$= 9.1 \times 10^{-31} \text{ kg}$
Mass of a proton (M_p)	$= 1.7 \times 10^{-27} \text{ kg}$
Gravitational constant (G)	$= 6.69 \times 10^{-11} \text{ Nm}^2 \text{kg}^{-2}$
Permeability of free space (μ_0)	$= 4\pi \times 10^{-7} \text{ Hm}^{-1}$

QUESTION 1: EACH QUESTION CARRIES 3 MARKS (30 MARKS IN ALL)

- (a) List and briefly explain ways of producing charges
- (b) A 0.40mm diameter copper wire carries a current of 3μA. Find (a) the current density and (b) the electron drift velocity. (Take the density of copper, $\rho = 8.89 \times 10^3 \text{ kgm}^{-3}$ and Avogadro's constant (N_A) = $6.02 \times 10^{23} \text{ mol}^{-1}$)
- (c) A 2.0F capacitor is desired. What should the area of the plates be if they are to be separated by a 4.5mm air gap?
- (d) State 3 applications of Electromagnetic induction. *(1) withdrawal of iron core from solenoid (2) optical electrical pump for exciting lasers (3) when generator, external electrical stimulation)*
- (e) List three basic elements of a galvanometer. *Coil*
- (f) Write the full name of these circuits: (i) LR circuits (ii) RC circuits (iii) LRC circuits
- (g) Define the following (i) Ionization energy (ii) Excitation energy (iii) a nuclide
- (h) Write down the symbols of the following showing the mass and atomic numbers (i) proton (ii) neutron (iii) alpha particle.
- (i) State three means by which excitation or ionization of an electron may occur. *Bombarding with fast electrons (ionizing atoms)*
- (j) Write down the units of the following (i) electric field intensity (ii) magnetic field (iii) ionization potential.
- 2(a) State any 3 applications of Gauss's law and their equations (3marks)
- (b) In classical model of the hydrogen atom, the electron revolves around the proton with a radius of $r = 0.5 \times 10^{-10} \text{ m}$.
- (i) What is the magnitude of the electric force between the proton and the electron? (2marks)
- (ii) What is the magnitude of the electric field due to the proton at r? (2marks)
- (iii) What is the ratio of the magnitudes of the electrical and gravitational force between electron and proton? Does the result depend on the distance between the proton and the electron? (3marks)

ABIA STATE UNIVERSITY UTURU

DEPARTMENT OF MATHEMATICS

MAT 104 – GENERAL MATHEMATICS II

2019/2020 SECOND SEMESTER EXAMINATION

INSTRUCTIONS: (i) Write your full Name and Matric Number

(ii) Answer any FOUR (4) questions

TIME: 2 hrs

1 Find (a) f^{-1} if $f: \mathbb{R} \rightarrow \mathbb{R}$ is given by $f(x) = 2x - 3$ (b) Verify that the equation $(f^{-1} \circ f)(x) = (f \circ f^{-1})(x) = x$ is satisfied $\forall x \in \mathbb{R}$.

+ 2(a) Prove that

(i) $\lim_{x \rightarrow 1} (2x + 3) = 5$. (ii) $\lim_{x \rightarrow 1} \left(\frac{x^2 - 1}{x - 1} \right) = 2$

+ 2(b) Evaluate

$$\lim_{x \rightarrow 0} \left(\frac{x^2 + 7x}{x} \right)$$

3(a) Using the first principle of differentiation, show that the derivative of $\sin x$ is $\cos x$

(Hint: $\frac{d}{dx} f(x) = \lim_{\delta x \rightarrow 0} \frac{f(x + \delta x) - f(x)}{\delta x}$)

+ 4(b) Find the derivative of the function $f(x) = x^3 + 2$ at $x = 2$.

4(a) Find $\frac{dy}{dx}$ at $(x, y) = (2, 1)$, if $x^4 + xy + y^3 - 11 = 0$.

+ 4(b) If $x = 6t - 1$ and $y = t^2 + t$, find $\frac{dy}{dx}$.

5(a) Find the indefinite integral of each of the following

(i) $\int (4x^3 + 2x - 3x^{-5}) dx$

(ii) $\int x \sin x dx$

(iii) $\int (3x - 2)^5 dx$

6(a) Using the method of partial fraction, evaluate

$$\int \frac{3}{x^2 + x - 2} dx$$

(b) Evaluate the definite integrals below

(i) $\int_1^2 (3x^4 - x^5) dx$

(ii) $\int_1^a \frac{1}{x} dx$

Warning!!!

Ensure that you have registered this course online
Do not use your phone to write this exam

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ABIA STATE UNIVERSITY, UTURU
FACULTY OF PHYSICAL SCIENCES
DEPARTMENT OF PURE AND INDUSTRIAL CHEMISTRY

SECOND SEMESTER EXAMINATION 2019/2020 SESSION

TIME: 2 Hours

CHE 102: General Chemistry II (3 Units)

INSTRUCTION: Answer six (6) questions in all, two (2) questions from each section

SECTION A

1. a. State seven functional groups in Organic Chemistry with their general formulae (14 mks)
- b. Describe the operational forces (bonds) that hold the following molecular together (3 mks)
 - i. $H-H$
 - ii. Cl_2
 - iii. $CH_2=CH_2$
2. a. State the criterion/criteria on which the following isomers are classified (give one example of each case) (3 mks)
 - i. Constitutional/structural/positional isomer (3 mks)
 - ii. Geometric isomers (3 mks)
 - iii. Topological isomers (3 mks)
 - iv. Optical isomer (3 mks)
 - v. Conformational/Rotational isomers
- b. Give the structural formulae of (1 mks)
 - i. 4-Ethyl-2,3-dimethyl hexane (1 mks)
 - ii. 2-chloro-3-ethyl-4methylhexane
3. a. Recrystallization (a major purification process of crude organic precipitate) follows seven steps. State the seven steps (7 mks)
- b. Phenol, a general disinfectant has a composition of 76.57% C, 6.43% H and 17.00% O by mass. Calculate the empirical formula (7 mks)
- c. What is the relationship between percentage yield and theoretical yield of synthesized product? (3 mks)

SECTION B

4. a. Enumerate four (4) distinct features of Organic Chemistry. Give three (3) reasons for these special features. (8 mks)
- b. Write equation of Wholer's experiment that disproved the theory of vital force. Write two other equations that supports Wholer experiment (3 mks)
- c. Give three (3) examples each of atoms or group of that exhibit +I Effects and -I Effects (6 mks)
5. a. Predict the possible type of bond fission in the following molecules (5 mks)
 - i. CH_3-Cl
 - ii. $Cl-Cl$
 - iii. CH_3-F
 - iv. CH_3-CN
 - v. $Br-Br$
- b. Write out the mesomeric (canonical) (3 mks)
 - i. Benzene
 - ii. $R-NO_2$
 - iii. CO_2
- c. Arrange the following in order of stability and give a reason why? (2 mks)

$$\begin{array}{c} H \\ | \\ H_3C-C^+ \\ | \\ H \end{array}$$

i

$$\begin{array}{c} H_3C \\ | \\ H_3C-C^+ \\ | \\ H_3C \end{array}$$

ii

$$\begin{array}{c} H \\ | \\ H_3C-C^+ \\ | \\ H_3C \end{array}$$

iii

Give one name for the species

(1 mks)

6. a. Give reasons for the following observations
 - i. Allyl cation is more stable than propyl cation

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ABIA STATE UNIVERSITY UTURU
DEPARTMENT OF INDUSTRIAL PHYSICS
SECOND SEMESTER EXAMINATION 2019/2020 SESSION
COURSE: PHY 104 - OPTICS, WAVES AND THERMAL PHYSICS

INSTRUCTION: ANSWER ALL THE QUESTIONS IN SECTION ONE (COMPULSORY) AND TWO MORE QUESTIONS: ONE FROM SECTION TWO AND THREE (2HRS).

SECTION ONE (OPTICS 30 marks)

- a) Define light according to the following scientists:
 i) Pythagoreans ii) Plato iii) Aristotle iv) Newton
 v) Christian Huygens
- b) Define the following light terminologies (i) luminous flux (power) (ii) luminous intensity (iii) illuminance of a surface.
- c) Calculate the glancing angle and the angle of deviation in a plane mirror if the angle of reflection is 30°
- d) The incident light on a plane mirror was kept constant while the mirror was rotated through an angle of 30° . What effect, if any do you think it will make on the angle of the reflected ray.
- e) write the expression only for the following: i) mirror formula ii) absolute refractive index iii) for calculating the critical angle iv) Dispersion or dispersive angle
- f) At what distance must a dentist place a concave mirror from a tooth if she wishes to observe the tooth magnified four-fold?
- g) Two thin lenses are in contact. An object placed at a distance of 45cm from the lenses forms a real image at a distance of 30cm from the lenses. One of the lenses is converging with a focal length of 15cm. determine the nature and focal length of the second lens.

SECTION TWO (WAVES 20 MARKS)

- 1a) Define Simple Harmonic Motion (S. H. M) and give two examples
- 1b) With formula only show the relationship between angular speed and (i) centripetal acceleration, a (ii) linear speed, V (iii) frequency, F (iv) period T
- 1c) In the relationship between circular motion and Simple Harmonic Motion we attain maximum (i) velocity (V_{\max}) when ----- = ----- (ii) acceleration (a_{\max}) when ----- = -----
- 2a) Define the following (i) wave (ii) diffraction (iii) interference (iv) node (v) anti-node
- 2b) state Doppler effect and write the formula only for the six (6) cases in the relative movements between an observer and a source of sound.
- 2c) In the prove by Young's principle of superposition

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SIR John (J.k)

$$Y = 2a \left[\sin \frac{2\omega t - (\delta_1 + \delta_2)}{2} \cos \left(\frac{\delta_2 - \delta_1}{2} \right) \right]$$

Deduce the formula only for the following waves characteristics (i) Amplitude (A) (ii) Intensity (I).

SECTION THREE (THERMAL 20 MARKS)

- 1a) Define heat and temperature and state (3) differences between them.
- b) State three effects of heat on a substance and explain three modes of heat transfer.
- c). State and explain Zeroth law of thermodynamics.
- d) Convert the following temperature scales in °Fahrenheit to °Celcius and Kelvin. i) body temperature 98.6° (ii) hot room 95° (iii) cool room 50° (iv) cold day 23°
- 2a) State three (3) characteristics of good thermometric substances
- b) List three (3) types of thermometer and state their thermometric substances.
- c) State the three (3) coefficients and four (4) examples of thermal expansion.
A steel railroad 20m in length is laid on a winter day when the temperature is 0°C. what is the expansion of the rail when the temperature rises to 30°C? (α for steel - $1.2 \times 10^{-5} [C^{\circ}]^{-1}$)

$$Y = 2a \left[\sin \frac{2\omega t - (\delta_1 + \delta_2)}{2} \cos \left(\frac{\delta_2 - \delta_1}{2} \right) \right]$$

Deduce the formula only for the following waves characteristics (i) Amplitude (A) (ii) Intensity (I).

SECTION THREE (THERMAL 20 MARKS)

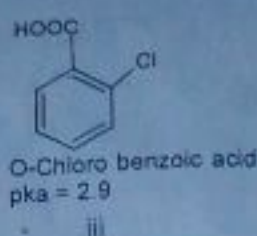
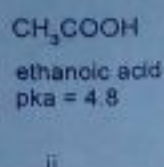
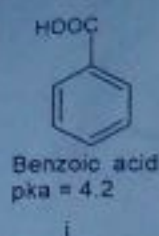
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ii.



(6 mks)

(3 mks)

(3 mks)

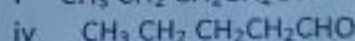
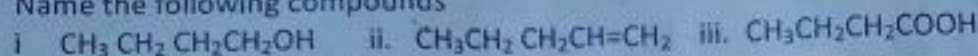
- ii. Differentiate between mesomerism and resonance
- c. Why is but-1-ene less stable than 2-methylprop-1-ene (isoprene)

SECTION C

7. a. Draw the structures of alkenes with the formula C_4H_8 and determine whether they can exist in *cis* and/or *trans* forms (5 mks)

- b. Mention the carboxylic acid derivatives (3 mks)

- c. Name the following compounds



(4 mks)

- d. i. Mention three examples of organic acids that contains a carbonyl group.

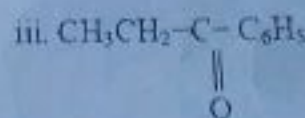
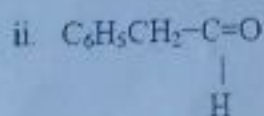
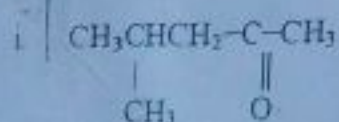
- ii. With balanced chemical equations only to show two methods of synthesis of alkenes. (4 mks)

8. a. Copy and indicate with positive (+) or negative (-) sign in the table below, indicate the reagents that could be used in the identification of the organic compounds given. (12 mks)

Compound/Reagents	propane	ethanoic acid	pentanol	propanone <i>Propanone</i>	propyne	Butane
Chromic oxide						
Cold conc. Hydrogen sulphide						
Cold potassium permanganate						
Bromine in carbon tetrachloride						

9. b. Give names to the following carbonyl compounds:

(3mks)



- c. Mention and draw the structures of any two examples of allylic compounds (2mks)

9. a. Use the addition of HBr to alkene to illustrate the following

- i) Markovnikov addition

- ii) Antimarkovnikov addition

(4 mks)

- b. Write structures of specific examples of i) Primary amine ii) secondary amine (4mks)

- c. With specific examples classify monohydric alcohols/alkanols

(6 mks)

- d. Outline the methods used in the synthesis of alkyne

(3mks)

ABIA STATE UNIVERSITY, UTURU
DEPARTMENT OF PHYSICS
2019/2020 SECOND SEMESTER EXAMINATION
PHY 102: GENERAL PHYSICS II

INSTRUCTIONS: ATTEMPT 5 QUESTIONS IN ALL. QUESTION ONE IS COMPULSORY.

TIME: 2hrs

Use the following constants where necessary:

Planck's constant (h)	$= 6.63 \times 10^{-34} \text{ J.s}$
Speed of light (c)	$= 3.0 \times 10^8 \text{ m/s}$
1 electron volt (eV)	$= 1.6 \times 10^{-19} \text{ J}$
1 Angström unit	$= 10^{-10} \text{ m}$
Electronic charge (e)	$= 1.6 \times 10^{-19} \text{ C}$
Permittivity of free space (ϵ_0)	$= 8.85 \times 10^{-12} \text{ C}^2 \text{N}^{-1} \text{m}^{-2}$
Mass of an electron (M_e)	$= 9.1 \times 10^{-31} \text{ kg}$
Mass of a proton (M_p)	$= 1.7 \times 10^{-27} \text{ kg}$
Gravitational constant (G)	$= 6.69 \times 10^{-11} \text{ Nm}^2 \text{kg}^{-2}$
Permeability of free space (μ_0)	$= 4\pi \times 10^{-7} \text{ Hm}^{-1}$

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QUESTION 1: EACH QUESTION CARRIES 3 MARKS (30 MARKS IN ALL)

- (a) List and briefly explain ways of producing charges
 - (b) A 0.40mm diameter copper wire carries a current of $3\mu\text{A}$. Find (a) the current density and (b) the electron drift velocity. (Take the density of copper, $\rho = 8.89 \times 10^3 \text{ kgm}^{-3}$ and Avogadro's constant (N_A) = $6.02 \times 10^{23} \text{ mol}^{-1}$)
 - (c) A 2.0F capacitor is desired. What should the area of the plates be if they are to be separated by a 4.5mm air gap?
 - (d) State 3 applications of Electromagnetic induction.
 - ① withdrawal of primary coil from magnet
 - ② original electrical power for cutting hard
 - ③ when secondary, external electrical stimulator
 - (e) List three basic elements of a galvanometer. *coil*
 - (f) Write the full name of these circuits: (i) LR circuits (ii) RC circuits (iii) LRC circuits
 - (g) Define the following (i) Ionization energy (ii) Excitation energy (iii) a nuclide
 - (h) Write down the symbols of the following showing the mass and atomic numbers (i) proton (ii) neutron (iii) alpha particle.
 - (i) State three means by which excitation or ionization of an electron may occur. *Bombarding with fast electron (cathode rays) protons*
 - (j) Write down the units of the following (i) electric field intensity (ii) magnetic field (iii) ionization potential.
- 2(a) State any 3 applications of Gauss's law and their equations (3marks)
- (b) In classical model of the hydrogen atom, the electron revolves around the proton with a radius of $r = 0.5 \times 10^{-10} \text{ m}$.
- (i) What is the magnitude of the electric force between the proton and the electron? (2marks)
 - (ii) What is the magnitude of the electric field due to the proton at r? (2marks)
 - (iii) What is the ratio of the magnitudes of the electrical and gravitational force between electron and proton? Does the result depend on the distance between the proton and the electron? (3marks)

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ABIA STATE UNIVERSITY UTURU
DEPARTMENT OF INDUSTRIAL PHYSICS
SECOND SEMESTER EXAMINATION 2019/2020 SESSION
COURSE: PHY 104 - OPTICS, WAVES AND THERMAL PHYSICS

INSTRUCTION: ANSWER ALL THE QUESTIONS IN SECTION ONE
(COMPULSORY) AND TWO MORE QUESTIONS: ONE FROM
SECTION TWO AND THREE (2HRS).

SECTION ONE (OPTICS 30 marks)

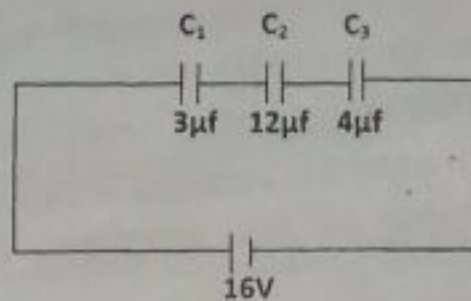
- a) Define light according to the following scientists:
i) Pythagoreans ii) Plato iii) Aristotle iv) Newton
v) Christian Huygens
- b) Define the following light terminologies (i) luminous flux (power) (ii) luminous intensity (iii) illuminance of a surface.
- c) Calculate the glancing angle and the angle of deviation in a plane mirror if the angle of reflection is 30°
- d) The incident light on a plane mirror was kept constant while the mirror was rotated through an angle of 30° . What effect, if any do you think it will make on the angle of the reflected ray.
- e) write the expression only for the following: i) mirror formula ii) absolute refractive index iii) for calculating the critical angle iv) Dispersion or dispersive angle v) Combine focal length
- f) At what distance must a dentist place a concave mirror from a tooth if she wishes to observe the tooth magnified four-fold?
- g) Two thin lenses are in contact. An object placed at a distance of 45cm from the lenses forms a real image at a distance of 30cm from the lenses. One of the lenses is converging with a focal length of 15cm. determine the nature and focal length of the second lens.

SECTION TWO (WAVES 20 MARKS)

- 1a) Define Simple Harmonic Motion (S. H. M) and give two examples
- 1b) With formula only show the relationship between angular speed and (i) centripetal acceleration, a (ii) linear speed, V (iii) frequency, F (iv) period T
- 1c) In the relationship between circular motion and Simple Harmonic Motion we attain maximum (i) velocity (V_{\max}) when ----- = ----- (ii) acceleration (a_{\max}) when ----- = -----
- 2a) Define the following (i) wave (ii) diffraction (iii) interference (iv) node (v) anti-node
- 2b) State Doppler effect and write the formula only for the six (6) cases in the relative movements between an observer and a source of sound.
- 2c) In the prove by Young's principle of superposition



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3. Find the charge on each of the capacitors shown above as well as the potential difference across each capacitor. (5 marks)

(b) State the following laws: (i) Gravitational law (ii) Coulomb's law (iii) Gauss' law (iv) Ohm's law

(v) Define electromotive force (E.M.F).

(5 marks)

4 (a) State Lenz's law.

(2 marks)

(b) What is the frequency of a cyclotron accelerating protons in a magnetic field of 1.5T and a maximum radius of 0.5m ? (4 marks)

(c) Write the equations for the magnetic fields in each of the following sources:

(i) B due to current loop $B = \frac{\mu_0 NI}{2r}$

(ii) B on one end of a long solenoid $B = \mu_0 nI$

(iii) B near a long straight wire $B = \frac{\mu_0 I}{2\pi r}$

(iv) B in a toroid $B = \frac{\mu_0 NI}{2\pi r}$

(4 marks)

5(a) An electron experiences a force $F = (3.2i - 2.7j) \times 10^{-13}\text{N}$ when passing through a magnetic field $B = 0.72\text{kT}$, what is the velocity of the electron? (7 marks)

(b) What is the importance of Hall Effect? (1 mark)

c) Define motional emfs. (2 marks)

6. State Bohr's theory of the hydrogen atom. (3 marks)

(b) The energy levels in eV of a hypothetical one-electron atom (not hydrogen) are given by:

$$E = \frac{-18.0}{n^2}$$

where $n = 1, 2, 3, \dots$

(i) Compute the four lowest energy levels and construct the energy level diagram. (4 marks)

(ii) What is the excitation energy if the electron in the ground state jumps to the state $n = 3$? (1 $\frac{1}{2}$ marks)

(iii) What is the ionization energy of this electron? (1 $\frac{1}{2}$ marks)

7 (a) State three properties of each of the following: (i) X-ray (ii) Nuclear force. (6 marks)

(b) What are the two possible types of X-ray produced when a high speed electron is stopped by a metal of high atomic number? (2 marks)

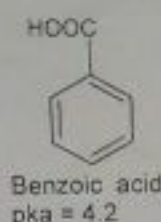
(c) What is the minimum voltage of an X-ray produced when electrons are accelerated through a potential difference of $10,000\text{ volts}$ in an X-ray tube? (2 marks)



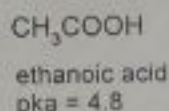
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Amount of energy
released
Electron
Nucleus

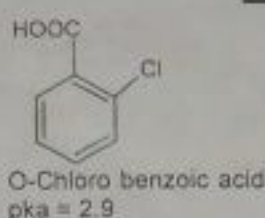
ii.



i



ii



iii

(6 mks)

ii. Differentiate between mesomerism and resonance

(3 mks)

c. Why is but-1-ene less stable than 2-methylprop-1-ene (isoprene)

(3 mks)

SECTION C

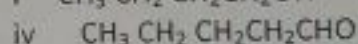
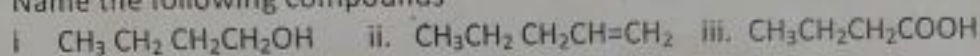
7. a. Draw the structures of alkenes with the formula C_4H_8 and determine whether they can exist in *cis* and/or *trans* forms

(5 mks)

b. Mention the carboxylic acid derivatives

(3 mks)

c. Name the following compounds



(4 mks)

d. i. Mention three examples of organic acids that contains a carbonyl group.

ii. With balanced chemical equations only to show two methods of synthesis of alkenes.

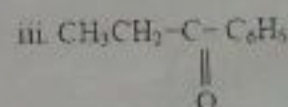
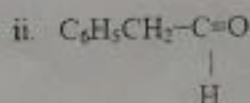
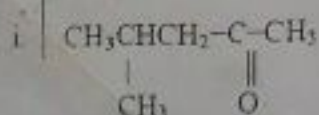
(4 mks)

8. a. Copy and indicate with positive (+) or negative (-) sign in the table below, indicate the reagents that could be used in the identification of the organic compounds given. (12 mks)

Compound/Reagents	propane	ethanoic acid	pentanol	propanone <i>propanone</i>	propyne	Butane
Chromic oxide						
Cold conc. Hydrogen sulphide						
Cold potassium permanganate						
Bromine in carbon tetrachloride						

9. b. Give names to the following carbonyl compounds:

(3mks)



c. Mention and draw the structures of any two examples of allylic compounds (2mks)

9. a. Use the addition of HBr to alkene to illustrate the following

i) Markovnikov addition

ii) Antimarkovnikov addition

(4 mks)

b. Write structures of specific examples of i) Primary amine ii) secondary amine

(4mks)

c. Write 3 examples of monohydric alcohols/alkanols

(6 mks)

d. Outline the methods used in the synthesis of alkyne

(3mks)



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SECTION B

Instructions: Answer Questions i---x (Give Answers Only)

i is the science of classification of living things.

ii is the basic unit of classification.

The binomial system of classification makes use of two names, iii and iv.

v and vi are the eternal features that distinguish Angiosperms from other seed plants.

During the process of photosynthesis, solar energy is converted to vii energy.

viii and ix are the two types of respiration.

x is the arrangement of leaves on a stem or branch.

Instructions: Answer any two questions

1a) Outline three (3) general characteristics of seed plants.

1i) List the two classes of Angiosperm.

1ii) In a tabular form, give four (4) differences between the two classes of Angiosperm listed above.

2a) Draw and label a typical Leaf.

b) Using diagram, represent the three different types of leaf.

c) List three types of phyllotaxy.

3a) List (in hierarchical order), the seven major groups used in the classification of living things.

b) Why is the binomial system of classification important?

c) State the different classification system you have studied.

d) Write the following scientific names correctly:

i. manihot esculenta

ii. homo sapiens

iii. curcubita pepo

iv. canis lupus

ABIA STATE UNIVERSITY UTURU
DEPARTMENT OF MATHEMATICS
MAT 104 – GENERAL MATHEMATICS II
2020/2021 SECOND SEMESTER EXAMINATION

TIME: 2 hrs

INSTRUCTIONS: (i) Write your full Name and Matric Number
(ii) Answer any FOUR (4) questions

1 (a) Find f^{-1} if $f: \mathbb{R} \rightarrow \mathbb{R}$ is given by $f(x) = 2x - 5$. Show that
 $(f^{-1} \circ f)(x) = (f \circ f^{-1})(x) = x$ (b) Prove that $\lim_{t \rightarrow 2} \left\{ \frac{2t^2 - 3t - 2}{t - 2} \right\} = 5$

2 Evaluate the following

(i) $\lim_{x \rightarrow 1} \frac{x-1}{x^2+2x-3}$ (ii) $\lim_{\theta \rightarrow 0} \left(\frac{1-\cos \theta}{\theta^2} \right)$ (iii) $\lim_{x \rightarrow 2} \sqrt[3]{2x^3 - 3x - 18}$

(iv) $\lim_{x \rightarrow \infty} \frac{4+x-3x^2}{5+2x+4x^2}$

3(a) Using the first principle of differentiation, show that the first derivative of
 $f(x) = 3x^2 + 4$ is $6x$.

(b) Find the gradient of each of the following curves at the indicated point

(i) $y = x^2 - 4$ at $x = 2$

(ii) $y = \frac{x}{x+1}$ at $x = 1$

4(a) Given $xy^3 + y^2 - x^3 = 14$, find $\frac{dy}{dx}$ when $x = 2$ and $y = 1$.

(b) A curve is given parametrically by the equations $x = 3t + 4$ and $y = 6t^3 - 3$. Find dy/dx in terms of t , hence find the point on the curve at which the gradient is zero.

5(a) Show that $\frac{d}{dx}(x \cos x) = -x \sin x + \cos x$. Hence find $\int x \sin x \, dx$

(b) Find $\int (2m + 3)^5 \, dm$

6(a) Evaluate

$$\int_0^1 x^2 e^x \, dx$$

(b) By partial fraction method, evaluate the integral

$$\int \frac{1}{x^2 - 4} \, dx$$

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$$\frac{2(2)^2 - 3(2) - 2}{2 - 2}$$

$$\frac{2(2)^2 - 3(2) - 2}{2 - 2}$$

ABIA STATE UNIVERSITY UTURU
DEPARTMENT OF MATHEMATICS
MAT 104 – GENERAL MATHEMATICS II
2019/2020 SECOND SEMESTER EXAMINATION

TIME: 2 hrs

INSTRUCTIONS: (i) Write your full Name and Matric Number
(ii) Answer any FOUR (4) questions

1 Find (a) f^{-1} if $f: \mathbb{R} \rightarrow \mathbb{R}$ is given by $f(x) = 2x - 3$ (b) Verify that the equation $(f^{-1} \circ f)(x) = (f \circ f^{-1})(x) = x$ is satisfied $\forall x \in \mathbb{R}$.

+ 2(a) Prove that

(i) $\lim_{x \rightarrow 1} (2x + 3) = 5$. (ii) $\lim_{x \rightarrow 1} \left(\frac{x^2 - 1}{x - 1} \right) = 2$

+ 3(b) Evaluate

$$\lim_{x \rightarrow 0} \left(\frac{x^2 + 7x}{x} \right)$$

3(a) Using the first principle of differentiation, show that the derivative of $\sin x$ is $\cos x$

(Hint: $\frac{d}{dx} f(x) = \lim_{\delta x \rightarrow 0} \frac{f(x + \delta x) - f(x)}{\delta x}$)

+ 4(b) Find the derivative of the function $f(x) = x^3 + 2$ at $x = 2$.

4(a) Find $\frac{dy}{dx}$ at $(x, y) = (2, 1)$, if $x^4 + xy + y^3 - 11 = 0$.

+ 5(b) If $x = 6t - 1$ and $y = t^2 + t$, find $\frac{dy}{dx}$.

5(a) Find the indefinite integral of each of the following

(i) $\int (4x^3 + 2x - 3x^{-5}) dx$

(ii) $\int x \sin x \, dx$

(iii) $\int (3x - 2)^5 dx$

6(a) Using the method of partial fraction, evaluate

$$\int \frac{3}{x^2 + x - 2} dx$$

(b) Evaluate the definite integrals below

(i) $\int_1^2 (3x^4 - x^5) dx$

(ii) $\int_1^a \frac{1}{x} dx$

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Warning!!!

Ensure that you have registered this course online
Do not use your phone to write this exam



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ABIA STATE UNIVERSITY, UTURU
FACULTY OF PHYSICAL SCIENCES

DEPARTMENT OF PURE AND INDUSTRIAL CHEMISTRY

SECOND SEMESTER EXAMINATION 2019/2020 SESSION

CHE 102: General Chemistry II (3 Units)

TIME: 2 Hours

INSTRUCTION: Answer six (6) questions in all, two (2) questions from each section

SECTION A

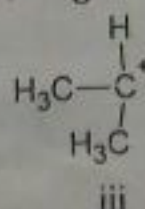
1. a. State seven functional groups in Organic Chemistry with their general formulae (14 mks)
b. Describe the operational forces (bonds) that hold the following molecular together
i. $H-H$ ii) Cl_2 iii) $CH_2 = CH_2$ (3 mks)
2. a. State the criterion/criteria on which the following isomers are classified (give one example of each case)
i. Constitutional/structural/positional isomer (3 mks)
ii. Geometric isomers (3 mks)
iii. Topological isomers (3 mks)
iv. Optical isomer (3 mks)
v. Conformational/Rotational isomers (3 mks)
b. Give the structural formulae of
i. 4-Ethyl-2,3-dimethyl hexane (1 mks)
ii. 2-chloro-3-ethyl-4methylhexane (1 mks)
3. a. Recrystallization (a major purification process of crude organic precipitate) follows seven steps. State the seven steps (7 mks)
b. Phenol, a general disinfectant has a composition of 76.57% C, 6.43% H and 17.00% O by mass. Calculate the empirical formula (7 mks)
c. What is the relationship between percentage yield and theoretical yield of synthesized product? (3 mks)

SECTION B

4. a. Enumerate four (4) distinct features of Organic Chemistry. Give three (3) reasons for these special features. (8 mks)
b. Write equation of Wholer's experiment that disproved the theory of vital force. Write two other equations that supports Wholer experiment (3 mks)
c. Give three (3) examples each of atoms or group of that exhibit +I Effects and -I Effects (6 mks)
5. a. Predict the possible type of bond fission in the following molecules
i. $CH_3 - Cl$ iii. $Cl - Cl$ iii. $CH_3 - F$
iv. $CH_3 - CN$ v. $Br - Br$ (5 mks)
b. Write out the mesomeric (canonical)
i. Benzene ii. $R - NO_2$ iii. CO_2 (3 mks)
c. Arrange the following in order of stability and give a reason why? (2 mks)



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(1 mks)

ABIA STATE UNIVERSITY UTURU
FACULTY OF BIOLOGICAL SCIENCES
SECOND SEMESTER EXAMINATION 2019/2020 SESSION
BIO 102: INTRODUCTORY BIOLOGY II

SECTION A

Answer objective questions (i to x) and any other two questions from section A, then turn to section B. Time allowed for Sections A & B - 2 hours

(i) Birds have ^{gnathos} ~~two~~ number of ovaries, (ii) Craniates possess -----clusters of Hox genes (iii) The modern Amphibian belongs to how many separate orders? (iv) ³⁻¹⁰ Osteichthyans have cartilaginous skeleton. True or False? (v) Lampreys are agnathous. True or False? (vi) Gland that releases their ^{secretion} ~~secretion~~ into ducts or tubes are called-----? (vii) Locomotion in snakes are produced by ^{under wings} ----- (viii) What is the function of quill feathers in birds? (ix) Eggs that hatch outside the mother's body are said to be ^{superovulatory} ----- (x) ----- were the first vertebrates with mineralized

1. Describe the following (a) the respiration in Amphibians (b) the pancreas in Mammals, (c) General characteristics of bird.
2. Write on the organs for gas exchange in (i) Earthworm (ii) Flatworms
3. Using a labelled diagram, concisely describe any Cephalochordate you have studied.

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42. The theory of syllogism in mathematical logic was developed by ____ a. Aristotle b. Archimedes c. Kepler d. Copernicus
43. ____ wrote the first book on geometry a. Archimedes b. Galileo c. Euclid d. Vesalius *Archi*
44. The first book ever written on geometry was titled ____ a. Geomatrix b. Integration c. Eudoxos d. The elements
45. The world's most disastrous nuclear accident occurred on 26-04-1986 in the Soviet Union at a. Ukraine reactor b. Moscow Reactor c. Georgia reactor d. Chernobyl reactor
46. ____ percent of the entire area of all countries in the world according to the International Union for the Conservation of Nature (IUCN) should be declared Protected Area (P.A) a. 10 b. 5 c. 20 d. 15
47. BOD is a measure of ____ a. biodegradable inorganic matter b. non-biodegradable inorganic matter c. non-biodegradable organic matter d. biodegradable organic matter
48. Which is the main cause of the rise of sea levels since the 20th century? a. melting of glaciers b. thermal expansion of water volume c. both A and B above d. Tsunamis
49. Acid rains are more prominent in ____ regions a. temperate b. tropical c. arid d. polar
50. Rainwater is classified as acidic if its pH is less than ____ a. 7.5 b. 7.0 c. 6.5 d. 5.6
51. A normal rain will generally be a. slightly alkaline b. slightly acidic c. highly alkaline d. highly acidic
52. Wood pulp from forests is used for making ____ a. paper b. chipboard c. plywood d. lumber
53. During photosynthesis, plants produce a. carbon monoxide b. nitrogen c. carbon dioxide d. oxygen
54. The magnitude of an earthquake is measured in ____ units a. Richter b. Ergs c. Joules d. centigrades
55. The driving force in an ecosystem is ____ a. solar energy b. producers c. plants d. biomass energy
56. The term ecosystem was proposed by ____ a. Odum b. Gardner c. Tensley d. Elton
57. ____ is considered as the father of medicine a. William Harvey b. Hippocrates c. Aristotle d. Herophilus
58. What is the equivalent of 60°F on the centigrade scale (°C)? a. 20°C b. 15.6°C c. 16.5°C d. 15°C
59. Convert 30°C to °F a. 86°F b. 90°F c. 76°F d. 212°F
60. The distance from the Earth to the sun during Perihelion is ____ million kilometers a. 50 b. 150 c. 151 d. 149
61. The Earth makes a rotation of 15° in ____ a. 30 minutes b. 21 hours c. 10 minutes d. 1 hour
62. One year in Mercury is ____ days on Earth a. 365 1/4 b. 88 c. 30 d. 7
63. When it is 8a.m in a place located 15°W, what will be the time in another place located 60°W? a. 5 a.m b. 11 a.m c. 3 p.m d. 1 p.m

$$OC = \frac{5}{9} (F - 32)$$

$$= \frac{5}{9} (60 - 32)$$

$$= \frac{5}{9} (28)$$

$$= 15.4$$

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21. ___ is the father of medicine a. Hippocrates b. Socrates c. Plato d. Aristotle
22. ___ is one of the effects of acid rain a. corrodes marble b. corrodes plastics c. corrodes nylon d. all of the above
23. Which of these is not a pollutant a. herbicides b. stream c. pesticides d. carbon
24. ___ is an example of house solvent a. Kerosine b. water c. benzene d. all of the above
25. Chemical substances used in the home and farms to kill insects and small animals are called ___
a. Pesticides b. house solvents c. benzene d. fluorides
26. The Greeks were known for ___ a. magic and divination development b. compiled first star catalogue
c. developing art of alphabetic writing d. none of the above.
27. ___ is the cradle of civilization a. Babylonia b. Asia c. Egypt d. Greece
28. The division of the day into 24 hours and circle into 360 degrees were developed by ___ a. Russia
b. Babylonia c. Egypt d. Asia
29. Which of these is not a household drug a. feldine b. paracetamol c. caffeine
d. cocaine
30. ___ is a household appliance not powered by electricity a. lantern b. iron c. television
d. fan
31. ___ is one of the effects of noise pollution a. stress b. hypertension c. hearing impairment
d. all of the above
32. Chemical treatment of water involves a. activated charcoal b. additional of iron salts
c. addition of aluminium salts d. all of the above
33. Example of ozone eaters ___ a. nitrogen oxides b. carbon tetrachloride c. fungicide
d. all of the above
34. Ozone causes ___ in the earth a. smog b. reduce air visibility c. stress plants d. all of the above
35. Which of these is the largest source of carbon monoxide a. automobiles b. man
c. plants d. none of the above
36. Which of these was the first tool in stone age a. bus b. car c. sharp stones d. arrows
37. What is the correct sequence of technological development a. middle age → stone age → bronze age → Industrial age
b. stone age → bronze age → middle age → Industrial age
c. Bronze age → middle age → stone age → industrial age d. none of the above
38. ___ discovered penicillin in 1928 a. Robert Brown b. Louis Pasteur c. Alexander Fleming
d. Watson and Crick
39. ___ described the theory of natural selection and the origin of species a. Charles Darwin
b. Theophrastus c. Dioscoride d. Robert Hooke
40. ___ discovered the law of inheritance a. W. M Stanley b. Julius Sachs c. Gregor Mendel
d. Alexander Fleming
41. ___ was addicted to emphasis of the good and preached that "a sound mind must have to be exposed to the studies of arithmetic, geometry, astronomy and harmony" a. Euclid
b. Aristotle c. Socrates d. Plato

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2018/116673/REGULAR

ABIA STATE UNIVERSITY, UTURU
DIVISION OF GENERAL STUDIES
SECOND SEMESTER EXAMINATION FOR 2018/2019 SESSION
COURSE: GST 106- HISTORY AND PHILOSOPHY OF SCIENCE

TIME ALLOWED: 1 HR

20Mins.

INSTRUCTION: ANSWER ALL THE QUESTIONS.

1. Mark Zucherberg founded the ____ a. Whatsapp b. Instagram c. Facebook
d. Twitter
2. ____ is an example of sedimentary rock a. coal b. slate c. marble d. quartz
3. Probable solutions to global warming include ____ a. Slow the growth of human population
b. planting trees c. A+B d. none of the above
4. Which of these gases is a green house gas a. nitrous oxide b. methane c.
methane d. all of the above
5. Household drugs grouped as pain killers include ____ a. Aspirin b. Novalgin c.
Panadol d. all of the above
6. ____ is an inorganic water pollutant a. Tree b. Ammonia c. Grease d. motor oil
7. Which of these is an example of organic water pollutant a. Petrol b. insecticide
c. detergent d. all of the above
8. Water pollutant from a single identifiable source is known as ____ a. non-point source b.
discrete source c. point source d. run off source
9. Convert 20°C into Fahrenheit a. 86 b. 68 c. 70 d. 39
10. Main gas of the atmosphere of 78% is a. Oxygen b. Hydrogen c. methane
d. Nitrogen
11. SIMA means ____ a. Silica + magnesia b. Silica + manganese c. Silica + magnesium d. none
of the above
12. SIAL means ____ a. silica + Alum b. Silica + Argon c. Silica + Alumina d. none of the above
13. Which of these is a behavioural disorder a. Drug abuse b. Alcoholism c. Smoking
d. all of the above
14. ____ is the main line of latitude a. Equator b. Tropic of cancer c. Artic circle d.
North Pole
15. Which of these is an example of inner planet a. Jupiter b. Earth c. Pluto
d. Uranus
16. Giant planets are also known as ____ a. Inner planets b. Terrestrial planets c.
Jovian planets d. Pluto
17. Assembly of stars is known as ____ a. clusters b. milky way c. Galaxy d.
universe
18. ____ is an example of waste disposal a. Dredging b. open dump c. addition of activated
charcoal d. none of the above
19. Which of these is a major contribution of Egypt to civilization ____ a. construction of tombs
b. construction of library at Alexandria c. Mummifications d. all of the above
20. Pythagoras, the greatest mathematician discovered a. Irrational numbers b. the world is
made up of numbers c. the earth is spherical d. all of the above

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