

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM FOUR HOME PACKAGE

BIOLOGY

18^h March -17th April, 2020

INSTRUCTIONS

1. This paper consists of sections **A, B** and **C**.
2. Answer **ALL** questions in sections **A** and **B** and **ONE** question from section **C**.
3. Except for diagrams which should be drawn in pencil, all writings should be in **blue** or **black ink**.
4. Crossed or corrected answer in section **A** will not be marked hence loss of marks.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	SIGNATURE
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TOTAL		

This paper consists of six (6) printed pages.

SECTION A (20 MARKS)

Answer **ALL** questions in this section.

1. For each of items (i) – (x), choose the most correct answer from among the given alternatives and write its letter in the answer sheet provided.
- (i) Which one of the following is least important in preventing the contamination of food?
- A. Keeping food away from flies.
 - B. Washing the hands before preparing food.
 - C. Not coughing or sneezing over food.
 - D. Not smoking while preparing food.
- (ii) The stamen of a flower consists of;
- A. Stigma and ovary
 - B. Anther and stamen
 - C. Filament and ovary
 - D. Anther and filament
- (iii) Aldosterone hormone is secreted by;
- A. Pituitary gland
 - B. Thyroid gland
 - C. Pancreas
 - D. Adrenal gland
- (iv) Which part of the seed grows into the root system of a plant
- A. Cotyledon
 - B. Micropyle
 - C. Plumule
 - D. Radicle
- (v) Which of the following hormones controls reabsorption of water from the urinary tubules when the amount of water in the blood is below normal?
- A. Adrenaline
 - B. Acetyl-chorine
 - C. Anti-diuretic hormone
 - D. Oxytocin

- (vi) Night blindness in human body is avoided by eating
 - A. Oranges
 - B. Carrot
 - C. Chicken
 - D. Green vegetables

- (vii) The last stage of mitosis during growth of an organism is
 - A. Metaphase
 - B. Telophase
 - C. Anaphase
 - D. Prophase

- (viii) Form four student wants to prepare a microscope slides showing different stages of mitosis. Which of the following would be most suitable to use?
 - A. Anther
 - B. Leaf
 - C. Root tip
 - D. Ovary

- (ix) Lipase enzymes are mainly contained in which digestive secretions
 - A. Gastric juice
 - B. Saliva
 - C. Pancreatic juice
 - D. Intestinal juice

- (x) An enzyme is a.....
 - A. Fat
 - B. Carbohydrate
 - C. Vitamin
 - D. Protein

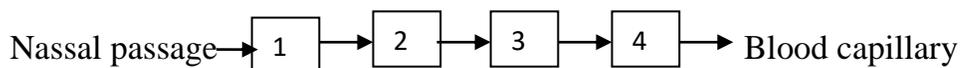
2. The following are matching items. Match the item in the List A with that in the diagram in List B by writing the corresponding letter beside the item number in the answer sheet provided.

LIST A	LIST B
i. A type of cell division whereby the number of chromosomes is maintained from parent cell to daughter cell	A. Adulthood
ii. Change in complexity of an organism	B. Determinate growth
iii. A stage of family forming and parenthood	C. Lag phase
iv. Limited growth	D. Germination
v. The period when the rate of growth is very fast	E. Mitosis
vi. Periodic shedding of exoskeleton in arthropods	F. Indeterminate growth
vii. Chromatids arrange themselves at the Centre of the cell	G. Adolescence
viii. Decrease in body weight as a result of illness, starvation or old age	H. Growth
ix. A seed develops into a seedling	I. Log phase
x. All body parts grow at the same rate	J. Meiosis
	K. Moulting
	L. Development
	M. Dormancy
	N. Infancy
	O. Anaphase
	P. Allometric growth
	Q. Isometric growth
	R. Positive growth
	S. Negative growth
	T. Metaphase

SECTION B (60 MARKS)

Answer **ALL** questions in this section.

3. (a) The diagram below represents the arrangement of a tube and structures through which oxygen passes as it travels from atmosphere into the blood of mammals.



- (i) Name the tube represented by number 1, 2, and 3.
(ii) Name the structure represented by number 4

- (iii) Unlike animals plants have no special organs for gaseous exchange, how then do they carry out gaseous exchange?
- (b) i) Define an ecological pyramid
ii) Construct a simple ecological pyramid of numbers to show different trophic levels.
4. (a) What is osmoregulation
- (b) Mr. Okonko started to feel thirst and rate of heart beat increased, he decided to take home blood test and the results was 120g of glucose in 100cm³ of blood, but before going to hospital he started to feel normal heart beat.
- i. Explain why Mr. Okonko started to feel thirst?
ii. Explain why he didn't take medicine and still heart beat become normal?
- (c) What are the two adaptations of desert animals in regulation of water?
5. (a) Distinguish between a parasite and a predator.
- (b) Explain the meaning of the following ecological terms:
- (i) Trophic level.
(ii) Niche.
(iii) Habitat.
(iv) Food chain.
(v) Community.
6. (a) Write four (4) differences between eukaryotic and prokaryotic cell?
- (b) Draw a well labeled diagram of plant cell
7. (a) Explain the adaptations of lungs for gaseous exchange.
(b) What is the biological importance of shivering during cold weather?
(c) Explain why some trees are killed when a ring of bark is removed from their stems.
8. (a) What is food preservation
(b) Explain four (4) traditional methods of food preservation.

9. (a) (i) What is seed viability?
(ii) State two conditions which may lead to loss of viability in a seeds.
- (b) Write down three (3) differences between mitosis and meiosis.
10. (a) State Mendel's first law of inheritance.
- (b) Sickle cell anemia is an inherited disease of human .The disease is controlled by a single pair of allele, people who are homozygous for the recessive allele Develop the disease, while heterozygote do not suffer from it .
- (i) Using symbol "A" for dominant allele and "s" for the recessive allele, write down the possible genotype of the following:
- People who suffer from the disease
 - People who do not suffer from the disease
- (ii) If a homozygous normal male marries a woman suffering from the disease, write down the ratio of children suffering: children not suffering in the F2 generation.

SECTION C (20 MARKS)

Answer **ONE (1)** question from this section.

11. Suppose you were invited to take part in a debate, the motion of which was "**Scientists should find a way of getting rid of all bacteria.**" Write an essay to give your views to support this motion.
12. a) What is movable joint?
- b) Identify the four three types of movable joints and give one example for each.
- c) With the aid of diagrams describe the mechanism of muscle movement in bending and straightening the arm.
13. Drug abuse is serious problem among the youth, especially in urban areas. Explain the concept of drug abuse including possible causes, and suggest preventive and control measures to be taken.

**ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL
FORM FOUR HOME PACKAGE
CHEMISTRY**

17th March -17th April, 2020

INSTRUCTIONS

5. This paper consists of sections **A, B** and **C**.
6. Answer **ALL** questions in this paper.
7. Calculators and cellular phones are not allowed in the examination room.
8. Write your Name on every page of your answer sheet(s).
9. Except for diagrams which should be drawn in pencil, all writings should be in **blue** or **black ink**.
10. The following constants may be used.

Atomic masses: H = 1, C = 12, O = 16, N = 14, Na = 23, Mg = 24, Al = 26, S = 32, Cl = 35.5, Ca = 40, Mn = 55, Fe = 56, Cu = 63.5

Avogadro's number = 6.02×10^{23} .

Standard pressure = 760 mm Hg.

GMV at s.t.p. = 22.4 dm^3 .

Standard temperature = 273 K.

1 Faraday = 96,500 coulombs.

1 litre = $1 \text{ dm}^3 = 1000 \text{ cm}^3$

FOR EXAMINER'S USE ONLY		
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This paper consists of eight (8) printed pages

SECTION A

Answer ALL questions in this section.

1. For each of the items (i)- (x), choose the correct answer from the given alternative and write its letter beside the item number in the answer sheets provided.
 - i. Which of the following is a chemical change?
 - A. Magnetization of iron
 - B. Heating of metal by electricity
 - C. Conversion of water to steam
 - D. Rusting of iron
 - E. combination of gas molecules
 - ii. The mass of 11.2dm^3 of ammonia gas at S.T.P is
 - A. 8.50
 - B. 4.25g
 - C. 0.85
 - D. 0.45
 - E. 2.25
 - iii. An example of homologous series is found in one of the following sets of compounds:
 - A. Glucose, fructose, sucrose
 - B. Acetylene, ethylene, ethane
 - C. Propane, butane, pentane
 - D. Charwal. graphite, diamond
 - E. Pantanol, graphite, hexanol
 - iv. Potassium permanganate is often stated to be of use in case of snake-bites, the reason for this may be because:
 - A. It is a strong oxidizing agent and therefore it oxidizes venom
 - B. It neutralizes the toxin in snake venom
 - C. It coagulates blood and stops bleeding
 - D. Of no known reason, but it may be superstition
 - E. It neutralizes the bloods and the water
 - v. What factors determine which ions will be discharged at electrodes when salt solutions are electrolysed?
 - A. Their position in the activity series
 - B. The relation concentration of the ions
 - C. The position of Cl^- and OH^-
 - D. The nature of electrodes
 - E. A combination of factor A, B and D above
 - vi. When a beer or wine is left exposed to air, the alcohol is converted to:
 - A. Citric acid
 - B. Formic acid

- C. Acetic acid
- D. Methanoic acid

E. Tartaric acid

- vii. Potash alum is a double salt made from:
 - A. Aluminium chloride and sodium sulphate
 - B. Aluminium sulphate and potassium sulphate
 - C. Potassium sulphate and aluminium hydroxide
 - D. Potassium hydroxide and aluminium hydroxide
 - E. Aluminium hydroxide and potassium acetate

- viii. Matter can neither be created nor destroyed this statement is known as:
 - A. Law of conservation of mass
 - B. Law of constant composition
 - C. Law of multiple proportions
 - D. Le Chatelier's principle
 - E. Law of kinetic energy

- ix. All atoms of the same element do not necessarily have the same:
 - A. Mass number
 - B. Number of protons
 - C. Number of neutrons
 - D. Number of electrons
 - E. Atomic number

- x. The school blackboard chalk is made of calcium.
 - A. Hydroxide
 - B. Carbonate
 - C. Bicarbonate
 - D. Sulphate
 - E. Nitrate

2. Match the items in **LIST A** with the responses in **LIST B** by writing the letter of the correct response beside the item. Number in the answer sheet provided.

LIST A

- i. Chlorofluorocarbon.
- ii. Crop rotation.
- iii. Sodium hydrogen carbonate.
- iv. Gaseous fuel.
- v. 36.5g HCl in a litre of solution.
- vi. $p^H = 8$.
- vii. Exothermic.
- viii. Ability of an atom to attract electrons.
- ix. Removes colouring matter from brown sugar.
- x. Catenation.

LIST B

- A. Conserves soil fertility.
- B. Molar solution.
- C. Alkaline.
- D. Chain bonding of atoms of some element.
- E. Air pollution.
- F. Burning of petrol.
- G. 0.1M.
- H. Allotrope.
- I. Electronegativity.
- J. Methane.
- K. Acidic salt.
- L. Animal charcoal.
- M. Reducing agent.
- N. Precipitation.
- O. Oxidizing agent.
- P. Cracking.

SECTION B:Answer ALL questions in this section

3. (a) Carbon dioxide can be prepared by adding acid to calcium carbonate.
- Using a named acid, write a balanced chemical equation for the reaction.
 - Name all the products formed in the above reaction.
- (b) When a burning splint is introduced into a gas jar containing carbon dioxide, flame goes out. Give reason.
- (c) When a piece of magnesium is burned in a gas jar of carbon dioxide a white powder and particles of a black solid are formed.
- Write a balanced chemical equation for the reaction.
 - Name all product formed in this reaction.
4. The figure below is a part of the periodic table where the transition metals are not included. The number in the table are the atomic numbers of some of the elements.

	→						
↓ Periods	1	<i>Group</i>					2
		4		6		8	
	11	12					17

- (a) i. For each number, write the symbol of the corresponding element.
- Considering the element with atomic number 12 and 17 which is metal and which is non-metal?
 - Write one equation which represents a reaction between the element with atomic number 1 and the element with atomic number 17.
- (b) i. What is the type of oxide formed by element with atomic number 11 and 12.
- Write a balanced chemical equation between the oxide of the element with atomic number 11 and aqueous solution of the compound formed in a (iii)
 - Write the symbol of an inert gas element represented by the given atomic number.

5. (a) i. People suffering from heart burn usually use wood ashes for relief. Mention characteristic which makes the ashes to be used for heart burn relief.
ii. Give four (4) compounds found in laboratories which show the same characteristics as ashes.
- (b) How many molecules are there in 11.2 litres of carbon dioxide at s.t.p.?
6. (a) State Le chatelier's principle.
(b) It is established that the principle is very useful in predicting and selecting suitable conditions for optimum production in many industrial processes. Using an example of your choice. Discuss this principle in an attempt to defend the above statement.
(c) Industrial manufacture of ammonia involves the reaction:
- $$\text{N}_2 + 3\text{H}_{2(\text{g})} \longrightarrow 2\text{NH}_{3(\text{g})}$$
- Using Le chatelier's principle, explain briefly what would happen to the amount of ammonia produced if:
- Pressure was increased
 - Temperature was Increased
7. (a) A farming society was advised to add nitrogen to the vegetable garden. A village supplier has Ammonium sulphate $[(\text{NH}_4)_2\text{SO}_4]$, Ammonium nitrate (NH_4NO_3) and Urea $[\text{CO}(\text{NH}_2)_2]$. Suppose each 25kg bag of the fertilizer costs Tsh 50,000/= which fertilizer will you advise the farmers to buy? Give reason for your advice.
- (b) i. Define soil
ii. Soil is formed through the process of weathering. What is meant by weathering of rocks.
- (c) Mention four common types of manure.
8. (a) What is allotropy?
(b) Name the three types of the allotropes of sulphur.
(c) How can the three types of allotropes of sulphur be:
i. Distinguished?
ii. Prepared

9. (a) Define the following terms
- Pollution
 - Pollutant
- (b) List down the three main types of pollution
- (c) i. Define "Green house effect"
- Why does the increase of the concentration of carbon dioxide gas in the atmosphere results into increase of the earth's atmosphere?
 - What is the function of ozone layer at the top of earth's atmosphere?
 - List down any two gases produced by industries that destroy the ozone layer
10. (a) i. What do you understand by non- replaceable fuels.
- List down some examples of non- replaceable fuels.
- (b) The world main source of energy comes from fossil fuels. Outline the demerits of fossil fuels as source of energy.
- (c) i. List down other sources of energy you think can be used apart from fossil fuels. (four points)
- What do you think are the advantages of the source of energy listed above over fossil fuels? (2 points).
11. (a) Name the key element present in all organic compounds.
- (b) Explain, giving one reaction example in each case, the meaning in organic chemistry of:
- Addition reaction
 - Substitution reaction
- (c) In each case, write down the structural formula of product formed when:
- C_2H_6O is reacted with sodium metal.
 - Propanol, C_3H_8O is warmed with excess acidified potassium permanganate.
 - Propanol, C_3H_8O , and acetic acid, $C_2H_4O_2$ are warmed together in the presence of concentrated sulphuric acid.

SECTION C

Answer ALL questions in this section.

12. (a) Define the following terms:

- i. Molarity
- ii. Normality
- iii. Equivalence point of titration

(b) Twenty five (25cm^3) of a solution containing 0.196g a metal hydroxide GOH were neutralized by 35cm^3 of 0.1M hydrochloric acid solution.

- i. Write down a balanced equation for the reaction.
- ii. Calculate the molarity of the hydroxide solution.
- iii. Calculate the relative atomic mass of element G.
- iv. Identify the element G.

(c) A solution of concentrated nitric acid contains 80% by weight of HNO_3 . If the density of the acid solution is 1.50g/cm^3 . Calculate molarity of the solution.

- i. Molarity of the solution.

13. (a) What is meant by the following?

- i. Cracking
- ii. Isomerism

(b) An organic compound R consist of 52.2% of carbon, hydrogen and 34.8% of oxygen. R reacts with acetic acid to form compound D which has a characteristic of sweet smell. The vapour density of R is 23.

- i. Calculate the molecular formula of R.
- ii. What is functional group of R?
- iii. Name two example of organic compounds with the same functional groups as R.

(c) Write down the structures of the products formed from the reaction listed below and name systematically the products which are organic compounds.

- i. Propanoic acid is neutralized by sodium hydroxide solution.
- ii. Ethyl acetate is boiled with water in the presence of dilute acid.
- iii. Ethene is exposed to hydrogen iodide at room temperature.

←————— **THE END** —————→

“ The way you react to instruction will determine your success ”

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM THREE HOME PACKAGE

CIVICS

17th March -17th April, 2020

INSTRUCTIONS

1. This paper consist **5 Questions**
2. **Answer all questions**
3. Write your **names** on every page of your answer sheets
4. Use **A4 paper** to answer this examination
5. **Poor handwriting, neatness of work and poor arrangement will lead to loss of mark**
6. Avoid **cheating** or any examination **misconduct**

ANSWER ALL QUESTION

1. Outline five function of national sports council of Tanzania
2. With examples, discuss six impact of deadly pandemic disease COVID-19 in social and economic development worldwide.
3. Critically, explain the problems posed by globalization in least developing countries like Tanzania. Provide six points
4. Just mention five major roles of General Agreement on Trades and Tariffs as one of the strategies for reconstruction of world economy in 20th century
5. Mention ten major conditions of structural adjustment programs which were formed by major world financial organization such World Bank and International Monetary Fund.

TAKE CARE OF COVID-19, STAY AT HOME

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM FOUR HOME PACKAGE

GEOGRAPHY

17th March -17th April, 2020

INSTRUCTIONS

1. Answer **ALL** questions in this paper.
2. Be neat and clean in your work, crossed answers will not be marked.
3. Credit will be given for the relevant sketch maps and diagrams.
4. Write your **name** on every page of your answer **sheet (s)**.
5. Use A4 papers as your answer sheet (s).

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	SIGNATURE
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TOTAL		

1. For each of the items (i) - (x), choose the correct answer from among the given alternatives and write its letter in the answer booklet provided.
 - i. Finger like mass of calcite hanging vertically from the roof of the cavern
A. Stalagmite B. Polje C. Tributaries D. Sinkhole E. Stalactite
 - ii. Which of the following features is not produced by glacial erosion?
A. Hanging valley B. Cirque C. Exfoliation dome D. A pyramidal peak E. Arête
 - iii. The process through which rainwater enters the ground is called:
A. Evaporation B. Infiltration C. Transpiration D. Condensation E. Percolation
 - iv. What is the longitude of Kabul if its local time is 01:30pm whereas the longitude of Lisbon is 45° W and local time is 07:30am?
A. 90° W B. 90° E C. 60° E D. 60° W E. 45° E
 - v. One of the following is an example of wave deposition features:
A. Tombolo B. Stump C. Cliff D. Blowhole E. Geo
 - vi. Line drawn through places having the same amount of sunshine are called:
A. Isohels B. Isohytes C. Isotherms D. Isoneph E. Isobar
 - vii.is a volcano which emits steam, mud, and other several gases:
A. Solfatara B. Mofette C. Fumerole D. Hot spring E. Geysers
 - viii. The degree of coarseness or fineness of the soil particles is termed as:
A. Soil profile B. Soil porosity C. Erosion D. Soil texture E. Leaching
 - ix. The following are the tropical cyclones:
A. Tornadoes and Hurricanes B. Hurricanes and Typhoons
C. Tornadoes and Doldrums D. Doldrums and Typhoons
E. Tornadoes and Typhoon
 - x. The intensity of an earthquake is measured by :
A. Epicenter B. Richter scale C. Seismography D. Mercalli scale
E. Hygrometer.

2. Study the data given below then answer the questions that follow.

CLASS	FREQUENCY
20-24	3
25-29	7
30-34	8
35-39	12
40-44	9
45-49	6
50-54	4
55-59	3

- i. Calculate the range of grouped data.
- ii. Find the variance
- iii. Calculate the standard deviation.

3. Carefully study the table below that shows cash crops production in Tanzania in “000” tones in 2005 – 2008 then answer the questions that follow.

YEARS CROPS	2005	2006	2007	2008
COFFEE	250	280	100	150
TEA	200	100	275	250
COTTON	175	180	50	100

- i) Present the above data by compound bar graph method.
- ii) Mention two advantages and disadvantages of divided bar graph.
- iii) List down two other methods that could present the above data.

4. With examples, describe the following concepts as used in Research.

- i) Field Research.
- ii) Hypothesis.
- iii) Literature review.
- iv) Interview.
- v) Observation
- vi) Questionnaire.
- vii) Research Problem.

5. Mention the specific dates on which the following phenomena or events occur on the earth.
 - i) Summer solstice in northern hemisphere.
 - ii) Summer solstice in southern hemisphere.
 - iii) Spring Equinox.
 - iv) Autumn Equinox.
 - v) Aphelion.
 - vi) Perihelion.

6.
 - a) Mention ten (10) erosional features of glacier action.
 - b) Mention five (5) depositional features of glacier action

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM THREE HOME PACKAGE

HISTORY

18^h March -17th April, 2020

INSTRUCTIONS

1. This paper consists of sections **A, B** and **C**.
2. Answer **ALL** questions in section A and B and **three (3)** questions from section C.
3. **ALL** answers must be written in the answer sheet provided.
4. Crossed or corrected answer **will NOT** be marked hence loss of marks.
5. All drawings should be in pencil.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	SIGNATURE
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TOTAL (100%)		

This paper consists of seven (7) printed pages.

SECTION A (20 Marks)

Answer **all** questions in this section.

1. For each of the items (i) – (x), choose the correct answer from among the given alternatives and write its letter beside the item number in the answer booklet provided.
 - i. The following are true about traditional education in Africa **except** that it:
 - A. Was not confined to any place or time
 - B. Placed great emphasis on individual freedom and rights
 - C. Was sometimes imparted through riddles and proverbs.
 - D. Enabled the youth to be acceptable members of the society
 - E. Elders were among the expats to transmit knowledge to the youth.
 - ii. Four of the following statements are true about Homo sapiens which one is **NOT**?
 - A. He was Man's first bipedal ancestor
 - B. His economic activities include hunting and fishing
 - C. He had long straight legs.
 - D. He had small teeth and jaws
 - E. He has less hairy body
 - iii. The people who acted as guides during the Trans-Saharan trade were:
 - A. Berbers merchant
 - B. Ghananian investors.
 - C. Touareg takshifs
 - D. African rulers
 - E. None of the above
 - iv. Before the 19th century, few Swahili traders ventured into the interior of East Africa due to:
 - A. Fear of wild animals
 - B. Hostility from the Europeans
 - C. Lack of roads
 - D. Hostility from African communities
 - E. Introduce colonialism
 - v. Another name for the feudal economic system in Africa is:
 - A. Lineage mode of production
 - B. Kinship
 - C. Tributary mode of production

- D. Slavery
- E. Communalism

- vi. The period marked by intense competition among European traders was known as:
- A. Industrial capitalism

The age of mercantilism

- B. Industrial revolution
- C. The Iron Age
- D. Scramble

- vii. Which of the following was **not** true about iron working:
- A. It resulted in the manufacture of new tools and weapons
 - B. It helped to improve agriculture
 - C. The population was reduced because better weapons killed more people
 - D. It helped to increase specialization in the production of goods
 - E. It stimulated trading activities

- viii. The Atlantic slave trade from West Africa:
- A. Only began in the Seventh Century
 - B. Was carried out entirely by British traders
 - C. Was organized throughout West Africa by the Mande- speaking people.
 - D. Began soon after the Portuguese began exploring the coast
 - E. In order to establish trade routes

- ix. The Dutch began a settlement at the Cape in 1652:
- A. In order to establish a colony
 - B. To fight against the British in the Indian Ocean
 - C. To establish a calling station for ships
 - D. To take land from the Khoisan
 - E. In order to colonize Africa

- x. Second World War began when Germany invaded :
- A. Austria
 - B. Poland
 - C. Russia
 - D. Chechnya
 - E. Burma

2. Match the items in List A with the correct responses in List B by writing the letter of the corresponding responses beside the item number in the answer sheets provide.

LIST A	LIST B
(i) Mputa Maseko and Zwangendaba.	A. Bronze workers guilds
(ii) Imbangala and Vimbundu	B. Hunter-gatherer.
(iii) Iron technology	C. Islamic law
(iv) Benin	D. Morans
(v) Maasai warriors	E. Slave traders.
(vi) Tutsi	F. Kilwa.
(vii) Amir Ali Bey	G. Leaders of the Ngoni.
(viii) Sandawe and Hadzabe.	H. Leaders of the rebellion against the portuguese in East Africa.
(ix) Sharia law	I. Proffessional traders in North-Eastern Africa.
(x) Minting of gold coins	J. Ruga ruga.
	K. Proffessional traders in Central Africa
	L. Meroe.
	M. Cattle owners in Rwanda.
	N. West Indies
	O. Merchantalism
	P. Berbers
	Q. Middle class
	R. Islamic religion emerged
	S. Monopoly capitalism

SECTION B (20 Marks)

Answer **all** questions in this section.

3. (a) Draw the sketch map of Africa and locate the following iron sites by using roman numbers:
- (i) Nok
 - (ii) Kalambo
 - (iii) Dambwa
 - (iv) Gokomero-Ziwa
 - (v) Meroe
- (b) Outline six human changes with the use iron.

4. (a) Arrange the following statements in chronological order by writing number 1 to 5 beside the item number.
- i. At this time, there was great demand for gold, silver, silk and spices, especially among the Kings and wealthy people.
 - ii. Initially, these items reached Europe from their source in Asia via a land routes through the Middle East.
 - iii. Silk cloth was for expensive clothes for the rich, and spices were extremely expensive flavourings.
 - iv. The Portuguese became interested in controlling the Indian Ocean trade in the 15th century due to the commercial capitalism in Europe.
 - v. Gold and silver were used to make coins and expensive ornaments.
- (b) One of the following statements is not historically correct. Identify it and write its latter beside the item number.
- (i)
 - A. Oral tradition is the method of studying and obtaining historical facts with the words handled down by mouth.
 - B. It including the process of collecting historical information done by talking and listening to people with such valid historical information.
 - C. This method is referred to as tradition because it applies traditional way of obtaining and handling of information.
 - D. This method involves two ways that is cultural practice and narration of past events.
 - E. This method contains a collection of sort items, which show cultural, social, political, religious and economic development.
 - (ii)
 - A. Evolution of man is a gradual change of man from one stage to another.
 - B. Human beings are classified in the mammalian order of primates.
 - C. Primates family was divided into two groups namely proconsul and ramapithecus.
 - D. About 500,000 years ago modern man appeared with the modern body.
 - E. Theory of creation on the origin of Man and theory of evolution of Man are basic arguments which explain the origin of man.
 - (iii)
 - A. Long Distance payed a very important role in the growth of many per-colonial African states.
 - B. Three ethnic groups namely Yao, Nyamwezi and Kamba dominated the major routes of Long Distance Trade in East Africa.

- C. In central Africa Long Distance Trade took the form of Trans-Saharan Trade.
 - D. Trans-Saharan Trade was very famous form Long Distance Trade in West Africa.
 - E. Yao dominated the southern route of the Long Distance Trade.
- (iv)
- A. Primitive communalism is the earliest political organization.
 - B. There was low level of development during communalism.
 - C. There was no exploitation of man by man during communalism.
 - D. There were low level of science and technology during communalism.
 - E. There were no surplus productions during communalism.
- (v)
- A. Nationalism is the desire of people's to rule themselves in their nations by terminating all foreign rules.
 - B. African Nationalism was a step by step process that rose in Africa due to the European colonization.
 - C. Nationalism promoted unity and tribalism in African societies.
 - D. Nationalism dismantles the evils of European capitalism on African soil.
 - E. Nationalism gave the Africans a sense of pride and belonging to their particular African countries.

SECTION C (60 Marks)

Answer **three (3)** questions from this section.

5. With examples explain six (6) advancements attained by a man during New Stone Age.
6. Explain Six (6) positive social impacts of the contact between Africa, Middle East and Far East.
7. Discuss six (6) tactics used in the imposition of colonial rule in Africa.
8. Explain five (5) resolutions reached by the European powers during the Berlin Conference from 1884 to 1885.
9. By using relevant examples, explain six (6) challenges that are facing the African Union.
10. Analyze six (6) problems facing African countries that originated from their colonial heritage.

ST.AUGUSTINE-TAGASTE SECONDRY SCHOOL

FORM FOUR HOME PACKAGE

ENGLISH LANGUAGE

18th March -17th April, 2020

INSTRUCTIONS

1. This paper consists of five questions.
 2. Answer all questions.
 3. Remember to write your class and stream.
 4. Your handwriting must be clear and neat.
 5. Read and understand the question well before attempting it
-
1. Complete the following sentences with the correct information as used in literature
 - i. The trees whistled as the wind blew harder. This is an example of _____
 - ii. "As white as a snow" this statement represents _____ as used in literature.
 - iii. _____ is a situation where the audience knows something in the story while a character does not.
 - iv. Salma speaks too much nowadays. "she is a parrot" what does the underlined sentence represent? _____
 - v. _____ is a figure of speech which tends to use language in a humorous way to ridicule or criticise human weaknesses.
 - vi. One, two, three shoot, "tutu- tutuuu tuuu!" the part in quotation marks represents _____
 - vii. He found a "clean ice cream" the underlined parts stand for _____
 - viii. A stage through which a conflict is solved step by step is called _____
 - ix. A technique of telling a story by jumping to the later event is referred to as _____
 - x. A situation of having two antagonistic feelings/thoughts within the same character refers to _____

2. Re-write the following sentences in their correct forms
 - i. I have had enough money when that man snatched my hand yesterday
 - ii. We swam in that pond for three hours
 - iii. He had begun telling him wrong stories.
 - iv. Puja complained that he was mopping the floor alone for three hours.
 - v. They complained a lot, don't they?
 - vi. Juma and Aloyce were about to leave the place tonight.
 - vii. He wrote a book so as he wanted to make money
 - viii. He climbed a tree very careful so that he can't be hurt
 - ix. It is reported that magnet attracted Iron.
 - x. Your car uses little fuel than mine.

3. Imagine the manager of the Big T company L.T.D, P.O. box 090 Mwanza has announced that he is in need of any interested applicant to fix the post of an accountant in his company which is now vacant. The advertisement appeared in the Sunday News of 17th April, 2020. Write a covering letter which you will submit, your name should be Nachapa kazi of P.O. Box 327. Mji Mpya, Dodoma.

4. "Irresponsibility is one of the greatest barrier towards any society's progress" Discuss the above claim using two plays you have read. Use six (6) points.

5. Refuse the statement that "All African countries have to blame the colonialists for the poor status they are now" Use two poems by writing three points from each poem.

SHULE YA SEKONDARI YA MTAKATIFU AUGUSTINO-TAGASTE

KAZI YA NYUMBANI KIPINDI CHA LIKIZO KIDATO CHA NNE

KISWAHILI

17 MACHI -17 APRILI, 2020

Jibu maswali yote.

1. Thibitisha Ubuntu wa kiswahili kwa kutumia ushahidi wa kihistoria (Toa hoja sita)
2. Moja ya ushahidi wa ubuntu wa kiswahili ni Vitenzi. Thibitisha dai hili kwa hoja nne.
3. Fafanua mafanikio matatu (3) na matatizo matatu (3) ya TATAKI katika kusimamia shughuli za ukuzaji wa lugha ya Kiswahili nchini.
4. “Lugha ya Kiswahili imetokana na lahaja za kibantu” Thibitisha kauli hii kwa kutoa hoja mbili kuelezea chanzo cha lahaja na hoja tatu kuhusu matumizi ya lahaja katika Kiswahili sanifu.
5. Eleza mambo muhimu yanayobainisha kuwa:
 - a) Kiswahili si Kiarabu (Hoja tatu)
 - b) Kiswahili si Krioli (Hoja tatu)

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM FOUR HOME PACKAGE

LITERATURE IN ENGLISH

17th March -17th April, 2020

INSTRUCTIONS:

1. This paper consists of Section **A, B**, and **C**.
2. Answer **ALL** questions in section A, B and thee (3) questions in section C by which two questions are Compulsory.
3. Cellular phones are not allowed in the examination room.
4. Write your **NAME** and **STREAM** on every page of your answer sheets.
5. Your work should be neat, clear and readable.

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	SIGNATURE
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TOTAL		

Candidate's nameExamination No.....

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM FOUR HOME PACKAGE

LITERATURE IN ENGLISH

17th March -17th April, 2020

INSTRUCTIONS:

1. This paper consists of Section **A, B,** and **C.**
2. Answer **ALL** questions in section A, B and thee (3) questions in section C by which two questions are Compulsory.
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FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	SIGNATURE
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This paper consists of five (5) printed pages

SECTION A : (15 MARKS)
MULTIPLE CHOICE AND MATCHING ITEMS

Answer all questions from this section

1. Choose the most correct answer from among the alternatives given and write its letter in the answer sheet provided.
 - (i) The direct comparison between two different items without using conjunctions:
 - A. SIMILE
 - B. SYMBOLISM
 - C. METAPHOR
 - D. IMAGERY
 - (ii) The type of drama that is acted through body gestures without speaking
 - A. MONO-DRAMA
 - B. PANTOMIME
 - C. MIME
 - D. SOLO-DRAMA
 - (iii) The use of indirectness of Language to replace directness of the words is known as ...
 - A. BARBARISM
 - B. ARCHAISM
 - C. EUPHEMISM
 - D. CONSONANCE
 - (iv) The close repetition of similar consonant sounds either within or at the end of the consecutive words:
 - A. RHYME
 - B. RHYTHM
 - C. ALLITERATION
 - D. CONSONANCE
 - (v) The attitude of the poet towards the subject matters of the poem is known as :
 - A. EMOTIONS
 - B. MOOD

- C. TONE
D. POETRY
- (vi) The type of point of view by which the story teller assumes to be all knowing is called:
A. FIRST PERSON NARRATION
B. OMNISCIENT
C. SECOND PERSON NARRATION
D. POINT OF VIEW
- (vii) The series of moving pictures displayed on Television :
A. SERIES
B. PLAYS
C. FILM
D. NOVELLA
- (viii) The following refers to the arrangement of events and incidents in a literary work:
A. SETTING
B. PLOT
C. TITLE
D. DICTION
- (ix) The way of expressing feelings, emotions, ideas and life experiences using the imaginative and rhythmical Language as known as :
A. POEM
B. PROSE
C. POENTY
D. SONG
- (x) The type of poem presented on dramatic form in simple episodes characterized by actions and dialogue.
A. EPIC
B. SONNET
C. ELEGY
D. BALLAD

2. Match each literary expression in **LIST 'A'** with the **LIST 'B'** by writing the correct letter beside the item number.

LIST A	LIST B
i) The promotional piece of information often found at the end of the book cover.	A. SCENE B. ACT
ii) The figure of speech that separate words in list through the use	C. PROVERB

of commas. iii) The mental picture in form of words. iv) The saying whose meaning is contrary to its individual words and must be learnt as the whole. v) These refer to the minor divisions of a play which conjoin to form the main theatrical performance.	D. IDIOM E. POLYSYNDETON F. ASYNDETON G. PREFACE H. BLURB I. IMAGERY J. SYMBOLISM K. SATIRE L. SARCASM
--	--

SECTION B: (40 MARKS)
SHORT ANSWER QUESTIONS
Answer all questions in this section

3. (a) Define the term Literature
(b) Briefly explain the four key defining elements of Literature.
4. In short, explain the contention that form and content are inseparable twins (5points)
5. List any five distinctions between prose and poetry.
6. Read the following poem and then answer the questions that follow.

IF WE MUST DIE by Claude McKay

If we must die-let it not be like hogs Hunted and penned in an inglorious sport.
While round us bark the mad and hungry dogs. Making their mocks at our accursed Lot,
If we must die-oh let us nobly die so that our precious blood may not be shed in vain;
then even the monsters we defy shall be constrained to honour us though dead ! Oh
kinsmen! We must meet the common foe; Though far outnumbered, let us show our
bravery. And for their thousand blows onedead blow! What though before us lies the
open grave? Like men well face the murderous, Cowardly pack. Pressed to the wall,
dying, but fighting back!

QUESTIONS

- a) What type of poem is this? Why?
- b) What is the mood of the speaker?
- c) What is the tone of the poet?
- d) Who is the persona of this poem?
- e) Briefly explain any two figures of speech conveyed.
- f) Briefly analyse any two major themes portrayed.

SECTION C: (45 MARKS)
ESSAY TYPE QUESTIONS

Answer three (3) questions from this section.

RESPONSE TO READINGS

PLAYS

The Lion and the jewel	- Wole Sayinka
The Trial of Brother Jero	- Wole Sayinka
Dilemma of a Ghost	- Ama Ata Aidoo

NOVELS

The concubine	- Elechi Amadi
Houseboy	- Ferdinand Oyono
The Oldman and the medal	- Ferdinand Oyono

POETRY

- Selected Poems by Tanzania Institute of Education.
- Growing Up with Poetry by David Rubadiri.

7. Literature has various social political and economic roles to contribute in the society. Use two studied plays to justify this view (COMPULSORY).
8. The titles of the literary works are the summaries of its contents. Use the two studied novels to justify this contention.
9. Diction is the means used by the poets to convey various issues effectively and interestingly. Use four studied poems to argue on this statement. (COMPULSORY).
10. Foreign education provided to the current generation has the tendency of isolating some scholars from their original culture. Use the two studied plays to explain this view.

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM FOUR HOME PACKAGE

BASIC MATHEMATICS

18th March -17th April, 2020

INSTRUCTIONS

1. This paper consists of sections **A** and **B**.
2. Answer **ALL** questions in sections **A** and **four** questions from section B. Each question in section A carries six (6) marks while each question in section B carries ten (10) marks.
3. All necessary working and answers for each question done must be shown clearly.
4. Mathematical table may be used.
5. Calculators and cellular phones are **not** allowed in the examination room.
6. Write your name on every page of your answer sheet(s).

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	SCORE	SIGNATURE
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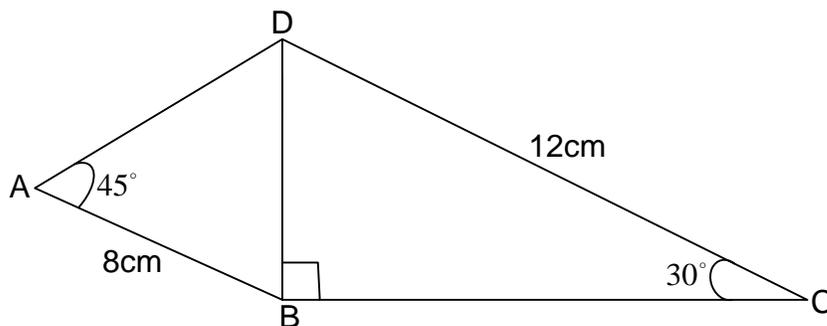
This paper consists of 6 printed pages

SECTION A: (60 MARKS)

Answer all questions in this section.

1. (a) Write 0.00850 correct to
 - i. 3 decimal places.
 - ii. 1 significant figure.(b) By rounding each term to 2 significant figures, find the approximate value of M in
$$M = \frac{6.7782+2.974}{7.332-2.422}.$$
2. (a) Simplify $20 \times (8^{2n}) - 5 \times (4^{3n+1})$.
(b) Given that $\frac{a\sqrt{2}+2b\sqrt{3}}{2a\sqrt{2}-b\sqrt{3}} = 3$, show that $\left(\frac{a}{b}\right)^2 = 1.5$
3. (a) Six years ago a father was seven times as old as his son. After six years he will be three times as old as his son. Determine their present ages.
(b) A class has 46 students. 33 take Biology, 26 take History and 3 take neither of the two subjects. How many students take Biology but not History?
4. (a) Find the x and y-intercepts of a straight line that will pass through the points P(5,3) and Q(-1,1).
(b) Given the vectors $\mathbf{a} = 5\mathbf{i} + 4\mathbf{j}$, $\mathbf{b} = -2\mathbf{i} + 3\mathbf{j}$ and $\mathbf{c} = 3\mathbf{i} + 6\mathbf{j}$, find
 - i. $\mathbf{v} = 2\mathbf{a} + \mathbf{b} - 3\mathbf{c}$.
 - ii. The magnitude of \mathbf{v} .
5. (a) The ratio of the areas of two similar polygons is 144:225. If the length of a side of the smaller polygon is 60cm, find the length of the corresponding side of the other polygon.
(b) Triangle LMN is isosceles with LM=LN; X and Y are points on LM, LN respectively such that LX=LY. Show that triangles LMY and LNX are congruent.

6. (a) The variable y varies directly as x and inversely as square of z .
- Write down the equation connecting y , x and z .
 - If x is increased by 5% and z is decreased by 10% write down the new equation connecting y , x and z and hence find the percentage change in y .
- (b) A car travelling steadily covers a distance of 480 km in 25 minutes.
What is its rate in metres per second?
7. (a) A shirt whose marked price is Tsh.8,000 is sold to a customer after allowing him a discount of 13%. If the trader makes a profit of 20%, find how much the trader paid for the shirt.
- (b) The cash price of a television set is Tsh. 250,000. A customer paid a deposit of Tsh.37,500. He paid the amount owing in 24 equal monthly instalments. If he was charged simple interest at the rate of 40% p.a., how much was each instalment?
8. (a) The salary for an employee starts at Tsh. 5,700,000 per annum. A rise of Tsh. 280,000 is given at the end of each year. Find the total amount of money that the employee will earn in 14 years.
- (b) The sum of Tsh. 50,000 is invested in a financial institution that gives 12% p.a. The interest being compounded quarter yearly. Find the total investment after 3 years.
9. (a) Without using tables, simplify: $\frac{\sin 30^\circ \cos 30^\circ}{\tan 30^\circ}$.
- (b) A figure below shows a quadrilateral ABCD in which $AB=8\text{cm}$, $DC=12\text{cm}$, $\angle BAD = 45^\circ$, $\angle CBD = 90^\circ$ and $\angle BCD = 30^\circ$.



Find:

- The length of BD .

ii. The size of angle ADB.

10. (a) Solve the equation $9x^2 + 9x - 54 = 0$ by using the factorization method.

(b) Find the solution of the following set of simultaneous equations.

$$\begin{cases} 4x - 2y = 10 \\ 8x^2 - 2y^2 = 30 \end{cases}$$

SECTION B: (40 MARKS)

Answer any four (4) questions from this section

11. Ally wishes to buy up to 40 notebooks for his stationery. He can buy either type A for sh.3,000 each or type B for sh. 6,000 each. He has a total of sh. 150,000 to spend and he must have at least 10 notebooks of type A and at least 5 notebooks of type B in his stock.

a) Write down all the inequalities which represent the given information.

b) If he makes a profit of sh. 400 on each notebook of type A and shs. 1000 on each notebook of type B, how many notebooks of each type he should buy for maximum profit?

12. The following are the marks obtained by 30 students in a mathematics test.

34 40 30 43 33 41 24 25 23 30

33 15 34 23 24 27 47 20 33 23

39 24 36 21 23 43 42 33 16 23

(a) Make a frequency distribution table by grouping the marks with class marks 17, 22, 27,

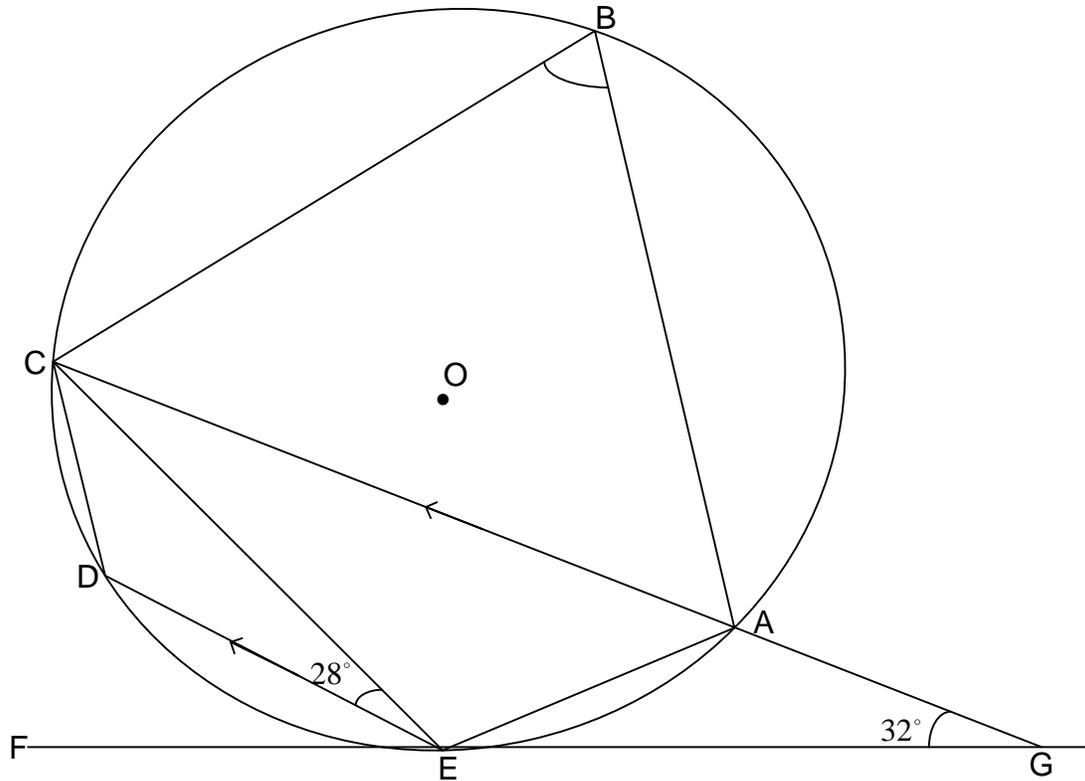
(b) Using the grouped data above, find

i. The mean mark of 30 students.

ii. The modal class and the mode.

(c) Draw the cumulative frequency curve for the grouped data and indicate the median mark.

13. (a) A figure below shows a circle ABCDE. The line FEG is a tangent to the circle at point E. Line DE is parallel to CG, $\angle DEC = 28^\circ$ and $\angle AGE = 32^\circ$.



Calculate

- i. $\angle AEG$
- ii. $\angle ABC$

(b) The position of two towns A and B on the surface of the earth are $(36^\circ N, 49^\circ E)$ and $(36^\circ N, 131^\circ W)$ respectively.

- i. Find the difference in longitude between A and B.
- ii. Given that the radius of the earth is 6370km, calculate the distance between town A and town B.
- iii. Another town C is 840nm east of town B and on the same latitude as A and B, find the longitude of town C.

14. The following information was obtained from the books of Muna and Sons Company Ltd as 30th April, 2017

Sales shs 10,000/=

Opening stock shs 8,000/=

Purchases shs 11,000/=

Closing stock shs 3,000/=

Carriage inwards shs 3,000/=

Returns inwards shs 1,000/=

Using the above information:

- a) Calculate the amount of cost of goods available for sale.
- b) Find the value of cost of goods sold.
- c) Calculate the net sales.
- d) Determine the gross profit or loss.
- e) Calculate the average stock.

15. (a) If $A = \begin{pmatrix} 1 & 2 \\ 5 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} 3 & 0 \\ 6 & -1 \end{pmatrix}$

- i. Find AB , BA and comment on your results;
- ii. By expanding the brackets first, find the value of $(B - A)^2$.

(b) Find the image of the point (9,5) under a rotation of 90° followed by a rotation of 180° anticlockwise about the origin.

16. The function f is defined as follows:

$$f(x) = \begin{cases} -x + 2 & \text{if } x < -1 \\ 2 & \text{if } -1 < x \leq 1 \\ x & \text{if } x \geq 1 \end{cases}$$

- i. Sketch the graph of $f(x)$
- ii. Use the graph to determine the domain and range of $f(x)$.

(b) Three defective transistors and two good transistors are mixed in a box. Two transistors are randomly selected.

Find the probability that they are both defective if the selections are made

- i. With replacement.
- ii. Without replacement.

Candidate's name Examination No.....

Candidate's Name.....

ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL

FORM FOUR HOME PACKAGE

PHYSICS

17th March -17th April, 2020

INSTRUCTIONS TO CANDIDATES:

1. This paper consists of **10** questions.
2. Answer **ALL** questions.
3. Remember to write your name on every page of your answer.
4. Remember to show clearly your solution and proper arrangement of your work.
5. The non-programmable scientific calculators may be used.
6. Where necessary the following constants may be used;
7. The graph papers may be used where necessary
 - Density of water = 1000kg/m^3 or 1g/cm^3
 - Force of gravity = 10N/kg or 10m/s^2
 - Electronic charge, $e= 1.6\times 10^{-19}\text{c}$
 - Speed of light, $c=3\times 10^8\text{m/s}$
 - Mass of an electron, $M_e= 9.1\times 10^{-31}\text{kg}$
 - Planks constant, $h=6.63\times 10^{-34}\text{Js}$
 - Refractive index of water = $4/3$
 - $\text{Pi}, \pi = 3.14$
 - Atomic number of Uranium, $U=92$

This paper consist four (4) printed pages

1. (a) What are the earthquakes?
(b) State the natural causes of the earthquakes.
(c) Name the three types earthquake waves.
(d) State the five ways in which the earth's crust is affected by the earthquakes.
(e) Draw the diagram representing the internal structure of the earth. Label all of its important parts.
2. (a) Explain the meaning of the following terms;
 - (i) Hypocenter

- (ii) Epicenter
- (iii) Core
- (iv) Mantle
- (v) Crust

(b) What are hazards associated with the earthquake.

(c)(i) Mention four gases that contribute to global warming.

(ii) Give four effects of global warming and measures that can be taken to control it.

3. (a) Define the following terms as applied in astronomy;

- (i) Comet
- (ii) Meteor
- (iii) Planet
- (iv) Solar system

(b) Name all jovial planets and terrestrial planets in the solar system.

(i) Distinguish between gravitational force and force of gravity.

(ii) What is centripetal force?

(iii) What is the origin of centripetal force for the motion of heavenly bodies in the solar system?

4. (a) State the Newton's law of universal gravitation

(b) What do you understand by the following terms?

- (i) Maria of the moon
- (ii) Lunar highlands of the moon

(c)(i) Define the term tides, and explain how they occur.

(ii) Distinguish between a spring tide and neap tide.

5. (a) What do you understand by electromagnetic induction?

(b) Differentiate between secondary from primary transformer.

(c) (i) Explain the three factors which affect the amount of induced current in a conductor

(ii) A transformer has 800 turns in the primary winding and 50 turns in the secondary winding. The alternating e.m.f connected to primary is 240V and the current flowing is 0.2A. Find

- (i) The secondary e.m.f.
- (ii) The current flowing in the secondary if there are no power losses.
- (iii) The power in the secondary, if it is 90% of that in the primary.

6. (a) (i) What condition is necessary for the wave incident on it to be diffracted?
(ii) Demonstrate that waves carry energy
(iii) State the differences between X-rays and gamma rays in the way in which they are produced.
(b) Calculate the wavelength of the TBC radio waves transmitted at the frequency of 95.6 kHz.
(c) The BONGO station broadcasts on a frequency of 276 kHz and the wavelength of its signals is 1079.14m. Determine
(i) Speed of the radio waves in m/s.
(ii) Waves of the signal of another station that broadcasts on the frequency of 478 kHz.
7. (a) What is p-n-p transistor? Why do we prefer the n-p-n transistor today?
(b) Define the term power gain as it is applied in electronics
(c) The output power of signal is 0.5kW and the input power is 0.2kW. What is its power gain?
8. (a) Differentiate between knee from breakdown voltages
(b) Draw a well labeled diagram of a sketch for the I-V characteristics of the two types of biasing.
(c) Explain the meaning of doping.
9. (a) Define the term thermionic emission.
(b) Briefly, explain the discovery of the X-rays.
(c) Explain how the intensity of X-rays and the penetrating power from the tube is adjusted.
10. (a) Alpha particles have higher ionizing power than beta particles
(b) State two factors that determine the extent of the damage to the body cell caused by the radiation from the radioactive substances.
(c) Uranium 238 disintegrates by emitting an alpha particle to form nuclide **P**. Nuclide **P** emits a beta particle to form substance **Q**. Write down nuclear equations to show how substances **P** and **Q** are transformed.

Candidate's name*Examination No.*.....