

Candidate Name.....

**ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL**  
**FORM FIVE HOME ASSIGNMENT- APRIL, 2020**  
**ADVANCED MATHEMATICS**

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**ANSWER ALL QUESTIONS**

**INSTRUCTIONS: Answer All Questions.**

1. Expand  $\frac{1}{(1+2x)^3}$  in ascending powers of x as far as the term in  $X^3$ , using binomial theorem and state the limits of x for which the expansion is valid.
2. Simplify  $\frac{\sqrt[3]{(1-3x)}\sqrt{(1+x)}}{\left(1+\frac{x}{2}\right)^3}$  given that the powers of x higher than unity may be neglected.
3. Obtain  $\sqrt[3]{2}$  to five decimal places by putting  $x = 1000$  in the expansion of  $(x+24)^{\frac{1}{3}}$  in descending power of x.
4. Differentiate the following with respect to
  - a)  $y = 3\sqrt{x} \ln 2x$
  - b)  $y = x^3 \cos 5x$
5. Differentiate the following from the 1<sup>st</sup> principle.
  - a)  $Y = \cos 5x$ .
  - b)  $Y = \sqrt{x}$
  - c)  $Y = x^3 + 2x - 2$ .
6. The distance x metres moved by a body in t seconds is given by:  $x = 5t^3 - \frac{21}{2}t^2 + 6t - 4$ .

Determine:

  - a) The initial velocity and the velocity after 3 seconds.
  - b) The value of t when the body comes to rest.
  - c) Its acceleration after 2 seconds.
  - d) The value of t when the acceleration is  $24 \text{ m/s}^2$
  - e) The average velocity over the third second.

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7. a) Show that normal to the Curve  $5x^5 - 10x^3 + 2y + 6 = 0$  at A ( 0, 3) meets the curve again at two points.

b) Find the equation of tangents to the Curve at these Points.

8. Find  $\frac{dy}{dx}$  and  $\frac{d^2y}{dx^2}$  if

a)  $X = \frac{t}{1+t}, y = \frac{t^3}{1+t}$ .

b)  $X = \frac{2t}{t+2}, y = \frac{3t}{t+2}$ .

9. Integrate the following with respect to x,

a)  $\int \frac{1}{1+\cos x} dx$ .

b)  $\int x^5 (x^6 + 7)^{10} dx$ .

c)  $\int \sin 2x \sin^2 x dx$

d)  $\int e^{3x} \cdot dx$

e)  $\int x \ln x dx$

10. Evaluate the following. Integrals:

a)  $\int_0^{\frac{\pi}{2}} \sin x \sqrt{\cos x} dx$ .

b)  $\int_2^3 x \sqrt{x-2} dx$ .

c)  $\int_2^3 \frac{1}{x^2-4x+5} dx$ .

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**ST.AUGUSTINE TAGASTE SECONDARY SCHOOL**  
**FORM FIVE HOME ASSIGNMENT- APRIL, 2020**  
**ENGLISH LANGUAGE**

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**INSTRUCTIONS**

1. This assignment consist of ten (10) questions
  2. Answer ALL questions.
  3. Write your **name** on every page of your answer sheet(s) provided.
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1. Describe four characteristics features of second language (L2).
  2. Explain four factors for the selection of national language.
  3. With examples, describe any five grammatical morphemes.
  4. Describe four uses of reduplication process of word formation.
  5. Explain three characteristics of connotations.
  6. Write an essay on what AID's is and how it can be prevented.
  7. Describe five characteristics features of informal language.
  8. Explain five graphological features of legal language.
  9. Use two plays read to discuss how titles of books reflect the happenings in the society. Provide eight points form each play.
  - 10.Using four poems, show how the poets have manipulated language to give the intended message to the readers.

**ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL**  
**FORM FIVE ASSIGNMENT- 2020, APRIL**  
**BASIC APPLIED MATHEMATICS**

**INSTRUCTIONS**

Answer **ALL** questions.

1. (a) By using a non- programmable calculator.

i. Determine the value of  $Z$ ,  $Z^2$  and  $\frac{1}{Z}$  to five decimal places given that :

$$Z = \left[ \frac{\ln 2.345 + \sqrt{5}}{2^m - e^{\sin 30^\circ}} \right] \left[ \frac{1}{2} + \frac{\sqrt{3}}{2} \right]$$

ii. Evaluate

$$\int_1^3 \frac{x}{(x+1)(4-x)} dx \text{ Correct to seven decimal places}$$

- (b) Find the mean length and standard deviation of 200 engine components that were measured and record as follows:

Length (mm)	198	199	200	201	202	203
Frequency	8	30	130	24	6	2

2. (a) Show that  $\int \frac{2 + \tan 2x}{x + \tan x} dx = \ln|x + \tan x| + C$

(b)  $\int_0^1 \frac{2x+3}{\sqrt{x^2+3x+1}} dx$

(c)  $\int_0^2 x^5 (x^6 - 3)^4 dx$ .

3. (a) Find the area of the region bounded above by curve  $y = x^2 + 1$  and the line  $y = x$  and bounded on the sides by  $x = 0$  and  $x = 1$

(b) Find the area between the two curves  $y = x^2$  and the line  $y = 8 - x^2$

4. (a) Find the area enclosed by the curve  $y = x^2 - 3x + 2$  and the  $x$ -axis.

(b) Find the area bounded by curve  $y = x(x+2)$  and the  $x$ -axis.

**ST. AUGUSTINE TAGASTE SECONDARY SCHOOL**

**FORM FIVE ASSIGNMENT- APRIL, 2020.**

**CHEMISTRY**

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**ORGANIC CHEMISTRY.**

**QUESTIONS.**

1. Compare the acidic strength between:
  - i. Acetic acid and hydrochloric acid
  - ii. Phenol and acetic acid
  - iii. 2-chloro butanoic acid 2,3-butanoic acid.
  
2. Write chemical equations for the reactions between:
  - i. Ethanol and potassium permanganate solution
  - ii. Methyl benzene and potassium permanganate.
  - iii. Propyl nitrile and water.
  
3. **With aid of the chemical equations show how the following conversion can be achieved:**  
**Carboxylic acid to:**
  - i. Soap
  - ii. Ester
  - iii. acid chloride
  - iv. Amide
  - v. Alcohol
  
4. Briefly explain five applications of carboxylic acids in normal life.
  
5. (a) Giving an example, explain why primary haloalkanes undergo  $S_N^2$  while tertiary haloalkanes undergo  $S_N^1$ .  
(b) Briefly explain the following physical properties of ketones and aldehydes.
  - i. Polar character
  - ii. Solubility in water
  - iii. Boiling point
  
6. (a) Show the general mechanism for the reaction between ketones and Grignard reagent followed by acidified water.

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**FORM FIVE HOME ASSIGNMENT- APRIL, 2020**  
**GENERAL STUDIES**

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1. One of the principle of good governance is rule of law .Show how rule of law can be assessed in a given country. (Six points)
2. What are the different between democratic government and non – democratic government.
3. Explain the contribution of science and technology to the development of social services in Tanzania.
4. Why religious tolerance important to a country like Tanzania?
5. Assess the role of UN in promoting international peace and understanding.
6. Conflict in Africa can only be uprooted through military action .Discuss
7. “The speed towards creating the East African Federation is too fast “comment on this contention
8. What do you think are the causes of moral value decay in the society like Tanzania.
9. Explain at least six important events for historical background to the origin and development of human rights.
10. Discuss the challenges facing the multiparty general elections in Tanzania. (Give six points).

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**HISTORY**

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**ANSWER ALL QUESTIONS**

1. Describe six reasons for expansion of water and housing services in the colonies after 1945.
2. Analyze the contribution of Accra Conference in the rise of nationalism (six points)
3. Explain six distinctive features of the economic situation of Tanganyika at independence.
4. Explain three measures that were undertaken to implement the Arusha Declaration of 1967 and three achievements of Ujamaa Policy.
5. Discuss six significance of Pan – Africanism in the rise of nationalism and the struggle for independence in Africa.
6. Examine the measures taken by the imperial powers to stabilize metropolitan crises ridden economies after the Second World War (use six points).
7. Cooperative unions and marketing boards were much encouraged by the metropolitan policies after 1939. Account for such development (use six points).
8. By using six points, examine the influence of Mfecane war in the formation of centralizes states in Central and East Africa during the 19 the century.
9. Examine critically the four characteristics of Pre- Colonial education and its four role enhancing African cultural aspect.
10. The constitution of 1977 had several weakness with vivid examples identify sic weakness that hinder democratic progress sin Tanzania.

**ST. AUGUSTINE - TAGASTE SECONDARY SCHOOL**  
**FORM FIVE ASSIGNMENT- 2020, APRIL**  
**BIOLOGY**

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Answer **ALL** questions.

1. (a) Define the following terms:
  - i. Homeostasis
  - ii. Thermoregulation(b) Give a brief explanation on the homeostatic components.  
(c) Use an example of how the level of blood glucose is controlled by the hormone insulin to explain negative feedback.
2. Briefly explain and show the steps by which urea is formed and the path it takes to the kidneys.
3. Discuss the adaptation to oxygen uptake shown by:
  - i. Mountain dwellers
  - ii. Divers
  - iii. Mammalian foetus.
4. (a) Suggest why rats living in deserts have longer loops of Henle than rats living in habitats with a plentiful water supply.  
(b) The onset of fever is always accompanied by shivering and feeling of cold known as chill. Explain these symptoms in terms of the mechanism of control of body temperature.
5. Describe hormonal control of osmoregulation in man.
6. (a) Point out four adaptations of marine bony fish against dehydration.  
(b) Write short notes on how three forms of nitrogenous wastes are related to water conservation in living organisms.
7. (a) Name four organs in a mammal's body which are involved in homeostatic control.  
(b) State the main differences between negative and positive feedback.

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**GEOGRAPHY**

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Answer **ALL** questions.

1. With the aid of diagram, describe conditions for the formation of gorge and canyon.
2. Explain five effect of marine aggradation at the coast.
3. Thoroughly explain complex process of soil formation.
4. Elaborate five caused of air ascending.
5. Describe five factors for coast evolution.
6. In not less than five point, differentiate between zonal and a zonal soil.
7. Describe stages of research proposal.
8. Explain five factors determine qualities of photograph.
9. Differentiate between population policy of Tanzania and China.
10. Describe five population problems likely to be associated with COVID-19 disease.

## ST. AUGUSTINE-TAGASTE SECONDARY SCHOOL

## FORM FIVE HOME ASSIGNMENT- APRIL, 2020

## PHYSICS

## INSTRUCTIONS

Attempt **all ten (10)** questions

- A composite bar is made of a bar of copper 10 cm long, a bar of iron 8 cm long and a bar of aluminum 12 cm long, all having the same cross-sectional area. If the extreme ends of the bars are maintained at  $100^{\circ}\text{C}$  and  $10^{\circ}\text{C}$  respectively. Find the temperature at the two junctions. Given that thermal conductivity of copper, iron and aluminum are  $400 \text{ Wm}^{-1}\text{K}^{-1}$ ,  $40 \text{ Wm}^{-1}\text{K}^{-1}$  and  $20 \text{ Wm}^{-1}\text{K}^{-1}$  respectively.
- Describe Searle's experiments to determine thermal conductivity of a good conductor.
  - Describe Lee's experiments to determine thermal conductivity of a bad conductor.
- Explain any four assumptions of Kinetic theory of gases.
  - Derive the gas equation obeyed by a system consisting of  $N$  molecules each of mass,  $m$  and root mean square speed  $\bar{c}$  hence obtain the K.E per molecules in terms of absolute temperature of vessel of volume  $6.0 \times 10^{-3} \text{ m}^3$  containing nitrogen having pressure of  $2.0 \times 10^2 \text{ Pa}$  and temperature of  $27^{\circ}\text{C}$ . Calculate;
    - The number of nitrogen molecules in the vessel
    - The r.m.s speed
- State Stephen's and Newton's Law of cooling.
    - Explain any two significant limitation of each law stated in (a) (i).
  - In a room at  $18^{\circ}\text{C}$  a body cools from  $35^{\circ}\text{C}$  to  $30^{\circ}\text{C}$  in 5 minutes. Find the further time elapse before the temperature of the body is  $20^{\circ}\text{C}$ .
      - The energy arriving per unit area on the earth's surface per second from the sun is  $1.34 \times 10^3 \text{ Wm}^{-2}$ . The averaged distance from the earth to the sun is 215 times as great as the Sun's radius. Find the surface temperature of the Sun, assuming that both the Earth and the Sun are black bodies.
- Why during the clear day, the sky looks blue.
  - Draw a rough sketch showing the variation with wave length of the radiation from the black body temperature of  $1000 \text{ K}$  and  $3000 \text{ K}$  respectively.
- The equation of progressive wave on water surface is given by  $y = A \sin 2\pi \left( 100t - \frac{x}{3} \right)$ , where  $x$  is the distance covered by the wave in time  $t$ ,  $y$  and  $x$  are in *cms* while  $t$  in seconds. Calculate;
  - Wavelength and frequency of the wave.
  - Phase difference between any two points on the water surface that are  $10 \text{ cm}$  apart.
  - Angular velocity of the waves.
  - Amplitude of the waves.
  - Predict the direction of travel of the wave.

**ST. AUGUSTINE SECONDARY SCHOOL TAGASTE**

**FORM FIVE HOME ASSIGNMENT- 2020, APRIL**

**ECONOMICS**

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**INSTRUCTIONS**

- **Answer all questions**
  - **Use A4 Paper**
1. Outline five uses of production possibility frontier (PPF)
  2. Distinguish the following terms
    - i. Capital intensive and labor intensive technique of production
    - ii. Public good and private good
    - iii. Social benefit and private benefit
    - iv. Social cost and private cost
  3. Explain five factors for leftward and rightward movement of demand curve
  4. Show with the help of diagrams, shifts in the demand curve movement along the demand curve.
  5. Explain the concept of kinked demand (price rigidity) in oligopoly market
  6. Write short notes on the following concept of money
    - i. Legal tender
    - ii. Fiat money
    - iii. Intrinsic value of money
    - iv. Fiduciary money
    - v. Token money
  7. Suggest six methods of dealing with market failure in the economy.
  8. Accounts for six factors for an increasing rate of youth unemployment in Tanzania.
  9. Explain six reasons for periodic fluctuation of the level of economic activities.