Arba Minch University

Stream Selection Qualification Examination for Year I students

Booklet One: Health Stream Examination

Dear Students,

This Booklet contains 60 questions relating to General English, General Biology, General Chemistry and General Health with 15 questions for each subject area. Please, make sure you have got all the 60 questions.

You are provided separate answer sheets for each subject area. So, make sure you have put your answers on the right answer sheet.

Please, be aware that any attempt of cheating is strictly forbidden.

Value – 30%
Time given – 3 hrs

28 February, 2020

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION
Chemistry for Health, Exam Code 03

Instruction: Choose the best answer and put the letter of your choice on the answer sheet

1. Which of the following is not colligative properties of Solutions?
   A) Boiling point of Solution
   B) Freezing point Depression
   C) Solution Saturation
   D) Osmotic Pressure
2. Molecules that have the same molecular formula but different Structural formulas are called _____.
   A) Stereoisomers B) Allotropes C) Isotopes D) Structural isomers
3. Which method of water treatment is useful for controlling disease causing Organisms Such as viruses, bacteria and Parasites?
   A) Water Softening
   B) Filtration method
   C) Chlorination Method
   D) Distillation Method
4. Up on dissolving common salts in water, it is observe that_____
   A) Freezing point is raised
   B) Boiling point of Solution Decreases
   C) Boling point of Solution increases
   D) Vapor Pressure is Increased
5. If a sample of matter is uniform throughout and cannot be separated into other substance by physical means, it is _____
   A) A compound
   B) Homogenous Mixture
   C) an Element
   D) Heterogeneous mixture
6. How many grams of NaOH would be needed to make 0.750 mol/L of Solution? (Mwt of NaOH = 40 g/mol)
   A) 1.50 g B) 0.150 g C) 150 g D) 15 g
7. What mass of $CaCl_2$ is required to prepare 500.0 mL of a 0.200 M Solution of $CaCl_2$ (Mwt of Ca = 40 g/mol and Mwt of Cl = 35.5 g/mol)
   A) 0.200 g B) 0.100 g C) 22.2 g D) 11.1 g
8. Which of the following is usually found in the Nucleus?
   A) Proton and Neutron
   B) Proton, Neutron and Electron
   C) Neutron only
   D) Electron and Neutron

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9. Which of the following is correct about the reaction at Equilibrium?
   A) The rate of forward and backward reaction are equal
   B) The reaction quotient is greater than equilibrium Constant
   C) The System is static in nature
   D) The concentrations of the reactants and Products are Equal
10. A type of Solution which Contain less amount of solute than solvent is Known as_____.
   A) Super Saturated Solution C) Saturated Solution
   B) Unsaturated Solution D) Concentrated Solution
11. Molecules that have the same molecular formula but different Structural formulas are called _____.
   A) Stereoisomers B) Allotropes C) Isotopes D) Structural isomers
12. From the following chemical bond one is formed by sharing of electron between two elements.
   A) Ionic Bond B) Metallic Bond C) Covalent Bond D) Vander waal forces
13. Among the following acid, which one is found in car battery as Electrolyte?
   A) H_2SO_4 B) HCl C) HNO_3 D) H_3PO_4
14. A process of directly converting from solid phase to gaseous phase is known as_____
   A) Sublimation B) Melting C) Condensation D) Deposition
15. What is the mass of 30.0 mL of liquid that has density of 1.60 g/mL
   A) 18.8g B) 48.0 g C) 31.6 g D) 53.3 g

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION
Biology for Health, Exam Code 03

Instruction: Choose the best answer and put the letter of your choice on the answer sheet

1. Regarding the biochemical functions, we may make an analogy that endonuclease is like _____ and ligase is like _____
   a. Scissors; glue
   b. The North pole; the South pole
   c. Water; tear
   d. An airplane; submarine
2. What is the primary step in the process of anaphylactic shock?
   a. Blood pressure rises
   b. Airways become narrow
   c. Collapse
   d. Death
3. Type _____ blood can be donated to all persons because it lacks _____
   a. AB/antibodies
   b. O/antigens
   c. O/antibodies
   d. A/antibodies
4. Which form is the infectious stage of a *Tania saginata* (tapeworm) for human?
   a. Cysticerci in the beef
   b. Gravid proglottids in the feces
   c. Mature worm
   d. Larvae in the feces
5. Which one is considered a zoonotic disease?
   a. HIV
   b. Trench fever
   c. Brucellosis
   d. None

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6. Gonorrhea is caused by the bacteria _____
   a. *Trachomatis gonorrhosis*
   b. *Treponema pallidum*
   c. *Gonorrheae pavilidis*
   d. *Neisseria gonorrhoeae*
7. Yellowing of skin is the sign of what virus?
   a. Hepatitis
   b. HIV
   c. Herpes
   d. HSV
8. What is the relationship in which one organism benefits from another without helping or harming it?
   a. Parasitism
   b. Commensalism
   c. Mutualism
   d. None
9. Which one of the following are signs for Alzheimer's?
   a. Old age, odd behavior, repetition
   b. Loss of appetite, memory loss, old age
   c. Shortness of breath, fatigue, old age
   d. Loss of appetite, fatigue, lack of hygiene
10. In 1979, scientists announced that they had successfully eliminated a disease. Which of the following disease was eliminated?
    a. German pox
    b. Chicken pox
    c. Polio
    d. Smallpox
11. Which hormone, when secreted, reduces the blood glucose in normal individuals?
    a. Growth hormone
    b. Glucagon
    c. Epinephrine
    d. Insulin

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12. Which order of the level of organization of life is correct?
    a. Organ → Tissue → Organism → Molecule → Cell → Organ system
    b. Molecule → Cell → Organism → Macromolecule → Organelle → Organ
    c. Cell → Organ → Tissue → Organism → Molecule → Atom
    d. Atom → Molecule → Macromolecule → Organelle → Cell → Tissue
13. What blood component is likely to increase in quantity when the body is infected with bacteria?
    a. Leukocytes
    b. Thrombocytes
    c. Platelets
    d. Erythrocytes
14. The lymphatic system
    a. Pickup fluid leaked from blood vessels and returns it to the blood
    b. Responds to internal and external changes by activating appropriate muscles and glands
    c. Produce heat
    d. Secretes hormones that regulate processes such as growth, reproduction and nutrients use
15. How does a person acquire a nosocomial diseases?
    a. From being inside a healthcare facility
    b. From being bitten by an infected insect
    c. From being infected with the common cold virus through nose
    d. From using a contaminated needle

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7) Which part of the brain contains the centers that control the heart rate and breathing rhythm?
   A. Thalamus
   B. Medulla
   C. Midbrain
   D. Cerebellum

8) Which one of the following is NOT a part of the respiratory system?
   A. Diaphragm
   B. Lungs
   C. Trachea
   D. Esophagus

9) The place where fertilization takes place is:
   A. Uterine tube
   B. Uterus
   C. Ovary
   D. Cervix

10) Which of the following structures refracts light rays entering the eye?
   A. Retina
   B. Sclera
   C. Cornea
   D. Pupil

11) Among the following individual which one could able to donate blood?
   A. A pregnant high school teacher
   B. Fifty one kilogram weighting waiters
   C. A 16 years old football player
   D. A person donated last week

12) What percentage of the human body is water?
   A. 80%
   B. 75%
   C. 66%
   D. 50%

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION
General Health, Exam Code 03

Instruction: Choose the best answer and put the letter of your choice on the answer sheet

1) The smallest bones in the human body are found in:
   A. Feet
   B. Ears
   C. Fingers
   D. Knees
2) Which is NOT considered as a method of transmission for HIV/AIDS
   A. Mosquito bites
   B. Genital secretions
   C. Blood transfusion
   D. Breast milk
3) What is the largest organ of the human body?
   A. The liver
   B. The brain
   C. The skin
   D. The spine
4) A type of blood cell which defend the body from disease causing microorganism
   A. White blood cell
   B. Blue blood cell
   C. Platelets
   D. Red blood cell
5) An important ion for hemoglobin function:
   A. Sodium
   B. Sulfur
   C. Iodine
   D. Iron
6) The highest prevalence of HIV/AIDS is reported from which region of Ethiopia?
   A. Oromia region
   B. Ethiopia Somali region
   C. Gambela region
   D. Amhara region

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13) How many chambers are there in the human heart?

A. 2

B. 4

C. 6

D. 8

14) Which one of the following is the CORRECT order of urinary system structures?

A. Kidney→ Ureter→ Urinary bladder → Urethra

B. Urinary bladder → Kidney→ Urethra → Ureter

C. Ureter → Kidney → Urethra → Urinary bladder

D. Ureter → Kidney → Urinary bladder → Urethra

15) Where is the origin of the current coronavirus outbreak?

A. North Korea

B. Taiwan

C. China

D. Japan

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION
English for Health, Exam Code 03

Instruction: Do the following questions according to the instructions for each part.

Leading health experts from around the world have been meeting at the World Health Organization's Geneva headquarters to assess the current level of knowledge about the new COVID-19 disease, identify gaps and work together to accelerate and fund priority research needed to help stop this outbreak and prepare for any future outbreaks.

The 2-day forum was **convened** in line with the WHO R&D Blueprint – a strategy for developing drugs and vaccines before epidemics, and accelerating research and development while they are occurring.

"**This** outbreak is a test of **solidarity** – political, financial and scientific. We need to come together to fight a common enemy that does not respect borders, ensure that we have the resources necessary to bring this outbreak to an end and bring our best science to the forefront to find shared answers to shared problems. Research is an integral part of the outbreak response," said WHO Director-General Dr Tedros Adhanom Ghebreyesus. "I appreciate the positive response of the research community to join us at short notice and come up with concrete plans and commitment to work together."

The meeting, hosted in collaboration with GloPID-R (the Global Research Collaboration for Infectious Disease Preparedness) brought together major research funders and over 300 scientists and researchers from a large variety of disciplines. They discussed all aspects of the outbreak and ways to control it including:

- the natural history of the virus, its transmission and diagnosis;
- animal and environmental research on the origin of the virus, including management measures at the human-animal interface;
- epidemiological studies;
- clinical characterization and management of disease caused by the virus;
- infection prevention and control, including best ways to protect health care workers;
- research and development for candidate therapeutics and vaccines;
- ethical considerations for research;
- and integration of social sciences into the outbreak response.

"This meeting allowed us to identify the urgent priorities for research. As a group of funders we will continue to mobilize, coordinate and align our funding to enable the research needed to tackle this crisis and stop the outbreak, in partnership with WHO," said Professor Yazdan Yazdanpanah, chair of GloPID-R. "Equitable access – making sure we share data and reach those most in need, in particular those in lower and middle-income countries, is fundamental to this work which must be guided by ethical considerations at all times."

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6. Convened means
   A. Funded
   B. Convoked
   C. Decided
   D. Researched

Part II. Read the sentence and put your answer on the answer sheet.

7. When someone tells you to **wary**, you should be_____
   A. Emotional
   B. Careful
   C. Happy
   D. Sad
8. If something is **heinous**, it is _____
   A. Awful
   B. Pretty
   C. Bright
   D. Attractive
9. Pick the closest definition to **erroneous.**
   A. Extravagant
   B. Right
   C. Wrong
   D. Enormous
10. After taking the final exam, she felt as though an **enormous** burden had been lifted.
    A. Bitty
    B. Teeny
    C. Bantam
    D. massive
11. I can _____ the future of your relationship.
    A. Foretell
    B. Assume
    C. Conspire
    D. Identity

Part III. Choose the correct answer and put on the answer sheet.

12. Will you come to dinner with us if you _____a baby sister for you?
    A. Had found
    B. Will find
    C. Find
13. I _____want to be practicing doctor but now I'm more interested in research.
    A. Was used to
    B. Used to
    C. Would
14. I _____ go to see doctors last week because I was very ill.
    A. Must
    B. Have to
    C. Had to
15. If I _____very hard, I would have been able to pass the exam.
    A. Had tried
    B. Try
    C. Would have tried

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(place) in the fields of our choices.

2) A: How was your journey?

B: It was enjoyable. But, while we _____ (drive) to Gondar, we _____ (have) two flat tires.

3) What did you do when you discovered that you _____ (lose) your mobile?

4) Do you know since when _____ Kassa _____(be) head of this academic department?

Instruction III: Write correct sentences of the jumbled words using the space given below (3%).

1) you/I/want/the mouth/hear/to/horse's/the/news/from

_____.

2) can/their/do/you/what/looking/by/me/uniform/tell/at/just/people?

_____.

3) comand/cognitive/in/language/English/the/of/enhances/good/subject/any/area/development/

_____.

Instruction IV: Identify mistakes and write each sentence correctly on the space provided (6%).

1) When we had a dog, I can remember it chasing birds.

_____.

2) The professor was angry at me coming late to class every day.

_____.

3) Beautiful is in the eye of the beholder.

_____.

4) They came out of the building hurriedly, hailed a cab, and jump into it.

_____.

5) Her husband had bought a house, found a job, and chose a school for the kids before she arrived.

_____.

6) Before he died, he had sold his house, wrote a will, and set up a trust fund.

_____.

Instruction V: Write answers on the space given to complete the dialogues below using appropriate expressions (4%).

1) Abebe: I never think of smoking cigarette and drinking alcohol.
Daniel: _____.

2) Husband: I will never support early marriage.
Wife: _____.

3) Adamu: My sister doesn't tolerate pessimistic ideas.
Almaz: _____.

4) Ayele: My father used to condemn plagiarism bitterly.
Aster: _____.

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION FOR YEAR I STUDENTS

Booklet Three: Technology Stream Examination

Code 3

Dear Students,

This Booklet contains 60 questions relating to General English, General Mathematics, General Physics and General Technology with 15 questions for each subject area. Please, make sure you have got all the 60 questions.

You are provided with separate answer sheets for each subject area. So, carefully detach the answer sheets from the question sheets and return only the answer sheets at the end.

Please, be aware that any attempt of cheating is strictly forbidden.

Value – 30%
Time given – 3 hrs

March, 2020

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STREAM SELECTION QUALIFICATION EXAMINATION

2. If an object is in equilibrium, which of the following statement is not true
   a. The acceleration of the object must be constant
   b. The velocity of an object must be constant
   c. The object must be at rest
   d. a and b
3. Why sky appears blue? Because
   a. There is more blue color in sunlight than any other color
   b. Eye is more sensitive to blue
   c. Short wave length are scattered more than the long wave length by the atmosphere
   d. The atmospheric absorbs long wave length more than short length
4. A woman standing on the earth, in terms of magnitude what is the compression between her gravitational force on the earth and the earth gravitational force on her
   a. Grater
   b. Less
   c. Can't be determined without woman's and earth's mass
   d. Equal
5. If we use plus or minus sign to indicate the direction of velocity and acceleration. in which of the following situation the object speed up
   a. Positive velocity and negative acceleration
   b. negative velocity and positive acceleration
   c. negative velocity and negative acceleration
   d. positive velocity and zero acceleration
6. Which of the following is not a statement of Kirchhoff's law
   a. Resistance of the conductor is equal to the ratio of voltage and current in the conductor
   b. The algebraic sum of the current at junction in the circuit is zero
   c. In any closed circuit the algebraic sum of emf is zero
   d. The current going in the junction is equal to the current leaving the junction
7. using proper scientific notation how would u round of the number $9.9813x10^{-5}$ to two significance digit
   a. $10.x10^{-4}$
   b. $9.9x10^{-4}$
   c. $1x10^{-4}$
   d. $1.0x10^{-4}$
8. If three conservative and one non-conservative force acts with a system, how many potential energy terms appears in the equation that describe the system
   a. 3
   b. 6
   c. 4
   d. 7
9. Which one of the following is different from the other
   a. length
   b. speed
   c. temperature
   d. time
10. If an object is in equilibrium, which of the following statement is not true
    a. The velocity of an object must be constant
    b. The object must be at rest
    c. The acceleration of the object must be constant
    d. a and b

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11. An objects of mass m_1 *and* m_2, where $m_2 > m_1$ hung vertically over a frictionless pulley. Consider both the string and pulley are negligible mass. Find the magnitude of the acceleration
    a. $a = \frac{m_1+m_2}{m_1-m_2}g$
    b. $a = \frac{m_2-m_1}{m_1-m_2}g$
    c. $a = \frac{m_2-m_1}{m_1+m_2}g$
    d. $a = \frac{m_1-m_2}{m_1+m_2}g$
12. During fluid flow the temperature is developed due to
    a. Translation kinetic energy
    b. Increase in density
    c. Change in pressure
    d. Fluid level
13. Which of the following is correct
    a. Gauge pressure = Absolute pressure + atmospheric pressure
    b. Absolute pressure =gauge pressure + atmospheric pressure
    c. atmospheric pressure= Gauge pressure + Absolute pressure
    d. None of the above
14. For simple harmonic oscillator which of the following pairs of vector quantities can't be both points in the same direction (the position vector is the displacement from the equilibrium)
    a. Position and velocity
    b. Velocity and acceleration
    c. Acceleration and speed
    d. Position and acceleration
15. when the particle is move along straight path then particle has
    a. only tangential acceleration
    b. only centripetal acceleration
    c. both tangential and centripetal acceleration
    d. none of the mentioned

General Technology, Exam Code 03

Instruction: Choose the best answer and put the letter of your choice on the answer sheet

1. Given a cylindrical section below, which one of the following is more stable in reference to the ground?

A.  B.  C.  D. 

2. The weight of Kassu and Temesgen is 80Kg and 75Kg respectively. If the weight of Meseret is 15Kg less than Temesgen, which one of the following is false?
   A. The ratio of weight of Kassu to Temesgen is 16:15.
   B. The ratio of weight of Kassu to Temesgen is 16:3.
   C. The ratio of weight of Kassu to Temesgen to Kassu is 16:15:12.
   D. The ratio of weight of Kassu to Temesgen to Kassu is 16:15:3.
   E. B and D are answers.
3. Suppose you are given three coins of the same size, two with equal weight and one with less. How many times should an engineer should weigh to identify the lighter one putting on a balance weight?
   A. One B. Two C. Three D. None

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5. One of the following is Not included under Conic sections?
   A. Circle B. parabola C. hyperbola D. Straight line
6. Let $f(x) = x^2 - 3x - 12$, $g(x) = \sqrt{x+5}$ and $h(x) = 4x - 2$, then $fohog(-1) =$ _____
   A. 6 B. 2 C. -3 D. -7
7. The area of a triangle formed by the vertex and the end points of the latus rectum of the parabola: $x^2 = 12y$ in square meters is:
   A. 12 B. 36 C. 18 D. 9
8. Which of the following is Not a valid argument?
   A. $p, q \mapsto p \wedge q$ B. $\neg p, p \vee q \mapsto q$ C. $\neg q, p \Rightarrow q \mapsto \neg p$ D. $p, p \vee q \mapsto q$
9. Which of the following is logical equivalent with the proposition
   P: **Either the number is Not prime or it is odd.**
   A. If the number is prime, then it is not odd.
   B. If the number is odd, then it is prime.
   C. If the number is not odd, then it is not prime.
   D. If the number is not prime, then it is odd.
10. Suppose your height is 1.75m. If the sun is 90° above your head, what will be the length of your shadow on the ground in meters?
    A. 0 B. 2 C. 1 D. 1.75
11. Let the xy-plane is rotated by an angle $\theta = \frac{\pi}{4}$ in CCW direction, what will be the image of the point $P = (-\sqrt{2}, 3\sqrt{2})$ with respect to the new axis ?
    A. (2,4) B. $(-4,2)$ C. $(2,-4)$ D. (4,2)
12. Let $v_1 = 3i - 2j + k$ and $v_2 = 2i + k$, be vectors in space, then $\|2v_1 - 3v_2\| =$ _____
    A. 4 B. $\sqrt{17}$ C. 3 D. 17
13. Let U = The set of integers,
    $P(x)$: x is a prime number,
    $Q(x)$: x is an even number and
    $R(x)$: x is an odd number,
    Then the truth value of $(\exists x)[P(x) \Rightarrow Q(x)] \Leftrightarrow (\forall x)[R(x) \wedge P(x)]$ is
    A. False B. True C. Not determined D. None
14. Which of the following is **Not True** about the Hyperbola : $y^2 - x^2 + 1 = 0$?
    A. It is horizontal hyperbola B. its center is at origin.
    C. its vertices are $(0, \pm 1)$ D. The asymptotes are lines $y = \pm x$
15. The LCM of the three natural numbers **16, 45** and **21** is
    A. 420 B. 5040 C. 1680 D. 720

General Physics, Exam Code 03

Instruction: Choose the best answer and put the letter of your choice on the answer sheet

1. Which of the following statement is wrong
   a. Electric filed foe a moving charge valid only for test charge
   b. Electric force for moving charge $F_e = \frac{K|q_1||q_2|}{r^2}$
   c. Magnetic force always perpendicular to both velocity of charge and magnetic field
   d. All the statements are correct

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Part II: Based on the above text, choose the correct answer from the alternatives given.

9. What are the stated aims of Africa Watch?
   A. to get people reading more
   B. to get people entertained
   C. to get people angry
   D. to get people to think
10. Which of these has hit South African journalism?
   A. Bribery
   B. money problems
   C. Personal Interests
   D. Corruption
11. According to the passage
   A. Africa Check is not news website
   B. newspapers in South African have resources these days
   C. the current time is positive for newspapers in South Africa
   D. Apartheid was good time for newspapers
12. According to Paula Fray,
   A. Editor loves Africa Check
   B. Africa Check ease newsroom task
   C. Journalists will care for their news hereafter
   D. Africa Check will not be known
13. What does the word "***Lush***" in paragraph *two*, line *two* mean?
   A. abundant
   B. gush
   C. rush
   D. about
14. What does the word "***debunking***" in paragraph *three*, line *one* mean?
   A. Reverting
   B. revealing
   C. banking
   D. keeping
15. What does the word "***hampered***" in paragraph *six*, line *four* mean?
   A. humped
   B. dumper
   C. elevated
   D. hindered

General Mathematics, Exam Code 03

Instruction: Choose the best answer and put the letter of your choice on the answer sheet

1. Which of the following is Not True about the function $f(x) = log_a^x, 0 < a < 1$?
   A. if $1 < x < y$, then $f(x) > f(y)$
   B. if $1 < y < x$, then $f(x) < f(y)$
   C. if $0 < x < y < 1$, then $f(x) > f(y)$
   D. for all $x > 0$ if $0 < a < b < 1$, then $log_a^x < log_b^x$.
2. If $f(x) = \boldsymbol{tanhx}$, then the inverse of f, $f^{-1}(x) =$ _____
   A. $ln\left(\frac{x+1}{x-1}\right), x > 1$ B. $-ln\left(\frac{x+1}{x-1}\right), x > 1$ C. $\frac{1}{2}ln\left(\frac{x+1}{x-1}\right), |x| > 1$ D. $\frac{1}{2}ln\left(\frac{x+1}{1-x}\right), |x| < 1$
3. For which of the following number systems the law of **Trichotomy** does not hold True?
   A. Integers B. Natural no. C. Complex no. D. Rational no.
4. Which of the following is always True?
   A. The product of any two irrational numbers is rational.
   B. The sum of any two rational numbers is rational.
   C. The sum of any two irrational numbers is rational.
   D. The product of any two irrational numbers is irrational.

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6. Convened means
   A. Funded
   B. Convoked
   C. Decided
   D. Researched

Part II. Read the sentence and put your answer on the answer sheet.

7. When someone tells you to **wary**, you should be_____
   A. Emotional
   B. Careful
   C. Happy
   D. Sad
8. If something is **heinous**, it is _____
   A. Awful
   B. Pretty
   C. Bright
   D. Attractive
9. Pick the closest definition to **erroneous.**
   A. Extravagant
   B. Right
   C. Wrong
   D. Enormous
10. After taking the final exam, she felt as though an **enormous** burden had been lifted.
    A. Bitty
    B. Teeny
    C. Bantam
    D. massive
11. I can _____ the future of your relationship.
    A. Foretell
    B. Assume
    C. Conspire
    D. Identity

Part III. Choose the correct answer and put on the answer sheet.

12. Will you come to dinner with us if you _____a baby sister for you?
    A. Had found
    B. Will find
    C. Find
13. I _____want to be practicing doctor but now I'm more interested in research.
    A. Was used to
    B. Used to
    C. Would
14. I _____ go to see doctors last week because I was very ill.
    A. Must
    B. Have to
    C. Had to
15. If I _____very hard, I would have been able to pass the exam.
    A. Had tried
    B. Try
    C. Would have tried

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During the meeting, the more than 300 scientists and researchers participating both in person and virtually agreed on a set of global research priorities. They also outlined mechanisms for continuing scientific interactions and collaborations beyond the meeting which will be coordinated and facilitated by WHO. They worked with research funders to determine how necessary resources can be mobilized so that critical research can start immediately.

The deliberations will form the basis of a research and innovation roadmap charting all the research needed and this will be used by researchers and funders to accelerate the research response.

Part I. Read the passage very carefully and put your answer on the answer sheet.

1. Which Two ideas Dr Tedros Adhanom highly interested with
   1. The outbreak of COVID-19
   2. The research community and their collaboration
   3. The 2 day forum
   4. The team developing drug and distribution before epidemic.

   A. 1 & 2 C. 2 & 4
   B. 1 & 3 D. 2 & 3
2. The member of the meeting discussed on the following except
   A. Account of the past events and its castigation
   B. Ethical consideration for research
   C. Characterization and controlling techniques
   D. Number of people infected with the disease
3. The word Solidarity … means
   A. Sympathy
   B. Union
   C. Firm
   D. Substance
4. The word "this" paragraph 3 line 1 refers to
   A. Meeting
   B. COVID 19
   C. Drug and vaccines
   D. Research
5. "Equitable access.." paragraph 5 line 4 implies that
   A. Giving priority for middle income countries
   B. Highly giving ethical consideration than other
   C. Fair distribution of data for all
   D. None

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION
English for Health, Exam Code 03

Instruction: **Do the following questions according to the instructions for each part.**

Leading health experts from around the world have been meeting at the World Health Organization's Geneva headquarters to assess the current level of knowledge about the new COVID-19 disease, identify gaps and work together to accelerate and fund priority research needed to help stop this outbreak and prepare for any future outbreaks.

The 2-day forum was **convened** in line with the WHO R&D Blueprint – a strategy for developing drugs and vaccines before epidemics, and accelerating research and development while they are occurring.

"**This** outbreak is a test of **solidarity** -- political, financial and scientific. We need to come together to fight a common enemy that does not respect borders, ensure that we have the resources necessary to bring this outbreak to an end and bring our best science to the forefront to find shared answers to shared problems. Research is an integral part of the outbreak response," said WHO Director-General Dr Tedros Adhanom Ghebreyesus. "I appreciate the positive response of the research community to join us at short notice and come up with concrete plans and commitment to work together."

The meeting, hosted in collaboration with GloPID-R (the Global Research Collaboration for Infectious Disease Preparedness) brought together major research funders and over 300 scientists and researchers from a large variety of disciplines. They discussed all aspects of the outbreak and ways to control it including:

- the natural history of the virus, its transmission and diagnosis;
- animal and environmental research on the origin of the virus, including management measures at the human-animal interface;
- epidemiological studies;
- clinical characterization and management of disease caused by the virus;
- infection prevention and control, including best ways to protect health care workers;
- research and development for candidate therapeutics and vaccines;
- ethical considerations for research;
- and integration of social sciences into the outbreak response.

"This meeting allowed us to identify the urgent priorities for research. As a group of funders we will continue to mobilize, coordinate and align our funding to enable the research needed to tackle this crisis and stop the outbreak, in partnership with WHO," said Professor Yazdan Yazdanpanah, chair of GloPID-R. "Equitable access – making sure we share data and reach those most in need, in particular those in lower and middle-income countries, is fundamental to this work which must be guided by ethical considerations at all times."

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ARBA MINCH UNIVERSITY
STREAM SELECTION QUALIFICATION EXAMINATION FOR YEAR I STUDENTS

English for Technology, Exam Code 03

Instruction: Read the Passage carefully and answer the Questions that Follow

Fact Checking Website in Africa

Africa Check, a fledgling fact checking website, is attempting to pin down unfounded claims made by the country's leaders, media outlets along with widely held beliefs.

There is a common claim in Johannesburg that it has the largest man-made forest in the world. It's easy to believe; the city has **lush**, green canopy that covers many neighborhoods. But it's not true, according to Africa Check, which found that the largest man-made forest is actually in China, next to the Gobi desert.

Debunking bogus claims, politically charged fictions and unfounded statements, Africa Check is a website that challenges media, politicians and the occasional social media celebrity when they massage the truth, or ignore it completely, said Julian Rademeyer, southern Africa editor for the site.

"I think the fundamental element of our work is that we are trying to get people to question what they're told, what they read, what politicians say to them, and to look at what the information that is there and ask essentially what the fundamental question is 'Where is the evidence?' If someone makes a claim, where is the evidence to support that claim, and to actually interrogate those claims and not to accept things purely for what they are," Rademeyer said.

Africa Check was launched in June 2012 by the Agence France Press Foundation in partnership with the University of Witswaterand's Journalism Department. Rademeyer and a researcher are the site's two full-time employees. There is also a team of freelance reporters who work on fact checking assignments.

Following in the footsteps of popular American websites like PolitiFact and Factcheck.org, Africa Check is the first media outlet in South Africa to solely work in fact checking. South Africa has a strong legacy of investigative journalism and photography that dates back to the apartheid era. But like many countries, Rademeyer says its news industry has been **hampered** by shrinking budgets and newsrooms.

"Because of the fact that newspapers don't have the resources they would've had in the past, or don't have specialist beat reporters," he said. "It allows public figures and it allows politicians to make claims that don't go checked. I think that's where we play a role. We come in and look at those claims and we have the ability and the time to go through those claims."

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Debre Berhan University

College of Health Sciences

Entrance Examination for Pharmacy candidates

Name:_____

ID. _____

Code: 04

Instructions:

- ✓ Write your name and ID No. on the cover page and the answer sheet
- ✓ Do not detach the answer sheet
- ✓ There are 30 MCQ each worth one point
- ✓ Choose the Correct Answer from the given alternatives and write your answers on the answer sheet provided
- ✓ Any attempt to cheat will result in automatic disqualification
- ✓ Switch of your mobiles

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1. Alexander Fleming, from which of the following organism extracted penicillin antibiotics?
   A. Bacteria
   B. Virus
   C. Actinomycetes
   D. Fungi
2. Which general process is used by living organism to produce energy in aerobic process from break down of glucose molecule?
   A. Fermentation
   B. Metabolism
   C. Respiration
   D. Photosynthesis
3. Why the total yield of ATP is 36 or 38 from complete oxidation of glucose?
   A. Because 2ATP is consumed in phosphorylation of glucose to form glucose-6-phosphate
   B. Because 36 ATP is produced only by prokaryotic organism
   C. Because of the shuttle system which operate the entrance of cytosolic NADH to mitochondria
   D. Because there is no ATP formation in mitochondria by substrate level phosphorylation
4. Which field of biology is study about the dynamic relationship between plants, animals, people and environment and relates the indigenous knowledge with the modern one?
   A. Ecology
   B. Botany
   C. Ethnobiology
   D. Microbiology
   E. Genetics
5. DNA is double stranded but it is denatured by the helicase enzyme to form single strand for replication. So which of the following alternatives is used to keep apart the single strand DNA?
   A. DNA polymerase
   B. RNA polymerase
   C. SSB protein
   D. Primase
   E. Topoisomerase
6. If $f(x) = \sqrt[5]{x^3 - x^2 + x + 35}$, then $\lim_{x \to -1} f(x) =$ _____

   A) -2 B) 2 C) $\sqrt[5]{2}$ D) $\sqrt[5]{-2}$

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7. Suppose $f(x) = lnx$. Then $\int f(x)dx =$ _____

A) $lnx - x + c, c \in R$ C) $xlnx + x + c, \quad c \in R$

B) $xlnx - x + 1$ D) $xlnx - x + c, \quad c \in R$

E) B and D

8. If $f(x) = \frac{e^x}{cosx}$, then $f'(\pi) =$ _____

A) e^{π} B) $-e^{\pi}$ C) $e^{-\pi}$ D) $-e^{-\pi}$

9. Which of the following is ***true*** about the propositions p and q?

A) $p \Rightarrow q$ is true if p is true and q is false

B) $(p \Rightarrow q) \wedge p$ is true if p is false and q is true

C) $(p \wedge p) \Leftrightarrow (q \vee q)$ is false if both p and q are false

D) $(p \vee q) \Leftrightarrow (p \vee q)$ is true for any truth value of p and q

E) None of the above.

10. Which of the following is ***false*** about the function $f(x) = \frac{x^2+3x+2}{x^2-1}$.

A) The line $y = -1$ is vertical asymptote.

B) The line $x = 1$ is horizontal asymptote

C) The graph of f has hole at $(-1, \frac{-1}{2})$

D) Dom(f)=R except the root of the denominator.

11. If I had had money, would have bought a car. The meaning of this sentence is:

A. I have money so that I can buy a car

B. I bought a car

C. I didn't have money so that I couldn't buy a car

D. It is likely that I can buy a car

12. She would have passed the exam if she---------- hard.

A. studies B. have studied C. had studied D. studied

13. The US government cut it military expenditure for there is no more war in Iraq. The contextual meaning of the underlined word is:

A. increased B. reduced C. physical injure D. A and B

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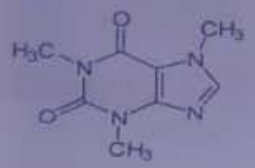
14. The dog chased the cat. The passive form of this sentence is:
    A. The cat is chased by the dog
    B. The cat was chased by the dog
    C. The cat were chased by the cat
    D. The dog was chased by the cat
15. Aster lived in Japan for ten years. This sentence implies that
    A. Aster is still living in Japan
    B. Aster lived in Japan for ten years but she is no longer now.
    C. We don't know whether Aster is still living there
    D. None of the above
16. The name of the compound given by CH_3CH_2OH is called_____
    A. Aldehyde
    B. Alcohol
    C. Ester
    D. Carboxylic acid
17. One of the following functional group is not included in the caffeine molecule?



    A. Amide
    B. Ketone
    C. Amine
    D. Aldehyde
18. Which one of the following is not an isomer of C_6H_{14}
    A. 2-methyl pentane
    B. 2-methyl butane
    C. 2,3-dimethyl butane
    D. n-hexane
19. The normal reaction of benzene/aromatic compounds is_____type of reaction
    A. electrophilic addition
    B. electrophilic substitution
    C. nucleophilic substitution
    D. evaporation
20. The reaction of benzene with mixture of concentrated HNO_3 & H_2SO_4 gives
    A. Benzene sulfonic acid
    B. Halobenzene
    C. Methylbenzene
    D. Nitrobenzene
21. The reaction of alcohol with concentrated H_2SO_4 gives
    A. Alkane
    B. Alkene
    C. Alkyne
    D. Ketone

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28. A 0.15 mg/l solution of paracetamol is needed to treat a patient then what will be its amount in ppm?

A. 0.15ppm
B. 15ppm
C. 1.5ppm
D. None

29. The rate of chemical reaction depends on

A. Temperature
B. Concentration
C. Surface area
D. All of the above

30. $A + H20 \rightleftarrows C + D$

The equilibrium constant value is 1.8×10^{-5} what amount of C is formed at equilibrium if 0.1M solution of A initially exist?

A. $1.8x10^{-5}$
B. $4.2x10^{-3}$
C. $1.34x10^{-2}$
D. $0.134x10^{-2}$

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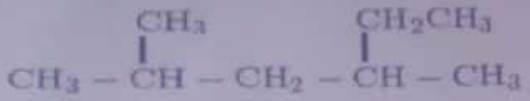
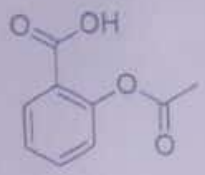
22. The IUPAC nomenclature of the following compound



A. 2,3-dimethyl pentane
B. 2,4-dimethy hexane
C. 2-ethyl-4-methyl pentane
D. 1-methyl-1-ethyl hexane

23. The principal functional groups present in aspirin



A. Ketone & Aldehyde
B. Ester & Carboxylic acid
C. Amide & Alcohol
D. Alkane & Alkene

24. A solution of 10ml 0.10N hydrochloric acid is titrated against 0.1N sodium hydroxide solution then what amount of sodium hydroxide in mole is required to reach the equivalent point?

A. 0.01mole
B. 0.001mole
C. 0.0001mole
D. None

25. What amount of aspirin in gram is needed to prepare 100ml, 0.5 M aspirin (formula weight=180.15gm/mole) solution ?

A.9.01gm
B. 90.1gm
C. 50gm
D. None

26. What will be the PH of a solution for the salt of weak acid and strong base?

A. PH>7
B. PH=7
C. PH<7
D. None

27. A buffer solution is

A. Resist change in PH
B. A salt of weak acid and its conjugate base
C. A salt of weak base and its conjugate acid
D. All of the above

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I. For the following questions choose the best answer from the given alternatives (1pts)

1. Which one is the inverse of the statement $(p \vee q) \Rightarrow (p \wedge q)$?
   A. $(p \wedge q) \Rightarrow (p \vee q)$
   B. $\neg(p \vee q) \Rightarrow (p \wedge q)$
   C. $(\neg p \vee \neg q) \Rightarrow (\neg p \wedge \neg q)$
   D. $(\neg p \wedge \neg q) \Rightarrow (\neg p \vee \neg q)$

2. If $n[(A \times B) \cap (A \times C)] = 8$ and $n(B \cap C) = 2$, then $n(A) =$ _____
   A. 6 B. 4 C. 8 D. 16

3. If $S = (-4, 3) \cap [-10, 0.\overline{1}]$, then the glb of S is
   A. $\frac{1}{3}$ B. -4 C. -10 D. It has no glb

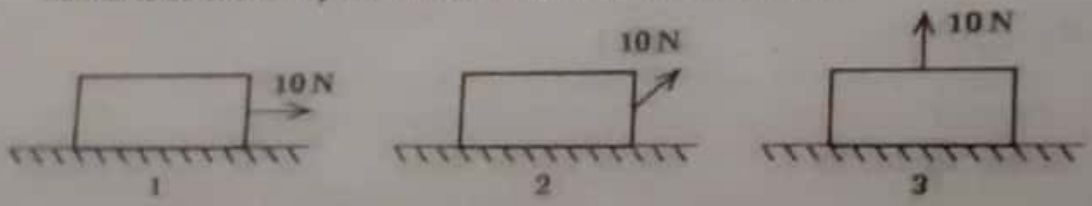
4. If $\frac{2+i}{2-3i} = \frac{1+3i}{i}$, then the complex number Z in $a + bi$ form is
   A. $2 + 3i$ B. $-1 - i$ C. $1 + 2i$ D. $\frac{1}{3} - 3i$

5. If $2^{m-1} + 2^{m+1} = 640$, then m is
   A. $\sqrt{2}$ B. $\sqrt{5}$ C. 10 D. 7

6. Of the following situations, which one is impossible?
   A. A body having velocity east and acceleration west
   B. A body having constant velocity and variable acceleration
   C. A body having zero velocity and non-zero acceleration
   D. A body having constant acceleration and variable velocity
   E. A body having velocity east and acceleration east

7. A car travels 40 kilometers at an average speed of 80km/h and then travels 40 kilometers at an average speed of 40km/h. The average speed of the car for this 80-km trip is
   A. 60km/h B. 45km/h C. 48km/h D. 53.3km/h E. 40km/h

8. The same mass crate rests on a horizontal surface and a woman pulls on it with a 10-N force. Rank the situations shown below according to the magnitude of the normal force exerted by the surface on the crate, least to greatest.



   A. 1, 2, 3 B. 2, 1, 3 C. 2, 3, 1 D. 3, 2, 1 E. 1, 3, 2

9. What is the gravitational field strength of the earth at a distance of ½ radius of the earth (1/2Re):- measured from the center of the earth and measured from the surface of the earth respectively? (Take $g=10m/s^2$)
   A) $5m/s^2$ and $4.4m/s^2$ B) $9.8m/s^2$ and $14m/s^2$ C) $10m/s^2$ and $6m/s^2$
   D) $7.2m/s^2$ and $5.2m/s^2$ E) It remains the same everywhere.

10. Which one of the following is **true** about the inclination of the earth's axis?
   A. The earth's rotation makes an angle of $66\,^1/_2$ ° from the perpendicular to elliptic plane.
   B. The earth's rotation makes an angle of $23\,^1/_2$ ° with the plane of its orbit around the sun.
   C. As the earth revolves around the sun, there is a change in the directness of the sun's ray which turn causes difference in the length of day and season.
   D. The earth rotates from east to west at an angle of $23\,^1/_2$ °.

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11. Which one of the following is **correct** about Exogenic processes?
A. Exogenic processes are geomorphic processes which act up on the volcanic and structural landforms by modifying and roughening them.
B. Exogenic processes are rise from the interior part of the earth.
C. Exogenic processes are volcanic and tectonic activities that result in building of structural and volcanic features.
D. Exogenic processes are mainly related with crack in the crustal part of the earth.

12. Which one of the following is **true** about the interpretation of the shape of countries using measures of compactness?
A. The higher the boundary -circumference ratio, the greater degree of compactness.
B. The higher the area -circumference ratio, the greater the degree of compactness.
C. The nearer the area-boundary ratio to one, the greater degree of compactness.
D. The further the A/A' ratio to one, the greater degree of compactness.

13. Which one of the following is **false** about the characteristics of Ethiopian rivers?
A. Due to marked seasonality of rainfall, Ethiopian rivers show regularity in their volume.
B. Due to surface ruggedness, Ethiopian rivers have rapids and waterfalls along their courses.
C. Majority of Ethiopian rivers are trans-boundary.
D. Almost all major rivers of Ethiopia are originated from the highlands.

14. From the following, which one is the best way of winning an argument with someone who is rational?
A. By arousing her or his sense of pride
B. By associating the case with our personal reputation
C. By supporting it with claims that at least suggest the truth of our point
D. By hiding piece of evidence that would make her or him reject our point

15. If all politicians are honest people, then all religious people are saints. If all husbands are faithful to their wives, then all religious people are saints. Either all politicians are honest people or all husbands are faithful to their wives. Therefore, _____.

Which one of the following is a logically valid conclusion drawn from these premises?
A. All husbands are faithful to their wives.
B. All religious people are saints
C. All politicians are honest people
D. All honest people are politicians

16. A nun never takes a bath without wearing a bathrobe even when there is no one around. When asked why, since no human being can see her, she replies: "Oh, but you forget the good God." What critical thinking problem of the nun can be detected from her response?

A. Irrelevant answer for the question
B. Reliance on inaccurate information
C. Holding inconsistent beliefs
D. Lack of clarity in her expressio

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17. George Berkeley argued that *Ideas exist only in minds. All things are ideas. Therefore, all things exist only in minds.* This argument primarily addresses:

A. Metaphysical Question B. Epistemological Question
C. Axiological Question D. Aesthetical Question

18. Group of objects appearing denser and finer as they farther away from the observer is
A. Texture gradient B. Motion parallax C. Elevation D. Shadow

19. Ato Yordanos is a psychology instructor in Debre Tabor University. He is a hard worker in accomplishing his tasks as compared to other instructors. Because of his hard work, the university gave him an educational opportunity to learn his PHD program outside of the country. On the other hand, his friend Daniel tried to imitate the behaviour of Yordanos and he also became hard worker. As a result, Daniel also gets educational opportunity abroad. In the above case, Daniel is reinforced through?

A. Vicarious reinforcement B. Direct reinforcement C. Self-reinforcement D. All

20. Cristiano Ronaldo is a football player who is playing in the football club of Juventus. While he is playing he faced knee injury. Due to this reason, he became unable to score goals as usual and did not able to show his best performances. As a result, the medical team of the club decided to make knee surgery. After the surgery he returns to previous goal scoring ability and his higher performances. In this case the surgery is?

A. positive punishment C. positive reinforcement
B. negative punishment D. negative reinforcement.

21. A disorder that characterized by patterns of detachment from social norms and restriction of emotions is ?

A. Paranoid B. Schizoid C. Schizotypal D. Anti-social

22. Which one of the following is **not true** about the role of protein?
A. It is the building materials of growth and maintenance.
B. It is the main source of energy for exercising muscles.
C. It regulates body fluid.
D. It is used to make enzymes, hormones and antibodies.

23. Which one is true about type 2 diabetes?
A. Healthy nutrition and physical activity can reduce its risk
B. It is insulin-dependent diabetes.
C. Its specific cause is unknown.
D. There is no specific way to prevent it.

24. Dividing the progressive fitness training phases into blocks or periods is:
A. Recovery B. Recuperation C. Periodization D. Rest

25. Which one is a musculoskeletal diseases characterized by loss of bone density due to physical inactivity?
A. Osteoarthritis B. Osteoporosis C. Atrophy D. Hypertrophy

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Ethiopian Institute of Technology-Mekelle (EIT-M), Mekelle University

Entrance exam for engineering students; Time given: 1 hour

Instruction: Choose the best answer for the questions given below.

1. What is the largest possible volume of a box with square base and an open top that can be produced using 120cm² materials?

   A. 6000 B. 3600 C. 4000 D. 4200

2. One of the following indicates the main reason why foreign investment is increasing in Ethiopia to work on textile and apparel sector.

   A. Due to availability of productive labor at low cost and cheap energy

   B. Due to lack of experienced middle management

   C. Because of inefficient production

   D. Lack of testing agencies

   E. All of the above

3. Chemical Engineering is a branch of Engineering that deals with the production of chemical products economically by design an appropriate process. Thus, to be a good Chemical Engineer, what knowledge is very crucial?

   A. Mathematics B. Economics C. Biology D. Chemistry E. A & B F. All

4. What percent is 2minute and 24 seconds (00:02:24) of an hour?

   A. 6% B. 2% C 4% D 8%

5. Which one of the following is correct about Engineering?

   A. The knowledge of mathematical and natural science is indispensible one.

   B. It is the application of mathematics, science, and economics for the benefit of man kind

   C. The profession of engineering can be acquired through study, experience, and practice

   D. Engineering is the development of cost effective solutions for problems in ground.

   E. All

6. Worker 1, worker 2, and worker 3 can do a work in 90, 30, and 45 days respectively. If they work together, in how many days will they complete work?

   A. 25 B. 20 C. 10 D. 15

7. Which one of the following elements of electrical circuit consumes energy?

   A. Resistor B. Inductor C. Capacitor D. All

8. _____ is a machine which converts electrical form of energy into mechanical form of energy _____ is a machine which converts mechanical form of energy into electrical form of energy respectively.

   A. Transformer, generator B. Generator, motor C. Motor, generator D. Motor, transformer

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9. A test model of a product is known as a:

A. Technology B. Engineering C. Cost-benefit analysis D. Prototype

10. A Force P of 50N and another force Q of unknown magnitude act at 90° to each other. They are balanced by a force of 130 N. The magnitude of Q is

A. 60N B. 80N C. 100N D. 120N

11. The work is done if

A. The body shows displacement in the opposite direction of the force applied

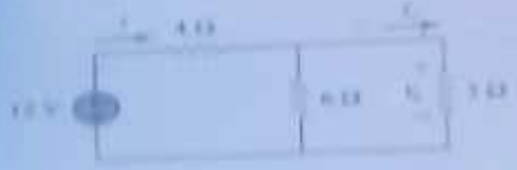
B. The body shows displacement in the same direction as that of the force applied

C. The body shows displacement in the perpendicular direction to the force applied

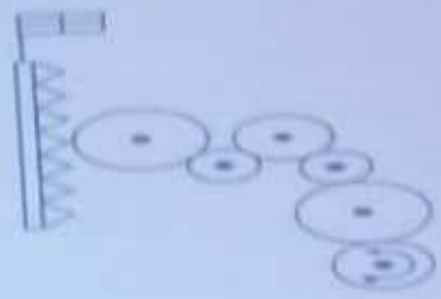
D. None of these

12. For the electrical circuit below, which one is the correct values of v_{ab}, i_o and the total resistance respectively

A. 4/3 V,4 A,7 Ω B. 4 V, 3 A, 7 Ω C. 4 V, 4/3 A, 7 Ω D. 4 V, 4/3 A, 6 Ω



13. For the gear system, if the bottom gear rotates anticlockwise as shown in the figure below, then the flag will



A. Raise B. Lower C. Move to the left direction D. Not change position

14. Select the correct sequential step of problem solving strategies

A. Generate solution, define problem, evaluate and select alternatives, Implement

B. Generate solution, evaluate and select alternatives, Define problem, Implement

C. Define problem, generate solution, evaluate and select alternatives, Implement

D. Define problem, evaluate and select alternatives, generate solution, Implement

15. Which sentence describes a way scientific investigation and engineering design are similar?

A. Both start with a hypothesis B. Both involve analyzing results of tests

C. Both produce a product to make life easier D. Both involve using only expensive materials

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9. Which one is different in animal disease investigation as compared to human?
   A. Laboratory examination
   B. Physical examination
   C. Disease history obtained from the patient
   D. None

10. A drug molecule which reacts with bacterial cell but not with animal cell. The most probable reason among the following is:
   A. The drug molecule reacts with cell membrane
   B. The drug molecule reacts with cell wall
   C. The drug molecule reacts with cellular protein
   D. The drug molecule reacts with DNA

11. While you are walking around your campus, you found a young man falling across a road after being hit by a motor bicycle. He was unable to communicate. You were very empathic. How would you try to help him?
   A. I would immediately call for an ambulance in order to take to a hospital
   B. I would call for my colleagues to carry him to my university clinic
   C. I would check whether he was breathing or not and give him mouth to mouth ventilation while trying to get an ambulance
   D. I would give medicines from my pocket

12. You are attending your English class and your teacher gets choked by a bolus of saliva. What will you do?
   A. I will shout on my classmates in front of me to support the teacher
   B. I will search for water and give him to drink
   C. I will coordinate students to carry him to the campus clinic
   D. I will rush to the front and tap on his back

13. Your friend Ermias went a night out to celebrate his successful completion of his 1st semester examination. He took a lot of alcohol and by mistake makes unprotected sexual intercourse with a random lady in the night club. Your friend may acquire all of the following infections except
   A. Hepatitis B virus
   B. Human papilloma virus
   C. Gonorrheal disease
   D. None

14. The lady in the above question (Q#13) comes to Ermias in the next afternoon and shouts that she is not ready to be pregnant and do something. Which one of the following is the wisest decision?
   A. Going to a nearby pharmacy and taking emergency contraceptive pill
   B. Going to a nearby health care unit to get a physician consultation
   C. Going to a nearby private clinic and take antibiotics
   D. Going to a nearby private clinic and asking for abortion care

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27. A net force F_A acts on object A, and a net force F_B acts on object B. The mass of object B is twice the mass of object A, and the acceleration of object B is twice that of object A. Which of the following is true of forces F_A and F_B?

A) $F_B = \frac{1}{4} F_A$ b. $F_B = 1/2F_A$ c. $F_B = 4F_A$ d. $F_B = 2F_A$

28. If a charged particle enters into uniform magnetic field perpendicular to its direction, then what will happen?

A) The radius of its path is proportional to the magnetic field strength
B) The charged particle will not be affected by magnetic field
C) The period of the motion is inversely related to the magnetic field strength
D) It moves in an elliptical path

29. A heat engine that in each cycle does positive work and loses energy as heat, with no heat energy input, would violate:

A) the zeroth law of thermodynamics
B) the first law of thermodynamics
C) the second law of thermodynamics
D) the third law of thermodynamics

30. Two projectiles are launched from ground level with the same initial speed. The maximum height h_1 reached by projectile 1 is twice the maximum height h_2 reached by projectile 2. If θ_1 and θ_2 denote the respective launch angles, as measured from horizontal, these angles satisfy which of the following relationships

A) $\cos\theta_1 = \sqrt{2}\cos\theta_2$
B) $\sin\theta_1 = \sqrt{2}\sin\theta_2$
C) $\tan\theta_1 = \sqrt{2}\tan\theta_2$
D) $\cos\theta_1 = 2\cos\theta_2$

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19. Identify the missing letter in the following alphabetical sequence

E, E, D, ?, H, J, ?, L

A) G,M B) I,K C)G,N D) I,M

20. The two main streets of a city are perpendicular. These can be drawn in a Cartesian plane. The line representing street A passes through the points (0, -60) and (70, 10). The line representing street B passes through the point (90, -30). Which of the following equations defines the line representing street B?

A) $y = -x - 60$ B) $y = x - 60$ C) $y = x + 60$ D) $y = -x + 60$

21. If the truth value of the compound statement $P \Rightarrow (q \vee r)$ is false which of the following triplets **represent** the correct values of P, q & r respectively?

A) F,F,F B) T,F,F C) T,T,F D) T,F,T

22. If $z = a + ib$ is a complex number, then

A) $Re(z) = \frac{z+\bar{z}}{2}$ B) $Re(z) = \frac{z-\bar{z}}{2}$ C) $Re(z) = \frac{z+\bar{z}}{2}$ D) $Re(z) = z + \bar{z}$

23. If m is a number between 0 and 1, which one of the following is Not more than m?

A) 2m B) $\sqrt{m}$ C) $1/m$ D) m^2

24. Which one of the following is not true about the graph of the function $f(x) = \frac{x-2}{x-3}$

A) The line y=1 is horizontal asymptote
B) The line x=3 is vertical asymptote
C) The x intercept is $(2,0)$
D) The graph is symmetric about the x-axis.

25. If the quotient of the quantity $\frac{P}{Q} > 0$ then which one of the following is true

A) P>0 and Q<0 C) P<0 and Q>0
B) P<0 and Q<0 D) all

26. Which of the following is a correct statement about the first condition of equilibrium?

A) The sum of all torques must be zero.
B) Clockwise moments should balance counter clockwise moments.
C) The net force on an object must be zero.
D) The torque produced by a force should be perpendicular to the force.

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10. The virus which is currently spreading globally from China is known as
A) Zika virus B) Chikungunya virus C) Corona virus D) Ebola virus

11. Giraffe displays (spreads) its legs sideways while drinking water in a river. This helps
A) To pump water up through its long neck
B) To lower its body and get stability
C) To push other animals competing for water
D) All of the above

12. Identify the relation based on the following information:
"**A**" is the husband of "**B**" and father of "**C**". "**E**" is the daughter of "**C**". How is "**B**" related to "**E**"?
A) Mother B) Aunt C) Cousin D) Grand mother

13. One of the following is mismatch with regard to organizational level of life
A) Species – Population C) Lichen – Community
B) Ribosome - Organelle D) Neuron – Cell

14. The main buffer system of the human blood is
A) NH_2CONH_2 C) $H_2CO_3 - CO_3^{2-}$
B) $H_2CO_3 - HCO_3$ D) $CH_3COOH - CH_3COO^-$

15. Which of the following **is not** the function of human eyes?
A) Estimate distance C) Form image
B) Magnify objects D) Distinguish color

16. A man who is facing east, first turns 100 degree in the anti- clock wise direction and then 145 degree in the clock wise direction. Which direction is he facing now?
A) South – East C) North – East
B) East D) West

17. The law which states that the amount of gas dissolved in a liquid is proportional to its pressure
A) Henry's law C) Gay Lussac's law
B) Dalton law D) Newton's law

18. The concluding or last step of self – management process is
A) Self – evaluating C) Recording progress
B) Goal setting D) Self – reinforcement

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PART TWO: QUESTIONS OF NATURAL & COMPUTATIONAL SCIENCES

INSTRUCTION: Read each question carefully and blacken the circle under the most correct letter **on the answer sheet provided**.

1. The push up test is most often used to test
   A) Muscular strength
   B) Cardiovascular endurance
   C) Flexibility of joint
   D) Muscular endurance
2. Identify the one which **does not** come under the chemical methods of quantitative analysis
   A) Gravimetric
   B) Titrimetric
   C) Magnetic
   D) Volumetric
3. One of the following rivers starts and ends in Ethiopia
   A) Blue Nile
   B) Awash
   C) Genale
   D) Omo
4. An example of positive practice in correcting mistake is having students
   A) Develop sentence using commonly misused words
   B) Study a list of commonly misspelled words
   C) Ignore mistakes and practice the items they know
   D) Write the same word several times
5. Which of the following **does not** show that the Ethiopian Rift valley is still geologically unstable?
   A) Shrinkage and disappearance of some important lakes
   B) Existence of small volcanoes and many deep gorges
   C) Presence of hot springs and steaming fissure
   D) Record of small earth quakes in the area in recent years
6. Which of the following is wrong statement regarding analytical balance
   A) It is the fundamental tool in quantitative analysis
   B) It is not sensitive instrument
   C) It could measure the difference in mass up to 0.1mg
   D) It measures samples very accurately
7. Which of the following is an intelligent aquatic mammal?
   A) Dolphin B) Monkey C) Whale D) Hippopotamus
8. Hypo kinetic diseases are the result of
   A) Hormonal disorder
   B) Malnutrition
   C) Lack of exercise
   D) Anxiety
9. In classical conditioning , the conditioned stimulus and unconditioned stimulus must be
   A) Dependent upon reward
   B) Equivalent stimulus
   C) Weak or strong stimulus
   D) Arranged together

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PART ONE: ENGLISH QUESTIONS

Instruction I: Write answers on the space given to complete the items below with appropriate words, and phrases (13%)

1) A: What happened if you had gone out in the rain?

B: If I had done that, I _____ (catch) cold.

2) I would not have gone to that event if I _____ (know) it would cost so much.

3) I didn't have an extra pen. Had I _____ one, I would _____ (lend) you before you asked me for it.

4) I didn't know his telephone, but if I had _____ I_____ (call) him.

5) I don't have a car now, but if I had one, I _____ (drive) to the Rift Valley Lakes.

6) A: You told me Abebe is the son of your brother. What is the kinship between you and him?

B: Abebe is my _____, and I am his _____.

7) A: You told me Almaz is the daughter of your sister. What is the kinship between you and Almaz?

B: Almaz is my _____, and I am her _____.

8) If a player sees a red card in a soccer tournament for a foul play, he will be sent off, and if he sees a yellow card he will be _____ in the score sheet by the referee.

9) As the bridegroom is to the man _____ is to the woman or girl.

10) As the best man is to the bridegroom _____ is to the bride.

11) If you have problems with the teeth you go to the dentist as you go to _____ when you have problems with the eyes.

12) As roaring is to a lion, _____ is to the horse, _____ to the mule, and _____ to a sheep or goat.

13) As the classroom is to students for learning in schools, the _____ is a part of hospital for women to give birth.

Instruction II: Write answers on the space provided to complete the items below using the correct forms of words in brackets (4%).

1) By the time we finish and score high results on this test of aptitude, we _____

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Aksum University

Aksum Institute of Technology

Department of Pre-engineering and Student Academic Support

Entrance Exam to Engineering and Computing Technology Band (30%)

Total questions: 10 Maximum marks: 30% Date: 30/06/2012 E.C Exam Time Duration: 1:30hr

Name: _____ **Id.№** _____ **Section:** _____

1) If a father or his two daughters or his three kids can finish a work in 88 days, then how many days will a man, a daughter and a kid together take to finish the same work?
   A. 42 days B. 44 Days C. 46 Days D. 48 Days E. None of the Above
2) The graph of the equation $4x - 5y = 20$ intersects the X-axis at the point.
   A. (2, 0) B. (5, 0) C. (4, 5) D. (0, 5) E. None of the above
3) The average of twelve numbers is 42. The last five numbers have an average of 40 and the first four numbers have an average of 44. The sixth number is 6 less than the fifth number and 5 less than the seventh number. What will be the average of the 5th and 7th numbers?
   A. 44 B. 44.5 C. 47 D. 43 E.43.5
4) Two places are 60 km apart. A and B start walking towards each other at the same time and meet each other after 6 hours. Had A travelled with 2/3rd of his speed and B travelled with double of his speed, they would have met after 5 hours. The speed of A is?
   A. 6 km/hr B. 4 km/hr C. 5 km/hr D. 8 km/hr E. 7 km/hr
5) A Student named Haftom got twice as many marks in English as in Science. His total marks in English, Science and Mathematics is 180. If the ratio of his marks in English and Mathematics is 2: 3, what are his marks in Science?
   A. 10 B. 20 C. 30 D. 40 E. 50
6) A camera always has
   A. Reels B. Flash C. Stand D. Lens
7) A car always has
   A. Driver B. Wheels C. Bonnet D. Bumper
8) A father is now three times as old as his son. Five years back, he was four times as old as his son. The age of the son is
   A. 12 B. 15 C. 14 D. 16
9) A man walks 2 km towards North. Then he turns to East and walks 10 km. After this he turns to North and walks 3 km. Again he turns towards East and walks 2 km. How far is he from the starting point?
   A. 12 km B. 13 km C. 14 km D. 15 km
10) When he

P : did not know

Q : he was nervous and

R : heard the hue and cry at midnight

S : what to do

The Proper sequence should be:

A. RQPS B. QSPR C. SQPR D. PQSR

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CHOOSE THE BEST ANSWER FROM THE GIVEN ALTERNATIVES AND WRITE THE
LETER OF YOUR CHOICE INFRONT OF THE QUESTION WITH CAPITAL LETTER

1. Animals defense against diseases caused by micro-organisms Can't be affected by:
   A. Exposure to infectious agent
   B. Sanitation
   C. Vaccination status
   D. Color
2. Biggest mass of brain is composed of:
   A. Cerebellum
   B. Cerebrum
   C. Diencephalon
   D. Basal ganglia
3. The movement of oxygen from the lung to the blood and carbon dioxide from the blood to the lung is:
   A. Pulmonary ventilation
   B. External respiration
   C. Internal respiration
   D. Cellular respiration
4. Which of the following Cranial Nerve is related to the Sense of Smell?
   A. Abducens
   B. Olfactory
   C. Hypoglassal
   D. Vagus
5. Which of the following Structure is a site for normal fertilization?
   A. Fallopian tube
   B. Uterus
   C. Ovary
   D. Vagina
6. The normal frequency of heart beat in average adult human ranges from:
   A. 40 to 60bpm
   B. 80 to 90bpm
   C. 60 to 100bpm
   D. 80 to 120bpm
7. Active transport differs from facilitated diffusion by:
   A. The later needs energy while the former doesn't
   B. The former transports substances against their concentration gradient at the expense of energy
   C. The later transports substances against their concentration gradient
   D. The former transports ions down their concentration gradient
8. If an infectious agent can only multiply inside a living cell, this agent would like be:
   A. Bacteria
   B. Virus
   C. Fungus
   D. Parasite

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