**PRESIDENT’S OFFICE**

**REGIONAL ADMINSTRATION AND LOCAL GOVERNMENT**

**LINDI REGION**

**FORM FOUR REGIONAL MONTHLY TEST MARCH– 2019**

**PHYSICS**

**C0DE: 031**

**TIME: 3:00HRS**

**Instructions**

1. This paper consists of sections A, B and C with 11 questions in total.
2. Answer **ALL** questions in sections A and B and **ONLY ONE** question from section C.
3. Except for diagrams which must be drawn in pencil, all writings should be in blue/black ball point pen.
4. Cellular phones, electronic calculators and other electronic devices except watches, are not allowed in the testing room.
5. Write your examination name on every page of your answer sheet(s) provided.
6. Where necessary, use the following constants:
7. Gravitational force, g=10N/Kg
8. Gravitational acceleration, g=10m/s2
9. Density of water, $ρ\_{w}=$1000Kg/m3 or 1g/cm3

**SECTION A (30 Marks)**

**Answer ALL questions in this section.**

1. For each of the following items (i) – (x) choose the correct answer from among the given alternatives and write its letter besides the item number in the answer sheet(s) provided.
2. If a student gets an electric shock and falls down unconscious in a physics laboratory which of the following would you do first to help the victim?
3. Administer breathing exercise
4. Call a medical doctor immediately
5. Call other students to surround the victim
6. Call a physics teacher to give the victim medicine
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an electrostatic machine which produces unlimited supply of sparks by inductions.
8. Electrophorus C. A gold leaf electroscope
9. A cell D. Sport machine
10. Firing bullet from a gun obeys:-
11. Newton’s first law of motion C. Newton’s third law of motion
12. Newton’s second law of motion D. The law of inertia
13. An object with low centre of gravity and wide base is:-
14. Neutral C. Unequilibral
15. Stable D. Unstable
16. Which of the following is true about the images formed by curved mirrors?
17. All real images are reduced C. All inverted images are enlarged
18. All virtual images are inverted D. All real images are inverted
19. A uniform wire of diameter 0.40 mm and resistance of 10$Ω$ has a length of \_\_\_\_\_\_\_\_ when the resistivity is 5.0 x 10-7$Ω$m.
20. 3.62m C. 125m
21. 0.39m D. 2.512m
22. One of the advantages of a Lead- acid accumulator is that:-
23. It can be recharged C. Its internal resistance is high
24. It supplies only a small current D. Its e.m.f is more than 15V
25. One of the following colours of light is deviated most when a white light passes through a prism
26. Red C. Green
27. Yellow D. Violet
28. The SI Unit of deceleration of a body is given as:-
29. m/s C. s/m
30. m/s2 D. s/m2
31. The value of current flowing in a circuit of resistance of 5$Ω$ connected voltage supply of 12V is:
32. 2.4A C. 24A
33. 6.0A D. 60A
34. Match the items in LIST A with responses in LIST B by writing the letter of the correct response beside the item number in the answer sheet(s) provided.

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|  **LIST A** |  **LIST B** |
| 1. Meteors
2. Comets
3. Meteorites
4. Planets
5. Constellations
6. Moon
7. Universe
8. Outer planets
9. Galaxy
10. Zodiacal light
 | 1. Anybody revolves the earth.
2. A giant collection of stars, gas and dust
3. Sunlight seen during the rainfall
4. Are patterns resembling to things on the earth due to collection of stars
5. Closest planet to the sun
6. Are asteroids which collect the frozen gases and burn forming tail flashes in air
7. Collection of stars and planets in the space
8. Are asteroids which burn when falling through air and manage to reach the earth
9. Are asteroids which burn completely before reaching the surface of earth due to friction of air when falling
10. Are farthest planets from the sun in the solar system
11. Sunlight reflected from those particles revolving in region between Jupiter and Mars
12. Are bodies that revolve the sun
13. Are dropping stones from atmosphere
14. Are all heavenly bodies and the space beyond the earth
15. Natural satellite
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1. For each of the following items (i) – (x), fill in the blank spaces by writing the correct answer on the space provided in the answer sheet(s) provided.
2. Anything that simplifies a work is known as\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The time taken for one complete oscillation of a wave is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. The distance between two successive crests or troughs is known as \_\_\_\_\_\_\_\_\_\_\_\_
5. The amount of heat required to raise the temperature of a unit mass of a body by 10C is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. A number of electronic cells connected together to produce current is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. An angle between the Geographical Meridian and the Magnetic Meridian is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a giant electric spark that arises due to discharge of atmospheric electricity
9. An instrument for studying the different properties of water waves is called \_\_\_\_\_\_\_
10. \_\_\_\_\_\_\_\_\_\_\_\_\_ is an ability of an object to float.
11. The cancelling out of the disturbances of two waves when the crest of one wave falls on the trough of the other wave is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SECTION B (60 Marks)**

**Answer ALL questions in this section.**

1. (a) Give out the meaning of ***sonometer***

(b) (i) State three factors which affect the frequency of a string.

 (ii) Explain how the factors stated in b(i) above relate to the frequency of a

 vibrating string.

(c) (i) A Sonometer consists of a taut steel wire fixed between two bridges

 100cm apart where it produces frequency of 256Hz. Calculate the

 frequency when the string is taut at 80cm between two bridges.

 (ii) In an experiment to determine harmonics and overtones, the length of wire of 20m was

 used. Calculate the 5th harmonic and 2nd overtone, given the speed of sound in air is

 340m/s.

1. (a) Define the following terms as they are used in Physics
2. Measurement
3. Relative density
4. Time
5. Mass

(b) Differentiate between

(i) Mass and Weight.

 (ii) Vernier callipers and micrometer screw gauge.

(c) (i) How is negative zero parallax error corrected to get the correct reading?

 (ii) Write down the four applications of density and relative density in our

 daily life.

1. (a) Define the term Earthquake

(b) Briefly explain the meaning of the following terms as used on earthquake;

 (i) Hypocentre

 (ii) Epicentre

(c) (i) What is Global warming?

 (ii) Name four gases that contribute to global warming and give one source of each.

1. (a) Define the following terms as they are used in Physics;
2. Evaporation
3. Vapour pressure
4. Humidity
5. Relative humidity

(b) Mention four factors affecting the rate of evaporation.

(c) Write down the relationship between Relative Humidity (RH), Actual vapour

 pressure and saturated vapour pressure.

1. (a) (i) Define the term astronomy.
2. Enumerate three importance of astronomy to mankind

(b) (i) Differentiate between ***circumpolar constellations*** and ***seasonal***

***constellations.***

 (ii) Outline three defining characters of a planet.

(c) Explain why Saturn is the only planet with the ring around it among the others.

1. (a) Define and state the SI Unit for each of the following
2. Energy
3. Work
4. Power

(b) State what instrument is used in the transformation of the following energies.

1. Electric energy to sound energy
2. Sound energy to electric energy
3. Chemical energy to electrical energy
4. Light energy to electrical energy

(c) A boy of mass 50kg runs up a flight of 40 steps each of 4.5m high in 5.0 seconds. What power

 does he develop?

**SECTION C (10 Marks)**

**Answer only ONE question from this section**

1. (a) Give two differences between momentum and moment

(b) A body of mass 20kg moving with velocity of 120m/s hits the stationary body

 of mass 30kg. If the collision is inelastic collision, choose one physical

 quantity from (a) above and calculate its magnitude for:

 (i) A moving body (before collision)

 (ii) the velocity of the bodies (after collision) if the two bodies moved

 together.

(c) Briefly explain why:

 (i) During the high jump the person has to bend his/her kneels on reaching

 the ground.

 (ii) When a man jumps from a boat which is on the water surface, a boat

 moves backwards.

1. A football changes its direction when hits on obstacle.
2. (a) Define the following terms
3. Sensible heat
4. Hidden heat
5. Heat capacity

(c) (i) Water of mass 3kg is heated from 260C to 960C. Find the amount of heat supplied to

 water, given that the specific heat capacity of water is 4200J/kg0C

 (ii) The specific latent heat of vaporization of liquid is 2,260,000 J/kg, specific latent heat of

fusion of ice is 334,000 J/kg, the specific heat capacity of ice is 2100 J/kgK, specific heat

capacity of water 4200 J/kgK, calculate the heat required to convert 2kg if ice at -120C to

steam at 1000C.