

Name Centre/Index No.....

Signature

535/1

PHYSICS

Paper 1

JUL/AUG – 2019

2 ¼ hours



NEZOPA DISTRICTS SECONDARY SCHOOLS
JOINT MOCK EXAMINATIONS BOARD

Uganda Certificate of Education

MOCK EXAMINATIONS – 2019

PHYSICS

Paper 1

2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

- Write your name, signature, Centre and index number clearly in the space above.
- Section A contains 40 objective questions. You are required to write the correct answer A, B, C or D against each question in the box on the right hand side.
- Section B contains 10 structured questions. Answers are to be written in the spaces provided on the question paper.
- Mathematical table, slide rules and silent non programmable calculators may be used.

Acceleration due to gravity = 10 ms^{-2}

Specific heat capacity of water = $4200 \text{ Jkg}^{-1} \text{ K}^{-1}$

Speed of sound = 320 ms^{-1}

FOR EXAMINER'S USE ONLY											
Q41	Q42	Q43	Q44	Q45	Q46	Q47	Q48	Q49	Q50	MCQ	TOTAL

© 2019 NEZOPA DISTRICT SECONDARY SCHOOLS JOINT MOCK EXAMINATIONS BOARD

SECTION A

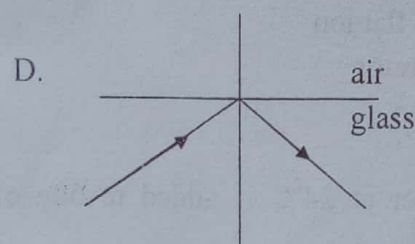
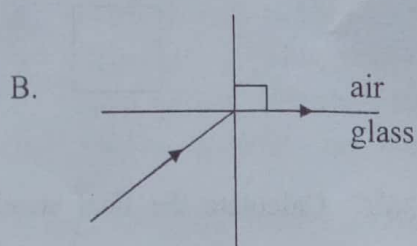
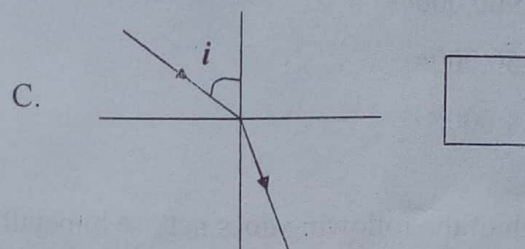
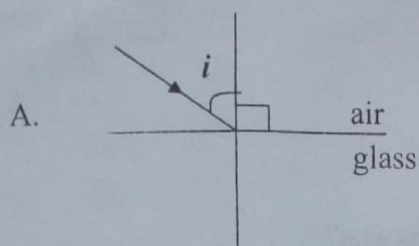
1. The product of mechanical advantage and effort is equivalent to ...
A. work output
B. work input
C. effort
D. load
☐
2. The freezing point of water can be lowered by ...
A. raising the temperature
B. addition of sugar
C. decreasing the pressure
D. keeping the water in a refrigerator
☐
3. A force of 4N is used to compress a spring by fifth of original length. If the force constant of the spring is 20Nms^{-1} , calculate its original length.
A. 0.2m
B. 1.0m
C. 0.8m
D. 1.2m
☐
4. A volt per amperes is the same as ...
A. watts
B. coulomb
C. ohms
D. joules
☐
5. Hysteresis refer to the ...
A. generation of heat in copper wire
B. demagnetizing and magnetization of core
C. loss of magnetic flux
D. heating of the soft iron core
☐
6. What type of rays do solar cells depend on for their effective function?
A. Cathode rays
B. Infra - red
C. X - rays
D. Gamma rays
☐

7. When cooking oil is poured on the cemented floor, walking becomes difficult. This is due to ...
- A. adhesion force between oil molecules and the feet being higher
 - B. higher cohesion force between the oil molecules and the feet
 - C. lower frictional force between the floor and the feet
 - D. oil is viscous
8. When Gamma rays are directed between two opposite charge electric plates, they are ...
- A. deflected towards positive plate
 - B. deflected towards negative plate
 - C. not affected by the plate
 - D. made to oscillate between the plates
9. A body of mass 50kg is acted upon by a force of 800N accelerated from 0.5ms^{-1} to 8.5ms^{-1} . How long does the accelerated motion take?
- A. 2.0s
 - B. 1.0s
 - C. 0.5s
 - D. 0.23s
10. Which of the following statements is true about light travelling from glass to air?
- A. The wavelength is proportional to speed
 - B. Its wavelength is inversely proportional to the speed
 - C. Its frequency decreases
 - D. The wavelength decreases
11. A lightening conductor has higher charge density on the spike so as to ...
- A. Allow smooth flow of charges from the cloud
 - B. Increase the charge on the cloud
 - C. Induce the same charges on the cloud
 - D. Ionize the surrounding air molecules
12. When a solid melts, its temperature does not change because ...
- A. the latent heat is zero
 - B. the molecules of the substance stop moving
 - C. the temperature rise is exactly equal to heat given out
 - D. the heat supplied is used to weaken the bond between the molecules

13. The half life of a radioactive atom is 14 days. If the initial mass was 32g, find the mass left after 1344 hours.
- A. 2g
B. 4g
C. 60g
D. 16g
14. Which of the following is the correct order of decreasing frequency of the radiation?
- A. Infrared, yellow, blue, Gamma – ray
B. Gamma – ray, blue, yellow and infrared
C. Blue, yellow, Gamma – ray, infrared
D. Yellow, Gamma – ray, blue and infrared
15. Which part of the camera controls exposure time?
- A. Shutter
B. Film
C. Lens
D. Diaphragm
16. On which principle does a hydrometer function?
- A. Archimedes's principle
B. Pascal's principle
C. law of floatation
D. Bernoulli's' principle
17. During constructive interference, ...
- A. crest of one wave falls on a trough of another
B. there is no disturbance
C. there is increased disturbance
D. a trough of one wave falls on the crest of the other
18. During an elastic collision, ...
- A. momentum is conserved, kinetic energy is lost
B. momentum and kinetic energy are lost
C. kinetic energy lost, momentum conserved
D. both kinetic energy and momentum are conserved
19. An object is placed at a distance X from convex lens and a virtual image is formed.
- A. X is equal to f.
B. X is twice f.
C. X is less than f.
D. X is greater than f.

20. Ssali lives in a single room with a bulb rated 100W as source of light. He switches on the bulb for 3 hours every day for one month. What will be his bill, if the month has 30 days and a unit costs 500/-?
- A. 4,500,000/= ☐
- B. 900,000/=
- C. 50,000/=
- D. 4,500/=
21. Which of the following does not use bimetallic strip thermostat?
- A. Car flasher unit
- B. Electric flat iron ☐
- C. Refrigerator
- D. Gas oven
22. 100g of water at 24°C is added to 50g of water at 36°C . Calculate the final steady temperature.
- A. 28°C
- B. 32°C ☐
- C. 30°C
- D. 34°C
23. A given radio broadcasts at 97.3MHz. Determine the wave length of the signal.
- A. 0.31m
- B. $3.08 \times 10^3\text{m}$
- C. 3.24m ☐
- D. 32.43m
24. A piece of metal weighs 1N in air and 0.60N in a liquid (water). What will it weigh in alcohol of relative density 0.8?
- A. 1.20N
- B. 0.48N ☐
- C. 0.68N
- D. 0.80N

25. In which of the following diagrams is i equal to critical angle?



26. The energy possessed by moving particles is ...

- A. kinetic energy
- B. potential energy
- C. chemical energy
- D. internal energy



27. Calculate the distance covered by a body moving at 40ms^{-1} accelerated at a rate of 4ms^{-2} , if the final velocity attained is 60ms^{-1} .

- A. 200m
- B. 250m
- C. 300m
- D. 400m



28. Driving mirrors tend to produce false impression of the image formed because the image is ...

- A. diminished
- B. magnified
- C. virtual
- D. real



29. Suitable instrument used for measuring internal diameter of a test tube is ...

- A. tape measure
- B. vernier caliper
- C. micrometer screw gauge
- D. metre rule

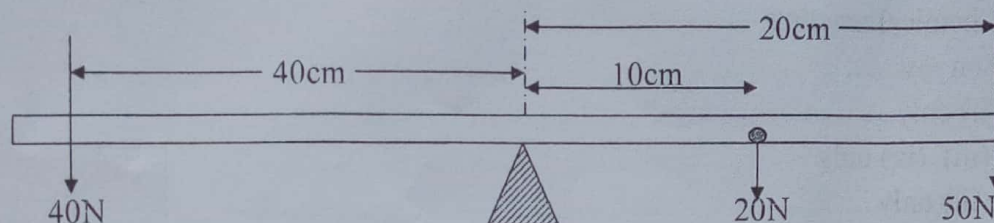


30. Stick immersed with one end in water appear bent because of ...

- A. refraction
- B. reflection
- C. interference
- D. defraction



31.



Forces of 40N, 20N and 50N are applied on a metre rule supported on a knife edge as shown above. The metre rule will ...

- A. balance
- B. oscillate
- C. turn in clock wise direction
- D. turn in anti clockwise direction



32. Calculate the refractive index of material when light is incidented on it, at an angle 60° when refracted angle is 30° .

- A. 0.50
- B. 0.58
- C. 1.73
- D. 2.00



33. If the period of a wave is 0.2s and the wavelength is 60cm, calculate its velocity.

- A. 12cms^{-1}
- B. 300cms^{-1}
- C. 3cms^{-1}
- D. 0.33cms^{-1}



34. Which of the following is not a transverse wave?

- A. Sound wave
- B. Ripple in a pond
- C. Light wave
- D. X - ray



35. The human ear is sensitive to sound in the range ...

- A. 2Hz to 20,000Hz
- B. 20Hz to 20,000Hz
- C. 20Hz to 30,000Hz
- D. 200Hz to 20Hz



36. Which of the following can produce heat energy?

- (i) Friction
 - (ii) Nuclear energy
 - (iii) Chemical reaction
 - (iv) Sun ray
- A. (i) and (ii) only
B. (i), (ii), (iii), (iv) only
C. (ii) and (iii) only
D. (ii) only

☐

37. Which of the following materials is suitable for putting up a super structure e.g. storage building?

- A. Concrete
B. Steel
C. Ferro – concrete
D. Marram

☐

38. Which of the following converts electrical energy to mechanical energy?

- A. Thermopile
B. Dynamo
C. Battery
D. Motor

☐

39. Two isotopes of the same element have ...

- A. equal number of proton and neutron
B. equal number of proton but different number of neutrons
C. different numbers of both proton and neutron
D. different proton number, equal neutrons and electrons

☐

40. The positive terminal of leclanche cells is the ...

- A. Manganese (IV) oxide
B. Zinc plate
C. Carbon – rod
D. Pitch

☐

SECTION B

Answer all questions in this section in the spaces provided.

41. (a) (i) Define the term upthrust force

(01 mark)

(ii) State one factor that affects upthrust force in a liquid. (01 mark)

(b) A cone of base radius 0.6m and height of 0.1m is completely immersed in benzene of density 800kgm^{-3} . Find the magnitude of the upthrust force in the fluid.

(02 marks)

42. (a) (i) What are beta particles? (01 mark)

(ii) What charge is given by an atom after gaining electrons? (01 mark)

(b) Carbon 14 decay by emission of alpha particle to form atom X. Write a well balance nuclear equation representing the decay. (02 marks)

43. (a) (i) What is meant by centre of curvature of concave mirror? (01 mark)

(ii) State the nature and position of images formed by concave mirror? (01 mark)

(c) Write and explain the relation between focal length and radius of curvature of concave mirror. (02 marks)

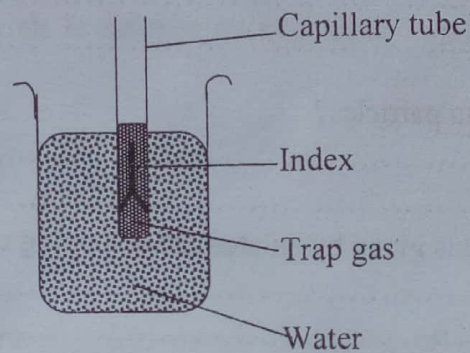
44. (a) (i) What is boiling point?

(01 mark)

(ii) State two factors that affect boiling point of a liquid.

(01 mark)

(b)



The figure above shows a gas trapped in a capillary tube in warm water. Briefly explain what was observed when the water is heated.

(02 marks)

45. (a) What is momentum?

(01 mark)

(b) A ball P of mass 200g moving at 3ms^{-1} collides with a stationary ball Q of mass 300g. After collision, Q attains velocity of 6ms^{-1} . Find the velocity of P after collision if the collision is elastic.

(03 marks)

46. (a) Define the following terms;

(i) Primary cell

(01 mark)

(ii) Secondary cell

(01 mark)

(b) Mention any two defects that affect primary cells and how they are minimised?

(02 marks)

47. (a) What is;

(i) a ductile material?

(01 mark)

(ii) elasticity

(01 mark)

(b) A load of 12N stretches a spring by 80mm. Find the weight which produces an extension of 60mm on the same spring.

(02 marks)

48. (a) What is resistance in electric circuit?

(01 mark)

(b) Three resistors of 2Ω , 5Ω and 3Ω are connected in the same circuit.

(i) Draw a circuit diagram to give minimum resistance.

(01 mark)

(ii) Find the value of the minimum resistance.

(02 marks)

(01 mark)

49. (a) Define work.

.....

.....

(b) A body is raised above the ground and then released on the ground. If the mass of the body is 20kg and the height above the ground is 10m, find; (03 marks)

(i) the maximum velocity with which it hit the ground.

.....

.....

.....

(ii) kinetic energy

.....

.....

.....

50. (a) (i) What is temperature?

(01 mark)

.....

(ii) Give two liquids used as thermometer liquid.

(01 mark)

.....

(b) Give two advantages why mercury is preferred as thermometric liquid than water. (02 marks)

.....

.....

.....

END