

# CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC) CSSC JOINT EXAMINATIONS FOR CHURCH SCHOOLS EASTERN ZONE

# FORM II PRE – NATIONAL EXAMINATION 2024 PHYSICS

**CODE: 031** 

Time: 2:30 Hours Date: Tuesday, 27<sup>th</sup> August, 2024 a.m

### **Instructions**

- 1. This paper consists of sections A, B and C with a total of ten (10) questions.
- 2. Answer all questions in the space provided.
- 3. All writing must be in blue or black ink except drawing which must be in pencil.
- 4. Communication devices and any unauthorized materials are not allowed in the assessment room.
- 5. Write your **Examination Number** on the top right hand corner of every page.
- 6. Where necessary the following constants may be used;
  - (i) Acceleration due to gravity,  $g = 10 \text{m/s}^2$
  - (ii)  $\Pi = 3.14$

#### FOR EXAMINER'S USE ONLY

QUESTION NUMBER	SCORE	EXAMINER'S
		INITIALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL		
CHECKER'S INITIALS		

# **SECTION A: (15 Marks)**

#### Answer **all** questions in this section

		Tanswer an questions in this section
1.		each of the items (i) $-$ (x), choose the correct answer from among the given alternatives write its letter beside the item number in the space provided.
	(i)	Which of the following sources of energy does not originate from the sun?
	Ä.	Hydroelectric energy
	B.	Wind energy
	C.	Geothermal energy
	D.	Solar energy
	E.	Wave energy
	(ii)	Which of the following is an example of fundamental forces?
	A.	Frictional force
	B.	Torsional force
	C.	Gravitational force
	D.	Stetetring force
	E.	Compressional force
	(iii)	Solar energy can be converted to electrical energy by using a:-
		A. Magnet
		B. Dry cell
		C. Capacitor
		D. Photocell
		E. Dynamo
	(iv)	What will be the total capacitance when those capacitors $2\mu F$ and $5\mu F$ are connected in
		series.
		A. $0.95\mu F$
		B. 1. 43μ <i>F</i>
		C. 1.05 <i>F</i>
		D. 095 <i>F</i>
		E. 95μ <i>F</i>
	(v)	A girl is looking her smile face at the reflecting surface of a plane mirror. The image will
		be
		A. Inverted
		B. Real
		C. Virtual
		D. Diminished
		E. Magnified
	(vi)	is a variable which does not change even when the experimental
		conditions are changed.
		A. Controlled variable
		B. Independent variable

C. Dependent variableD. Constant experiment

- E. Experimental variable
- (vii) What is the force acting on a block that is dropping into the floor?
  - A. Gravitational force
  - B. Frictional force
  - C. Torsional force
  - D. Stretching force
  - E. Compressional force
- (viii) Why does it take a shorter time a rotten egg smell to diffuse in air than in water?
  - A. Air molecules are packed closer compared to those of water
  - B. Air molecules are fresh compared to water
  - C. Water molecules are less far apart compared to those of air
  - D. Water molecules move with higher speed compared to those of air
  - E. Because solid molecules have low speed
- (xi) \_\_\_\_\_ is the name given to the process in which a parallel beam incident light is reflected as a parallel beam in one direction.
  - A. diffuse reflection
  - B. regular deflection
  - C. regular refraction
  - D. Regular reflection
  - E. Regular diffraction
- (x) \_\_\_\_\_ refers to the process of limiting the flow of magnetic fields between two locations by separating them with a banner made of conductive ferromagnetic materials.
  - A. Neutral point
  - B. magnetic field
  - C. magnetic shielding
  - D. Inclination of an angle
  - E. Induced field

Answers

i	ii	iii	iv	V	vi	vii	viii	ix	X

2.	Match the items in List A with correct response in List B by writing the letter of the correct
	response beside the item number in the space provided.

LIST A	LIST B
(i) When you compress and release a coil spring, it will resume	A. Vibration
its original length and shape.	B. Brownian motion
	C. Liquid
(ii) is the type of motion of molecule of solid.	D. Diffusion
	E. Solid
(iii) Has strongest force of attraction	F. Elasticity
(iv) The use of spray is due to	G. Osmosis
(v) Has a definite shape-but no definite volume	

#### **Answers**

List A	i	ii	iii	iv	V
List B					

# **SECTION B: (70 Marks)**

Answer all questions in this section

(a) S	State the Newton's Laws of motion.

	Candidate's Examination Number
(b)	Yusto, a form one student has a mass of 50kg, and he climbs on a rope which can stand a maximum tensional force of 600N. Do you expect the rope to break if a boy:-
	(i) Climbs up with an acceleration of 6m/s <sup>2</sup> ?
	(ii) Climbs with a uniform speed of 5m/s?

	X?
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(1) What	meant by the term sustainable energy sources? Provide two examples.
	droelectric energy is so advantageous". Explain by providing two argumen

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5.	(a) (i)	Why there is No any workdone by normal force acting to the box on horizontal plane during the motion?
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	(ii) How	A motor exerts a horizontal force of 200N in pulling a box 10m across a level floor much workdone the motor do?
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	(b) (i)	State the principle of conservation of energy.
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	1	At its extreme (highest) point a pendulum of mass 0.5kg is 1.4m above the mean position. If the pendulum passes a certain point on its path at a velocity of 3.0m/s, what will be the corresponding height at such a point?

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(ii) Briefly explain the structure of gold leaf electroscope with the aid of diagram.		Candidate's Examination Number
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b) (i) A 3μF capacitor has potential difference of 12V. Determine the total charge on	_	
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b) (i) A 3μF capacitor has potential difference of 12V. Determine the total charge on	-	, 
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	(11	1) Briefly explain the structure of gold leaf electroscope with the aid of diagram.
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	b)	
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(ii) As an expert in electricity, how lightning conductors protect buildings from li strikes?
xplain the following terms as applied in forces in equilibrium.  (i) Centre of mass
(i) Centre of mass
(i) Centre of mass

Candidate's Examination Number

uniform rooint 'C' and '	d AB with leng D' as shown or	gth 100cm and we the diagram. Fin	ight of 4N at rest is hard the tension in each su	nged by two string
ı A	_	cm—	5cm	
21	C		, ,	
		l 4N	18N	
		9N		

Candidate's Examination Number

		Candidate's Examination Number
8.	(a) ]	Explain three ways for the demagnetization process of a magnet.
	(1 \ )	
	(b)	Explain three properties of magnetic lines of force of a magnetic bar.

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	Using the diagram, explain what happens when two bars of magnet are brought closer to each other with the same pole each?
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9.	(a)	Briefly explain the following terms as used in simple machines.
	()	(i) Mechanical advantage
		(ii) Velocity ratio
		(iii) Efficiency of the machine

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)	A see-saw of length 3.2m has an efficiency of 70% with a velocity ratio of 10.  (i) How far from the fulcrum is the effort applied  (ii) Calculate the effort required to lift a load of 90N.
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	SECTION C: (15 Marks)
	Answer question ten (10)
(a) S	tate ohm's law and state two limitations of this law.
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(b) E	Briefly explain the factors affecting the resistance of a conductor.
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Candidate's Examination Number
mple electrical circuit with the following components:- vires, three dry cells, switch, two bulbs, voltmeters and ammeter.

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