Neap

HSC Trial Examination 2020

Physics

General Instructions

- Reading time – 5 minutes
- Working time – 3 hours
- Write using black pen
- Draw diagrams using pencil
- Calculators approved by NESA may be used
- A data sheet, formulae sheets and Periodic Table are provided at the back of this paper

Total marks: 100

Section I – 20 marks (pages 2–6)

- Attempt Questions 1–20
- Allow about 35 minutes for this section

Section II – 80 marks (pages 7–24)

- Attempt Questions 21–37
- Allow about 2 hours and 25 minutes for this section

Students are advised that this is a trial examination only and cannot in any way guarantee the content or the format of the 2020 HSC Physics Examination.

Section I

20 marks
Attempt Questions 1–20
Allow about 35 minutes for this section

Use the multiple-choice answer sheet for Questions 1–20.

1. To move against a gravitational field, work is required to be done.

What is this form of energy often referred to as?

(A) Newton's Laws of Gravitation
(B) gravitational potential energy
(C) kinetic energy
(D) Kepler's Laws

2. What is the name of the process whereby an atom changes into a different element?

(A) transmutation
(B) orbital decay
(C) the quantum model
(D) wave-particle duality

3. Which of the following sentences correctly describes the relationship between mass, radius and centripetal force?

(A) A large mass results in more centripetal force, and a large radius results in more centripetal force.
(B) A large mass results in more centripetal force, and a large radius results in less centripetal force.
(C) A large mass results in less centripetal force, and a large radius results in more centripetal force.
(D) A large mass results in less centripetal force, and a large radius results in less centripetal force.

4. What does the stator in a DC motor provide?

(A) a location for the current to enter within the DC motor
(B) a magnetic field either via permanent magnets or electromagnets
(C) constant connection between the rotating armature and the external circuit
(D) maximum resistance within a wire

5. Which of the following is NOT one of the six quarks proposed by scientists?

(A) charm
(B) strange
(C) bottom
(D) upper

6. The surface temperature of the star Betelgeuse is 3500 K.

What is the peak wavelength of Betelgeuse's radiation?

(A) 502 nm
(B) 818 nm
(C) 823 nm
(D) 828 nm

7. Which of the following correctly describes Lenz's Law?

(A) An induced current flows in a direction such that its own magnetic field attracts the changing magnetic field that caused it.
(B) An induced current flows in a direction such that its own magnetic field opposes the changing magnetic field that caused it.
(C) Induced emf is always proportional to the rate of change of the magnetic flux.
(D) Induced emf is always inversely proportional to the rate of change of the magnetic flux.

8. At a nuclear facility in Germany, 129 g of fuel was converted to energy.

What is the mass–energy equivalence of 129 g of matter?

(A) 3.87×10^{7} J
(B) 4.49×10^{15} J
(C) 1.16×10^{16} J
(D) 2.24×10^{16} J

9. A current-carrying conductor is 92 mm long and experiences a force of 1.84 N when placed at a right angle to a magnetic field.

What is the magnetic flux density when 3.6 amps of current are passed through the conductor?

(A) 5.56×10^{-3} T
(B) 5.16 T
(C) 5.56 T
(D) 6.09 T

10. At the beginning of the Big Bang, energy was converted into particles.

Which of the following particles would NOT have been present within the first 100 seconds of the beginning of the Big Bang?

(A) helium
(B) quarks
(C) protons
(D) antiprotons

11. What is the wavelength of a bowling ball with a mass of 5 kg travelling at 12.6 m s^{-1}?

(A) 3.78×10^{-35} m
(B) 1.05×10^{-35} m
(C) 2.14×10^{-34} m
(D) 1.55×10^{-34} m

12. Which of the following is a consequence of the law of conservation of energy?

(A) magnetic braking
(B) incomplete flux linkage
(C) AC generator
(D) magnetic flux density

13. When gaseous atoms have an electrical current passed through them, they can produce light. Gaseous atoms absorb electrical energy, and then their electrons transition from ground state to a higher energy state. Later, the electrons can return to ground state. As electrons return to ground state, they release light; this light is particular to atoms of a particular element.

What is observed when an electron moves from a higher energy state to ground state?

(A) absorption spectra
(B) continuous spectra
(C) radioactive decay
(D) emission spectra

14. A cannonball is launched at 49 m s^{-1}. It reaches a maximum height of 105 m above its origin.

To the nearest degree, what is the angle of elevation required to reach this height?

(A) 45°
(B) 58°
(C) 68°
(D) 93°

15. A race-car travelling at 300 km h^{-1} drives around a race-track corner with radius 750 m. The road of the race track is designed so that car tyres do not experience any friction.

To the nearest degree, at what angle is the road banked?

(A) 13°
(B) 23°
(C) 33°
(D) 43°

16. The work function for tungsten is 4.5 eV.

What is the minimum wavelength of radiating photons that will have this threshold energy?

(A) 4.42×10^{-16} m
(B) 2.74×10^{-9} m
(C) 1.76×10^{-7} m
(D) 2.76×10^{-7} m

17. Spectroscopy allows scientists to study stars.

What type of spectral lines are produced by low-density stellar atmospheres?

(A) sharper, narrower spectral lines
(B) broadening spectral lines
(C) sharper spectral lines that are slightly shifted towards the red end of the spectrum
(D) sharper spectral lines that are slightly shifted towards the blue end of the spectrum

18. The planet Venus has a mass of 4.87×10^{24} kg and a diameter of 12 100 km.

What is the value of acceleration due to gravity on the surface of Venus?

(A) 8.87 m s^{-2}
(B) 9.86 m s^{-2}
(C) 9.89 m s^{-2}
(D) 10.13 m s^{-2}

19. When uranium-235 is hit with a neutron, it absorbs it and then splits according to the following nuclear equation:

$$ {}^{1}_{0}\mathrm{n} + {}^{235}_{92}\mathrm{U} \rightarrow {}^{139}_{56}\mathrm{Ba} + {}^{94}_{36}\mathrm{Kr} + 3\,{}^{1}_{0}\mathrm{n} + \text{energy} $$

During this reaction, there is a loss of mass of 3.60×10^{-28} kg.

What is the amount of energy released during the fission of a single uranium-235 atom?

(A) 112 MeV
(B) 186 MeV
(C) 194 MeV
(D) 202 MeV

20. A proton is circulating inside the ring of a synchrotron. The proton has an orbital radius of 82 m and a velocity of 1.25×10^{8} m s^{-1}.

What is the magnitude of the magnetic field required to keep the proton in orbit?

(A) 0.0175 T
(B) 0.0185 T
(C) 0.0188 T
(D) 0.0196 T

Section II

80 marks
Attempt Questions 21–37
Allow about 2 hours and 25 minutes for this section

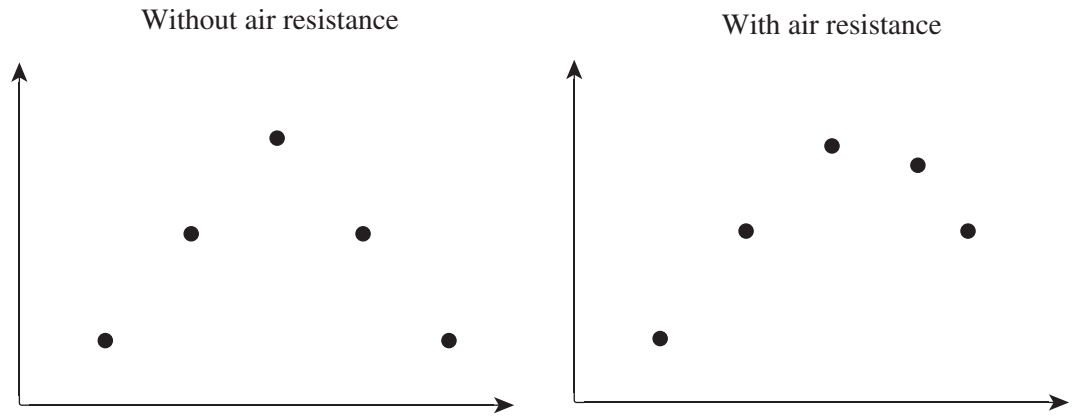
Answer the questions in the spaces provided. These spaces provide guidance for the expected length of response.

Show all relevant working in questions involving calculations.

Extra writing space is provided at the back of this booklet. If you use this space, clearly indicate which question you are answering.

Question 21 (4 marks)

A group of students analysed the effects of air resistance on projectile motion. The same experiment was performed twice – firstly in an evacuated chamber without air resistance, and then in the classroom with air resistance. The following graphs obtained from the results of both experiments show the paths taken by two identical projectiles. **4**



Discuss the effects of air resistance on the individual projectiles. In your answer, describe how the graphs demonstrate these effects.

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Question 22 (4 marks)

On a class excursion, a student with a mass of 65 kg rides a merry-go-round. They are 4.4 m from the centre of rotation. Once the student reaches maximum speed, the class records the time it takes for the student to complete three revolutions. They record the time as 78 s.

(a) What is the student's linear speed? **2**

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(b) What is the student's angular velocity? **1**

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(c) What is the centripetal force acting on the student? **1**

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Question 23 (6 marks)

(a) Describe Kepler's Second Law of equal areas. Include a labelled diagram in your answer. **3**

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(b) Derive Kepler's Third Law of periods. **3**

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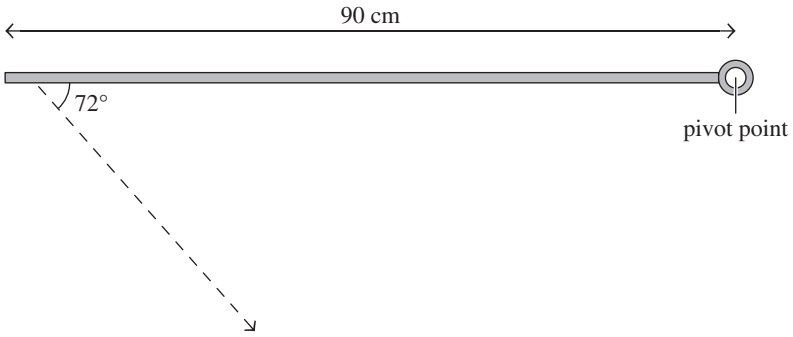
Question 24 (2 marks)

A student opens their classroom door as seen in the diagram. The dashed arrow shows the direction from which the door is pulled. **2**



How much force does the student apply to open the door if the total torque is 31 Nm?

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Question 25 (4 marks)

During your Year 12 Physics course, you will have completed an investigation of historical and contemporary methods used to determine the speed of light. **4**

Discuss ONE historical and ONE contemporary method used to determine the speed of light.

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Question 26 (3 marks)

A monochromatic neon lamp with a wavelength of 854 nm was used to demonstrate diffraction. When the light from the lamp was shone through vertical parallel slits, an interference pattern was produced on a screen 2.5 metres away. The slits were recorded to be 0.200 mm apart.

(a) Determine the angle of the first-order maximum. **2**

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(b) Calculate the distance on the screen between the first-order maximum and the central maximum. **1**

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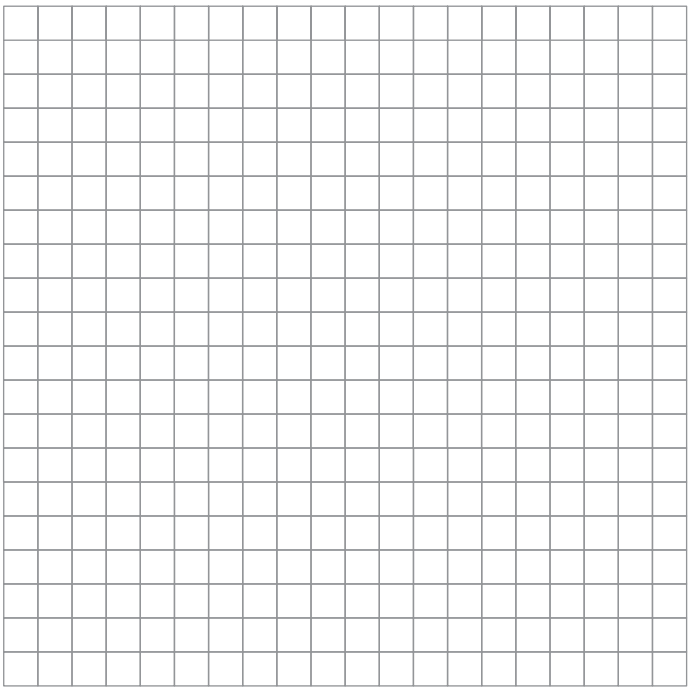
Question 27 (8 marks)

A group of scientists at Australia's Nuclear Science and Technology Organisation (ANSTO) collected data on the decay of a radioactive isotope. Their results are shown in the following table.

Time (hours)	*Recorded mass (g)*
0	100
4	72.0
8	50.0
12	34.0
16	25.0
20	17.0
24	12.5
28	8.00
32	6.25

(a) Graph the results on the grid provided. **3**



(b) Determine the half-life of the isotope. **1**

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Question 27 continues on page 13

Question 27 (continued)

(c) A sample of another radioactive isotope was investigated by the same group of scientists. This sample was found to have a half-life of 16 hours.

(i) Calculate the decay constant of the isotope sample. **2**

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(ii) What percentage of the sample will be left undecayed after two days? **2**

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End of Question 27

Question 28 (4 marks)

Discuss the early experiments that examined the nature of cathode rays AND their role in the discovery of the electron. **4**

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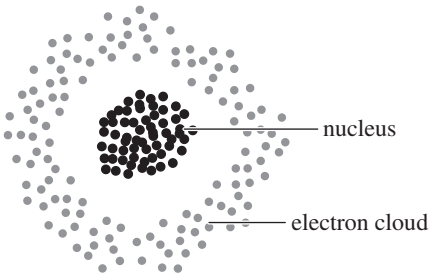
Question 29 (8 marks)

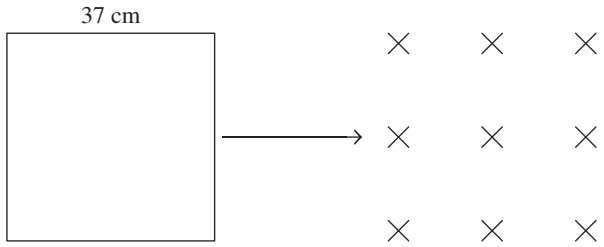
The atomic model has continually been changed and improved due to scientific advancements. It has been influenced by many scientists. The image below is the model suggested by Edwin Schrödinger. This model is often referred to as the quantum model of the atom. **8**



Explain how the atomic model changed over time and led to the model proposed by Schrödinger.

Question 30 (5 marks)

The diagram below shows a square single loop entering a perpendicular magnetic field of 0.80 T. The square loop takes 0.04 seconds to enter the magnetic field.



(a) What is the magnitude of induced emf in the square loop? **4**

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(b) What direction does the induced current flow in the square loop? **1**

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Question 31 (4 marks)

A typical DC motor can produce 10–7000 revolutions per minute.

(a) Identify TWO modifications that would increase the speed of a DC motor. **2**

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(b) Outline the role of a commutator in a DC motor. **2**

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Question 32 (4 marks)

Compare the effects of electric and magnetic fields on a charged particle if the particle is initially moving perpendicular to the fields. Support your answer with a labelled diagram showing each field. **4**

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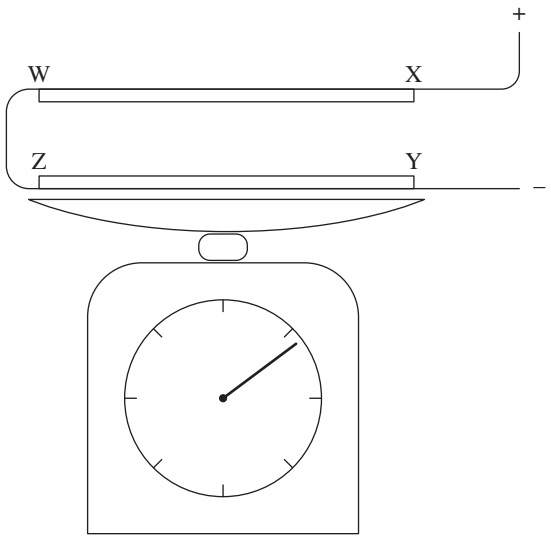
Question 33 (4 marks)

A teacher demonstrates the forces on two parallel identical copper conductors, as shown in the diagram. **4**



The top conductor WX is fixed, while the bottom conductor ZY lies on top of a balance. The distance between the conductors is 5 mm, and each conductor is 29 cm in length. Initially, the balance reads 4.5 grams for conductor ZY. When the current is switched on, the teacher records a reading of 4.56 grams.

Calculate the magnitude of the current.

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Question 34 (3 marks)

As an in-depth study, a group of students tested different transformers to calculate their efficiency. The students supplied a transformer with 0.02 Amps at 240 V and recorded the output of the transformer as 0.28 Amps at 12 V. **3**

Calculate the efficiency of the transformer AND account for the loss of energy.

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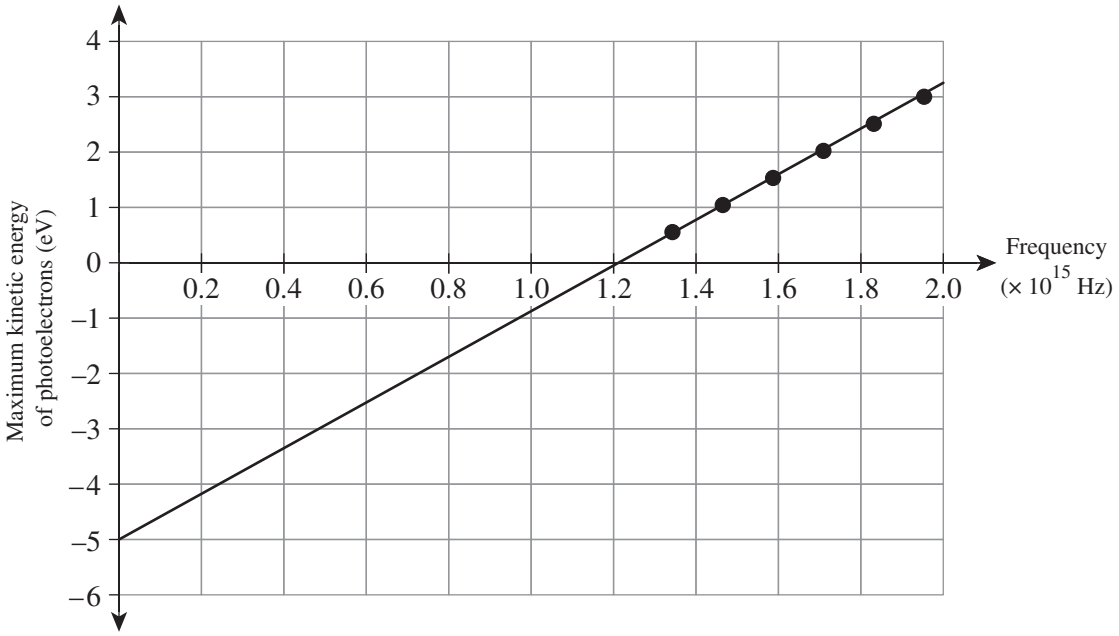
Question 35 (7 marks)

Ultraviolet light with a wavelength of 180 nm is shone on a polished nickel plate. The work function for the nickel plate is shown in the graph.



(a) What is the work function for the nickel plate? **1**

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(b) What is the kinetic energy of the fastest-moving electrons? **3**

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Question 35 continues on page 21

Question 35 (continued)

(c) Demonstrate the cut-off frequency of the nickel plate mathematically AND through interpretation of the graph. **3**

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End of Question 35

Question 36 (3 marks)

The National Aeronautics and Space Administration (NASA) recently sent a space probe to a newly discovered, potentially habitable planet 20 light years away. The space probe will travel at a velocity of 0.38 c to get there.

(a) Calculate how long the journey will take. **1**

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(b) The scientists placed an atomic clock on board the space probe to measure the duration of the journey. **2**

According to the atomic clock on board the space probe, calculate how long the journey will take.

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Question 37 (7 marks)

A satellite with a mass of 2550 kg is orbiting the Earth at an altitude of 35 800 km above the Earth's surface.

(a) Calculate the total mechanical energy of the satellite. **2**

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(b) Calculate the speed of the satellite. **3**

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(c) Identify the type of satellite that orbits at this altitude AND describe TWO uses of this type of satellite. **2**

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Section II extra writing space

If you use this space, clearly indicate which question you are answering.

Section II extra writing space

If you use this space, clearly indicate which question you are answering.

Data sheet

Charge on electron, q_e	-1.602×10^{-19} C
Mass of electron, m_e	9.109×10^{-31} kg
Mass of neutron, m_n	1.675×10^{-27} kg
Mass of proton, m_p	1.673×10^{-27} kg
Speed of sound in air	340 m s^{-1}
Earth's gravitational acceleration, g	9.8 m s^{-2}
Speed of light, c	3.00×10^{8} m s^{-1}
Electric permittivity constant, ε_0	8.854×10^{-12} A^2 s^4 kg^{-1} m^{-3}
Magnetic permeability constant, μ_0	$4\pi \times 10^{-7}$ N A^{-2}
Universal gravitational constant, G	6.67×10^{-11} N m^2 kg^{-2}
Mass of Earth, M_E	6.0×10^{24} kg
Radius of Earth, r_E	6.371×10^{6} m
Planck constant, h	6.626×10^{-34} J s
Rydberg constant, R (hydrogen)	1.097×10^{7} m^{-1}
Atomic mass unit, u	1.661×10^{-27} kg 931.5 MeV/c^2
1 eV	1.602×10^{-19} J
Density of water, ρ	1.00×10^{3} kg m^{-3}
Specific heat capacity of water	4.18×10^{3} J kg^{-1} K^{-1}
Wien's displacement constant, b	2.898×10^{-3} m K

Formulae sheet

Motion, forces and gravity

$$s = ut + \frac{1}{2}at^2$$

$$v = u + at$$

$$v^2 = u^2 + 2as$$

$$\vec{F}_{\text{net}} = m\vec{a}$$

$$\Delta U = mg\Delta h$$

$$W = F_{\parallel}s = Fs\cos\theta$$

$$P = \frac{\Delta E}{\Delta t}$$

$$K = \frac{1}{2}mv^2$$

$$\sum \frac{1}{2}mv_{\text{before}}^2 = \sum \frac{1}{2}mv_{\text{after}}^2$$

$$P = F_{\parallel}v = Fv\cos\theta$$

$$\Delta\vec{p} = \vec{F}_{\text{net}}\Delta t$$

$$\sum m\vec{v}_{\text{before}} = \sum m\vec{v}_{\text{after}}$$

$$\omega = \frac{\Delta\theta}{t}$$

$$a_{\text{c}} = \frac{v^2}{r}$$

$$\tau = r_{\perp}F = rF\sin\theta$$

$$F_{\text{c}} = \frac{mv^2}{r}$$

$$v = \frac{2\pi r}{T}$$

$$F = \frac{GMm}{r^2}$$

$$U = -\frac{GMm}{r}$$

$$\frac{r^3}{T^2} = \frac{GM}{4\pi^2}$$

Waves and thermodynamics

$$v = f\lambda$$

$$f_{\text{beat}} = \left|f_2 - f_1\right|$$

$$f = \frac{1}{T}$$

$$f' = f\frac{(v_{\text{wave}} + v_{\text{observer}})}{(v_{\text{wave}} - v_{\text{source}})}$$

$$d\sin\theta = m\lambda$$

$$n_1\sin\theta_1 = n_2\sin\theta_2$$

$$n_{\text{x}} = \frac{c}{v_{\text{x}}}$$

$$\sin\theta_{\text{c}} = \frac{n_2}{n_1}$$

$$I = I_{\text{max}}\cos^2\theta$$

$$I_1{r_1}^2 = I_2{r_2}^2$$

$$Q = mc\Delta T$$

$$\frac{Q}{t} = \frac{kA\Delta T}{d}$$

Formulae sheet (continued)

Electricity and magnetism

$$E = \frac{V}{d}$$

$$V = \frac{\Delta U}{q}$$

$$W = qV$$

$$W = qEd$$

$$B = \frac{\mu_0 I}{2\pi r}$$

$$B = \frac{\mu_0 NI}{L}$$

$$\Phi = B_{\parallel} A = BA\cos\theta$$

$$\varepsilon = -N\frac{\Delta\Phi}{\Delta t}$$

$$\frac{V_\text{p}}{V_\text{s}} = \frac{N_\text{p}}{N_\text{s}}$$

$$\vec{F} = q\vec{E}$$

$$F = \frac{1}{4\pi\varepsilon_0}\frac{q_1 q_2}{r^2}$$

$$I = \frac{q}{t}$$

$$V = IR$$

$$P = VI$$

$$F = qv_{\perp}B = qvB\sin\theta$$

$$F = lI_{\perp}B = lIB\sin\theta$$

$$\frac{F}{l} = \frac{\mu_0}{2\pi}\frac{I_1 I_2}{r}$$

$$\tau = nIA_{\perp}B = nIAB\sin\theta$$

$$V_\text{p} I_\text{p} = V_\text{s} I_\text{s}$$

Quantum, special relativity and nuclear

$$\lambda = \frac{h}{mv}$$

$$K_\text{max} = hf - \phi$$

$$\lambda_\text{max} = \frac{b}{T}$$

$$E = mc^2$$

$$E = hf$$

$$\frac{1}{\lambda} = R\left(\frac{1}{n_\text{f}^2} - \frac{1}{n_\text{i}^2}\right)$$

$$t = \frac{t_0}{\sqrt{\left(1 - \frac{v^2}{c^2}\right)}}$$

$$l = l_0\sqrt{\left(1 - \frac{v^2}{c^2}\right)}$$

$$p_\text{v} = \frac{m_0 v}{\sqrt{\left(1 - \frac{v^2}{c^2}\right)}}$$

$$N_\text{t} = N_0 e^{-\lambda t}$$

$$\lambda = \frac{\ln 2}{t_{\frac{1}{2}}}$$

PERIODIC TABLE OF THE ELEMENTS

1 **H** 1.008 Hydrogen																	2 **He** 4.003 Helium
3 **Li** 6.941 Lithium	4 **Be** 9.012 Beryllium											5 **B** 10.81 Boron	6 **C** 12.01 Carbon	7 **N** 14.01 Nitrogen	8 **O** 16.00 Oxygen	9 **F** 19.00 Fluorine	10 **Ne** 20.18 Neon
11 **Na** 22.99 Sodium	12 **Mg** 24.31 Magnesium											13 **Al** 26.98 Aluminium	14 **Si** 28.09 Silicon	15 **P** 30.97 Phosphorus	16 **S** 32.07 Sulfur	17 **Cl** 35.45 Chlorine	18 **Ar** 39.95 Argon
19 **K** 39.10 Potassium	20 **Ca** 40.08 Calcium	21 **Sc** 44.96 Scandium	22 **Ti** 47.87 Titanium	23 **V** 50.94 Vanadium	24 **Cr** 52.00 Chromium	25 **Mn** 54.94 Manganese	26 **Fe** 55.85 Iron	27 **Co** 58.93 Cobalt	28 **Ni** 58.69 Nickel	29 **Cu** 63.55 Copper	30 **Zn** 65.38 Zinc	31 **Ga** 69.72 Gallium	32 **Ge** 72.64 Germanium	33 **As** 74.92 Arsenic	34 **Se** 78.96 Selenium	35 **Br** 79.90 Bromine	36 **Kr** 83.80 Krypton
37 **Rb** 85.47 Rubidium	38 **Sr** 87.61 Strontium	39 **Y** 88.91 Yttrium	40 **Zr** 91.22 Zirconium	41 **Nb** 92.91 Niobium	42 **Mo** 95.96 Molybdenum	43 **Tc** Technetium	44 **Ru** 101.1 Ruthenium	45 **Rh** 102.9 Rhodium	46 **Pd** 106.4 Palladium	47 **Ag** 107.9 Silver	48 **Cd** 112.4 Cadmium	49 **In** 114.8 Indium	50 **Sn** 118.7 Tin	51 **Sb** 121.8 Antimony	52 **Te** 127.6 Tellurium	53 **I** 126.9 Iodine	54 **Xe** 131.3 Xenon
55 **Cs** 132.9 Caesium	56 **Ba** 137.3 Barium	57–71 Lanthanoids	72 **Hf** 178.5 Hafnium	73 **Ta** 180.9 Tantalum	74 **W** 183.9 Tungsten	75 **Re** 186.2 Rhenium	76 **Os** 190.2 Osmium	77 **Ir** 192.2 Iridium	78 **Pt** 195.1 Platinum	79 **Au** 197.0 Gold	80 **Hg** 200.6 Mercury	81 **Tl** 204.4 Thallium	82 **Pb** 207.2 Lead	83 **Bi** 209.0 Bismuth	84 **Po** Polonium	85 **At** Astatine	86 **Rn** Radon
87 **Fr** Francium	88 **Ra** Radium	89–103 Actinoids	104 **Rf** Rutherfordium	105 **Db** Dubnium	106 **Sg** Seaborgium	107 **Bh** Bohrium	108 **Hs** Hassium	109 **Mt** Meitnerium	110 **Ds** Darmstadtium	111 **Rg** Roentgenium	112 **Cn** Copernicium	113 **Nh** Nehonium	114 **Fl** Flerovium	115 **Mc** Moscovium	116 **Lv** Livermorium	117 **Ts** Tennessine	118 **Og** Oganesson

KEY

Atomic Number
Symbol
Standard Atomic Weight
Name

79
Au
197.0
Gold

Lanthanoids

57 **La** 138.9 Lanthanum	58 **Ce** 140.1 Cerium	59 **Pr** 140.9 Praseodymium	60 **Nd** 144.2 Neodymium	61 **Pm** Promethium	62 **Sm** 150.4 Samarium	63 **Eu** 152.0 Europium	64 **Gd** 157.3 Gadolinium	65 **Tb** 158.9 Terbium	66 **Dy** 162.5 Dysprosium	67 **Ho** 164.9 Holmium	68 **Er** 167.3 Erbium	69 **Tm** 168.9 Thulium	70 **Yb** 173.1 Ytterbium	71 **Lu** 175.0 Lutetium

Actinoids

89 **Ac** Actinium	90 **Th** 232.0 Thorium	91 **Pa** 231.0 Protactinium	92 **U** 238.0 Uranium	93 **Np** Neptunium	94 **Pu** Plutonium	95 **Am** Americium	96 **Cm** Curium	97 **Bk** Berkelium	98 **Cf** Californium	99 **Es** Einsteinium	100 **Fm** Fermium	101 **Md** Mendelevium	102 **No** Nobelium	103 **Lr** Lawrencium

Standard atomic weights are abridged to four significant figures. Elements with no reported values in the table have no stable nuclides. Information on elements with atomic numbers 113 and above is sourced from the International Union of Pure and Applied Chemistry Periodic Table of the Elements (November 2016 version). The International Union of Pure and Applied Chemistry Periodic Table of the Elements (Febuary 2010 version) is the principal source of all other data. Some data may have been modified

Neap

HSC Trial Examination 2020

Physics

DIRECTIONS:

Write your name in the space provided.

Write your student number in the boxes provided below. Then, in the columns of digits below each box, fill in the oval which has the same number as you have written in the box. Fill in **one** oval only in each column.

Read each question and its suggested answers. Select the alternative A, B, C, or D that best answers the question. Fill in the response oval completely, using blue or black pen. Mark **only one** oval per question.

A ⬭ B ⬬ C ⬭ D ⬭

If you think you have made a mistake, put a cross through the incorrect answer and fill in the new answer.

A ⬬ B ⬭ C ⬭ D ⬭

If you change your mind and have crossed out what you consider to be the correct answer, then indicate this by writing the word *correct* and draw an arrow as follows.

correct

A ⬭ B ⬭ C ⬭ D ⬭

STUDENT NAME: _____

STUDENT NUMBER:

1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9
0	0	0	0	0	0	0	0	0

SECTION I
MULTIPLE-CHOICE ANSWER SHEET

1.	A ⬭	B ⬭	C ⬭	D ⬭
2.	A ⬭	B ⬭	C ⬭	D ⬭
3.	A ⬭	B ⬭	C ⬭	D ⬭
4.	A ⬭	B ⬭	C ⬭	D ⬭
5.	A ⬭	B ⬭	C ⬭	D ⬭
6.	A ⬭	B ⬭	C ⬭	D ⬭
7.	A ⬭	B ⬭	C ⬭	D ⬭
8.	A ⬭	B ⬭	C ⬭	D ⬭
9.	A ⬭	B ⬭	C ⬭	D ⬭
10.	A ⬭	B ⬭	C ⬭	D ⬭
11.	A ⬭	B ⬭	C ⬭	D ⬭
12.	A ⬭	B ⬭	C ⬭	D ⬭
13.	A ⬭	B ⬭	C ⬭	D ⬭
14.	A ⬭	B ⬭	C ⬭	D ⬭
15.	A ⬭	B ⬭	C ⬭	D ⬭
16.	A ⬭	B ⬭	C ⬭	D ⬭
17.	A ⬭	B ⬭	C ⬭	D ⬭
18.	A ⬭	B ⬭	C ⬭	D ⬭
19.	A ⬭	B ⬭	C ⬭	D ⬭
20.	A ⬭	B ⬭	C ⬭	D ⬭

STUDENTS SHOULD NOW CONTINUE WITH SECTION II