

STUDENT NAME: _____

MULTIPLE CHOICE ANSWER SHEET

Circle the letter indicating the best answer.

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
21	A	B	C	D
22	A	B	C	D
23	A	B	C	D
24	A	B	C	D
25	A	B	C	D



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YEAR 10 SCIENCE EXAMINATION

SEMESTER 1 2016

MULTIPLE CHOICE QUESTION BOOKLET

USE THE ANSWER SHEET TO CIRCLE THE LETTER INDICATING THE BEST ANSWER.

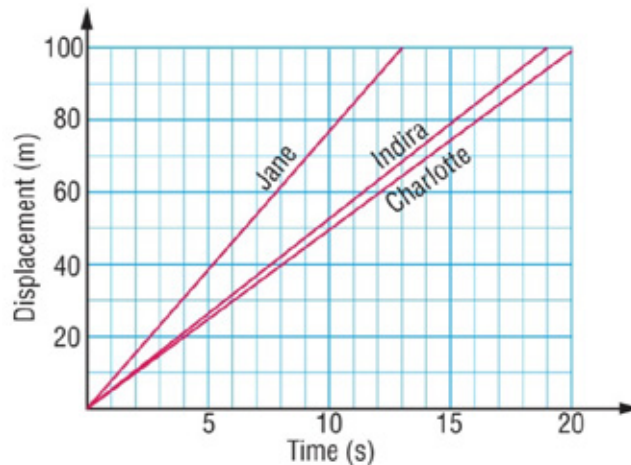
PLEASE DO NOT TURN THE PAGE UNTIL YOU ARE ASKED TO

- The atomic number of an element is equal to the number of:
 - electrons and neutrons
 - protons
 - neutrons
 - protons, neutrons and electrons.
- The atomic symbol for a gold atom is ${}^{197}_{79}\text{Au}$. Clarify what this tells you about the gold atom.
 - It contains 118 protons.
 - It contains a total of 197 protons, neutrons and electrons.
 - It contains 118 neutrons.
 - It contains 197 electrons.
- The ore Chalcopyrite has the chemical formula CuFeS_2 . The three elements that make up this ore are –
 - Curium, Iron and Silver
 - Copper, Fluorine and Sulphur
 - Carbon, Iron and Sodium
 - Copper, Iron and Sulphur
- An atom of calcium has 20 electrons. Its electron configuration would best be written as:
A ${}^{42}_{20}\text{Ca}$ **B** 20 **C** 2,8,8,2 **D** 2,8,10.
- A phosphorus atom has an atomic number of 15. State how many electrons it has in its third (outermost) shell.
 - 0
 - 2
 - 5
 - 8
- Which one of the following is *not* a property of non-metals? Non-metals are:
 - normally gases or liquids at room temperature
 - either poor electrical conductors or non-conductors
 - able to be hammered into sheets
 - dull, with little or no shine.
- The atomic number of zinc (Zn) is 30. Therefore, the ion represented by the symbol ${}^{65}\text{Zn}^{2+}$ has:
 - 30 protons, 35 neutrons and 28 electrons
 - 65 protons, 30 neutrons and 32 electrons
 - 30 protons, 65 neutrons and 28 electrons
 - 30 protons, 35 neutrons and 32 electrons.
- Use the periodic table to determine which of the following statements is *correct* about chlorine atoms.
 - They form the ion Cl^- .
 - Chlorine atoms are smaller than fluorine atoms.
 - It is in Period 2.
 - Chlorine belongs to the noble gas family.

9. A compound forms when:
- two or more elements chemically combine with each other
 - two or more elements are physically mixed together
 - a large number of identical atoms join together
 - a mixture is separated into its components.
10. A particular element is shiny, malleable and a good conductor of electricity. In which section of the periodic table would this element **not** be found?
- transition elements
 - Group I
 - Group III
 - Group VI
11. Which of the following lists contains only compounds?
- water (H_2O), glucose ($\text{C}_6\text{H}_{12}\text{O}_6$), carbon dioxide (CO_2)
 - tungsten (W), phosphorus (P), chlorine (Cl_2)
 - Vegemite, limewater ($\text{Ca}(\text{OH})_2$), plutonium (Pu)
 - salt (NaCl), air, iron (Fe)
12. Moving down Group I in the periodic table, which property would be expected to decrease?
- the reactivity
 - the number of outer-shell electrons in each atom
 - the size of atoms
 - the melting point
13. The terms speed and velocity are used to describe objects which are moving. They:
- mean exactly the same thing and are measured with the same units.
 - are similar terms, measured with the same units, but are not exactly the same.
 - both involve measurements of distance, time and direction.
 - are used in different situations, with velocity being used only when the values are very large.
14. A car is slowing down on a level road. There must be:
- no force acting on it
 - a large upwards force acting on it
 - a small backward force acting on it
 - a small positive acceleration acting on it
15. A train travels at a speed of 18 m/s. This is equivalent to a speed of:
- 6.48 km/h
 - 64.8 km/h
 - 64 800 km/h
 - 0.005 km/h

16. Inertia can be defined as:
- A. the amount of matter in an object
 - B. a tendency of an object to resist a change in its motion
 - C. the force of gravity on an object
 - D. when a force makes something move
17. When we use the term 'a force' we mean:
- A. something that always causes something else to move.
 - B. an occurrence that always causes major damage.
 - C. simply a 'push' or a 'pull' on something.
 - D. a 'push' being applied to an object which moves as a result.
18. Which one of the following statements about friction is INCORRECT?
- A. Friction operates in the same direction as a moving object.
 - B. Friction is a contact force.
 - C. Friction between two moving objects produces heat.
 - D. Without friction you could not grip an object or walk.
19. A 90 N force is applied to a 65 kg mass. The mass will accelerate at:
- A. 0.72 m/s^2
 - B. 1.38 m/s^2
 - C. 1.77 m/s^2
 - D. 5850 m/s^2
20. If the acceleration due to gravity on the moon's surface is 1.6 m/s^2 then a mass of 60kg has a weight on the moon of:
- A. 96 Newtons
 - B. 60 Newtons
 - C. 588 Newtons
 - D. none of the above
21. Which of the following is best explained by Newton's third law?
- A. Unbelted passengers will be thrown forward when a car stops suddenly.
 - B. A gun recoils when a shot is fired.
 - C. The acceleration of an object when a force is applied depends on the mass of the object.
 - D. The weight of an object varies from planet to planet.
22. Which of the following best describes the energy changes occurring when an apple falls from a tree branch to the ground below?
- A. gravitational potential \rightarrow kinetic \rightarrow heat and sound
 - B. elastic potential \rightarrow kinetic \rightarrow heat and sound
 - C. gravitational potential \rightarrow heat \rightarrow kinetic
 - D. elastic potential \rightarrow heat \rightarrow kinetic

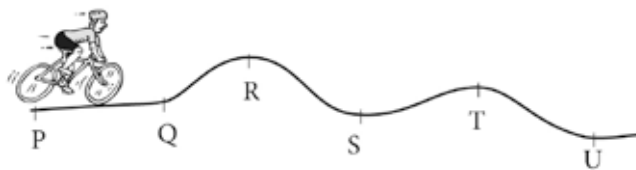
23. Three students, Jane, Indira and Charlotte run in a 100 m sprint on a school sports day. The displacement (or distance) / time graph of their motion is shown below.



Select the alternative below that correctly orders their finish places in the race.

- A. Jane wins, Indira is second and Charlotte is third.
 - B. Indira wins, Jane is second and Charlotte is third.
 - C. Charlotte wins, Indira is second and Jane is third.
 - D. Charlotte wins, Jane is second and Indira is third.
24. "All bodies remain in a state of rest or uniform motion unless acted upon by an external unbalanced force." This property of bodies is called:
- A. mass
 - B. inertia
 - C. density
 - D. weight

25. A cyclist rides a hilly course between points P and U, as shown in the diagram.



The most likely regions where he would accelerate are between points:

- A. (i) R and S, and (ii) T and U.
- B. (i) R and S, and (ii) S and T.
- C. (i) P and Q, and (ii) T and U.
- D. (i) S and T, and (ii) T and U.

END OF MULTIPLE CHOICE SECTION