

## GRADE 11 PHYSICAL SCIENCES

### NOVEMBER EXAMINATION PAPER 1: PHYSICS

#### SECTION A

##### QUESTION 1

Various options are provided as possible answers to the following questions. Choose the correct answer and write **ONLY** the **LETTER** (A-D) next to the **QUESTION NUMBER** in your answer book.

- 1.1 An example of a vector quantity:
- velocity
  - displacement
  - speed
  - mass
- 1.2 A boy sits on a chair. Gravitational force pulls him down, the force that keeps him from moving down would be:
- friction
  - applied force
  - gravity
  - normal force
- 1.3 Two forces  $F_1$  and  $F_2$  have a net force of 100N if they act in the same direction and are balanced if they act in the opposite direction. The individual forces of  $F_1$  and  $F_2$  will be:
- 70N and 30N
  - 100N and 0N
  - 60N and 40N
  - 80N and 20N

Use the circuit diagram below to answer QUESTIONS 1.4 and 1.5



- 1.4 The voltage over the parallel resistors will be:
- 5V
  - 7V
  - 20
  - 30
- 1.5 The total resistance of the circuit if all resistors were identical with a resistance of 20:
- 100
  - 4/50
  - 50
  - 60
- 1.6 A box is pushed forward with a force of 200N but does not move. A possible reason for this is that:
- frictional force is also 200N
  - frictional force is more than 200N
  - frictional force is less than 200N
  - none of the above
- 1.7 The diagram below shows a coil and a magnet with a pole **P**. A magnetic field is induced in the coil due to the motion of the magnet.



Which **ONE** of the following combinations will result in an induced magnetic field with **NORTH POLE** at point **X**?

	DIRECTION OF MOTION OF MAGNET	POLARITY OF P
A	into the coil	North
B	up and down inside the coil	North
C	into the coil	South
D	up and down inside the coil	South

# Grade 1 November 2013 Physical Science Paper 2 Memo

**Stephanie Clark, Stephanie  
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web step 1 write all logarithmic expressions as a single logarithm with coefficient 1 in this case apply the product rule for logarithms  $\log_2 x + 2 \log_2 x = 3$   $1 \log_2 x + 2 \log_2 x = 3$  step 2 use the definition and rewrite the logarithm in exponential form  $\log_2 x = 2$   $x = 2^2$   $x = 4$

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web use like bases to solve exponential equations use logarithms to solve exponential equations use the definition of a logarithm to solve logarithmic equations use the one to one property of logarithms to solve logarithmic equations solve applied problems involving exponential and logarithmic equations

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web example page index 4 solve exponential equations using logarithms solve  $5 \times 11$  find the exact answer and then approximate it to three decimal places solution  $5 \times 11$  since the exponential is isolated take the logarithm of both sides  $\log 5 \times \log 11$  use the power property to get the  $x$  as a factor not an exponent

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web an exponential equation involves an unknown varying in the exponent in this lesson we will focus on the exponential equations that do not require the use of logarithm in algebra those topics are also known as solving exponential equations to an same base wherefore the reason is ensure are can solve the equation by forcing both sides of

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web if our equation has two logarithms we can use a property that says that if  $\log_a m = \log_a n$  then it is true that  $m = n$  this is the one to one property of logarithmic equations one to one property of logarithmic equations for  $m > 0$   $n > 0$   $a > 0$  and  $a \neq 1$  is any real number if  $\log_a m = \log_a n$  then  $m = n$

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powers or exponents equal to each other

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web the key to solving exponential equations lies in logarithms let's take a closer look by working through some examples solving exponential equations of the form  $a \cdot b^x = d$  let's solve  $5 \cdot 2^x = 240$  to solve for  $x$  we must first isolate the exponential part to do this divide both sides by 5 as shown below

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isotopes are atoms that have the same number of protons but different numbers of neutrons thus atoms of  $^{12}_6\text{C}$  and of  $^{13}_6\text{C}$  are isotopes of each other

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web what is the percent composition of cu in terms of these two isotopes answer 69 15 cu 63 and 30 85 cu 65 figure

pageindex 5 isotopes of an element are atoms with the same atomic number but different mass numbers isotopes of an element therefore differ from each other only in the number of neutrons within the nucleus

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web video answer so now we ll talk about problems 58 from chapter four this problem whereas how do isotopes differ and how are they similar isotopes for the same element so isotopes differ in the number of neutro

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web atoms of the same element i.e. same atomic number  $Z$  that have different numbers of neutrons are called isotopes for example  $^{12}_6\text{C}$  of the carbon atoms on earth have 6 neutrons and 6 protons in their nuclei about 1% of the carbon atoms have 7

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web jan 5 2016 explanation isotopes are atoms of the same element same atomic number i.e. same number of protons in the nucleus but different atomic masses different mass numbers due to different numbers of neutrons in the nucleus for example we may get an isotope of chlorine with 17 protons and 18 neutrons hence atomic mass 35

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web may 16 2018 explanation an atom is characterized as a particular element by the number of positively charged massive nuclear particles i.e.  $Z$   $Z=1$  we get hydrogen  $Z=2$  we get helium  $Z=3$  lithium  $Z=47$  we get silver the nucleus can also contain

neutrons massive nuclear particles of zero charge

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web atoms of the same element with different numbers of neutrons are called isotopes close isotope atoms of an element with the same number of protons and electrons but different numbers of neutrons

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web oct 31 2023 an isotope is one of two or more species of atoms of a chemical element with the same atomic number and position in the periodic table and nearly identical chemical behavior but with different atomic masses and physical properties every chemical element has one or more isotopes

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web jul 18 2018 answer link due to the number of neutrons isotopes differ with respect to the number of neutrons their nuclei contain where neutrons are massive particles of zero charge a nucleus may contain variable numbers of neutrons and this gives rise to the phenomenon of isotopes

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web isotopes are distinct nuclear species or nuclides as technical term of the same chemical element they have the same atomic number number of protons in their nuclei and position in the periodic table and hence belong to the same chemical element but differ in nucleon numbers mass numbers due to different numbers of neutrons in

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web verified by toppr correct option is d atoms having same atomic number but different atomic mass are known as isotopes the difference in the mass is due to the difference in their number of neutrons with the same number of electrons and protons

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web nov 27 2016 explanation basically isotopes are nuclei that have the same number of protons and are thus the same element but have unequal numbers of neutrons answer link the nucleus differs as a result of the number of neutrons in the atom the actual structure doesn't differ all that much but its mass does differ thus its density is a little

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electrons outside the nucleus b they have different atomic number o c they have different numbers of neutrons in the nucleus  
d more than one response is correct e they have different numbers of protons in the nucleus