الإدارة المركزية للتعليم العام

تنمية مادة العلوم

Physics

الصف الثاني الثانوي

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الواجب المنزلي + التقييم

الأسبوع 2

الاسم: .....

الفصل: .....

المدرسة: .....



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رئيس الإدارة المركزية للتعليم العام

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First: Choose the correct answer:

1-Which of the following correctly expresses the concept of dimensional formula?

a) The relationship between numerical values of physical quantities.

b) Expressing the physical quantity in terms of the fundamental quantities.

c) Expressing the physical quantity using SI units only.

d) The mathematical relationship between derived quantities.

2-The unit of measurement of a physical quantity with dimensions $M^0 LT^{-2}$ is:

a) m/s b) $kg \cdot m/s^{-2}$ c) m/s^2 d) $m \cdot s^2$

3-If the dimensional formula of quantity **A** is $M\,LT^{-2}$, and of **B** is $M\,LT^{-2}$, then the dimensional formula of (A - B) is:

a) $M^0.L^0.T^0$ b) $M.L.T^{-2}$ c) M.L.T d) $M.L.T^{-4}$

4-If the dimensional formula of **A** is $L.T^{-1}$, and of **B** is T^{-1}, then the dimensional formula of (A × B) is:

a) $L.T^{-1}$ b) T^{-2} c) $L.T^{-2}$ d) $L.T^0$

5-Three physical quantities X, Y, Z have the following dimensional formulas respectively: MLT^{-1} , MLT^{-2} , T

Which of the following relations could be correct?

a) Z = XY b) $Z = \frac{X}{Y}$ c) $Z = \frac{Y}{X}$ d) $Z = Y^2/X$

-If the wavelength of red light is 0.7 μ m, then its wavelength in millimeters equals:

a) 7×10^{-3} b) 7×10^{-4} c) 7×10^{-6} d) 7×10^{-7}

6-An electric current has a magnitude of 7 mA. Its value in μA is:

a) 7×10^3 b) 7×10^6 c) 7×10^9 d) 7×10^{12}

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7-To measure the density of a liquid directly, ... is used

a) Ruler b) Micrometer c) Hydrometer d) Graduated cylinder

8-To measure a physical quantity accurately, the line of sight must be ..... the instrument scale.

a) Parallel to b) Perpendicular to c) Above d) Below

Second: Essay Questions:

9-A group of students estimated the mass of a gold ring, but the measurement was inaccurate. What are the possible sources of error in measurement?

10- Express the following quantities in the required units using scientific formula:

(a) 88 kg , in milligrams

(b) 1.8 MW, in kilowatts

(c) 50 mg, in kilograms

(d) 0.4 μg , in milligrams

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Group (A)

1-The dimension formula of pi (π) is .....

a) $M^0 .L. T^0$ **b)** $M^0 .L.^0 T^0$

c) $M^0 .L.T$ d) M.L.T

2-The physical quantity that has dimensional formula of LT^{-1} ,so its unit in the Gaussian system is .....

a) $g.cm^{-1}$ **b)** $cm.s^{-1}$

c) $m.s^{-1}$ **d)** m.s

3-Density = $\frac{mass}{volume}$ so the dimensional formula and unit of measurement in the British system .....

a) ML^{-3} , pound/foot^3 **b)** ML^{-3} , g/cm^3

c) $M L^3$, pound/foot^3 **d)** ML^{-3} , kg/m^3

-Write each of the following quantities in the required unit between brackets:

4) Train speed **180 km/h**. (in unit of m**/s**).

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5) Vehicle speed **50 m/s**. (in unit **of km/h**).

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Group (B)

1-If the quantity X is calculated from the relation X = Y + Z and the equation for the dimensions of Z is $M\,LT^{-2}$, then the unit of measurement of quantity Y is .....

a) Newton b) joule

c) watt d) kg m/s

2-If you know that $\frac{K}{t} = F.d + \frac{R}{t^2}$

So the dimensional formula of the quantity ($\frac{R}{k}$) is .....

a) $M\,L^0\,T^0$ b) $M^0\,L^0T$ c) $M^0\,L\,T^0$ d) $M^0\,L^0T^{-1}$

3- If the dimensional formula of the physical quantity (X) is ML^2T^{-2} and the dimensional formula of the physical quantity (Y) is LT^{-2} so the measuring unit of the quantity ($\frac{X}{Y}$) in the British system is .....

a) pound.s b) pound.foot c) g.cm d) kg.m

4-Explain:

The existence of an error in the Ammeter measurement after several years of operating it ?

5-Write each of the following quantities in the required unit between brackets:

Gold density **19300 kg/m^3** (in unit of **g/cm^3**)

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Group (C)

1- If the distance between the atoms in a crystal is 9×10^{-4} mm, then this is equal to .....

a) 9×10^{-7} cm **b)** 9×10^{-5} cm

c) 9×10^{-9} cm **d)** 9×10^{-10} cm

2-If mass C = sum of two masses A = 3 tons, B = 6000 g ,then mass C is equal to ..... kg

a) 3600 **b) 6003**

c) 63000 **d) 3006**

3-An example of direct measurement is a measurement of .....

a) Room area by metric tape b) Body mass by a sensitive scale

c) Density of a liquid measured by its mass and volume d) cuboid volume by measuring length, width and height

4-Explain:

The sensitive scale is kept inside a glass box?

5-Write each of the following quantities in the required unit between brackets:

Aluminum density **2.7 g/cm^3** (in unit of kg **/m^3**)

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