TSINSETA LEMARIAM SENIOR SECONDARY SCHOOL 2017 E.C

GRADE 10th PHYSICS WORKSHEET

PART I WORK OUT THE FOLLOWING QUESTIONS

1. The density of lead is 11.4g/cm^3 or 11400kg/m^3, what is the relative density of lead?

2. Find the mass of ICE having a volume of 1000cm^3 & its density is 0.92g/cm^3. 3. How many cubic centimeter will weigh 20kg and density of is 0.8g/cm^3 ? 4. The mass of a rock is 8.2g & its volume is 2.4cm^3 what is the density of the rock?
5. Define elasticity and plasticity & give examples of elastic and plastic objects.
6. The body will regain its previous shape and size only when the deformation caused by the external forces is within a certain limit. What is that limit? 7. A mining worker gets an unknown mineral with a volume of 10 cm^3 and a mass of 100g. Determine the density and the specific gravity of the mineral. 8. What is the mass of an iron ball of radius 20cm the density of iron is 5000kg/m^3.

9. What is the mass of air in a living room of 6m×3m×2m? use air density 1.29kg/m^3 .

10. A granite with density 2.8g/cm^3. The density of water is 1g/cm^3. What is the specific gravity of your granite?
11. Calculate the average density and specific gravity of the Earth given that the mass and radius of the Earth are $m_e = 5.98\times10^{24}$ kg and $r_e = 6.37\times10^6$ m, respectively.

12. What is meant by tensile stress and compressive stress?
13. A pendulum consists of a big sphere of mass m=60kg hung from the end of a steel wire that has a length of 10m, a cross-sectional area of 9×10^{-6}m^2, and the Young modulus of 200×10^9 N/m^2. Find the tensile stress on the wire and the increase in its length?
14. In the Young experiment, if the length of the wire and the radius are both doubled, what will happen to the value of the Young modulus? 15. A wire increases by 10^{-4} of its length when a stress of 2×10^8 Nm^{-2} is applied to it. Calculate the Young modulus of material of the wire.

16. A wire is stretched by 0.01m by a certain force F. Another wire of same material whose diameter and length are double to the original wire is stretched by the same force. What will be its elongation?

17. A 200kg load is hung on a wire having a length of 4m cross-sectional area $0.2\times10^{-5}\,m^2$, and the Young modulus $8\times10N/m^2$, What is its increase in length?

18. You have a rock with a volume of $15Cm^3$ and a mass of 45g What is its density?

19. A bar measures 12mm x 20 mm x 1m It has a specific gravity of 2.78. Determine its mass.

20. A golden-colored cube is handed to you. The person wants you to buy it for 5000 birr, saying that is a gold nugget. From a book you read that the density of gold is $19.3g/cm^3$. You measure the cube and find that it is 2cm on each side, and weighs 40g. What is its density? Is it gold? Should you buy it?

21. Explain the terms stress, strain and Hooke's Law.

22. A wire is stretched 3mm by a force of 150N. Assuming the elastic limit is not exceeded, calculate the force that will stretch the wire 5 mm.

23. A circular rod of cross-sectional area $100mm^2$ has a tensile force of 100KN applied to it. Calculate the value for the stress in the rod.

24. A steel wire of length 6m and diameter 0.6mm is extended by a force of 60N. The wire extends by 3mm. Calculate:

a) the applied stress.

b) the strain on the wire

c) the Young Modulus of the steel.

25. A wire increases by 10^{-3} of its length when a stress of $1x10^8Nm^{-2}$ is applied to it. Calculate the Young modulus of the wire.

26. Two wires are made of the same metal. The length of the first wire is half that of the second and its diameter is double that of the

second wire. If equal loads are applied on both wires, find the ratio of the increase in their lengths?

27. The cross sectional area of steel wire is 0.1cm calculate the force required to double its length ($Y=20\times10^{10}N/m$)

28. Convert density of 2500kg/m^3 in to g/cm?

29. Explain the difference between Daynamic equilibrium and static equilibrium

30. Explain the two conditions of equilibrum.

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