073204T4PLM

PLUMBING LEVEL 4

CON/OS/PL/CC/ 0 4 / 4

Apply Scientific P r i n c i p l e s

July/August 2025

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

W R I T T E N ASSESSMENT

Time: 2 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of two sections; **A** and **B**
2. in section **A** and **B**
3. Marks for each question are as indicated in the bra
4. You are provided with a separate answer booklet to answer the questions
5. Do not write in this question paper

This paper consists of FOUR (4) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

SECTION A (10 MARKS)

ns In This Section.

1. _____is the most precise device for measuring length. (1Mark)
   A. Vernier callipers with 20 division on sliding scale.
   B. A screw gauge of pitch 1mm and on the sliding scale.
   C. An optical instruction that can measure length to within a wave length to the circular.
   D. A 30 cm straight ruler .

2. Convert 0.05 m^2 to cm^2. (1Mark)
   A. 500 cm^2.
   B. 50 cm^2.
   C. 5cm^2.
   D. 0.005 cm^2.

3. When a moving body is suddenly stopped what happens. (1Mark)
   A.
   B. Friction force remains same as it was while the car was moving.
   C. Friction force reduces but has a non-zero value.
   D. Frictional force reduces to zero as it as self-adjusting force.

4. Density is defined as _____ (1Mark)
   A. The amount of mass per unit volume.
   B. Therted by a fluid per unit area.
   C. The measure of the resistance of a material to flow.
   D. The measure of the average kinetic energy of particles in a substance.

5. The following are the main types of static stresses to which materials can be subjected to EXCEPT. (1Mark)
   A. Tensile.
   B. Compressive.
   C. Shear.
   D. Scratch.

6. _____ not a mechanical property of material. (1Mark)
   A. Ductility.
   B. Hardness.
   C. Toughness.

D. Depthless.

7. The Standard definition of power is_____. (1Mark)

A. Great or or act; strength; might; force.

B. A force (push or pull) applied to an object causes a displacement of the object.

C. Power = length (L) x Velocity in the direction of the force.

D. the direction of the force.

8. Which one of the following is the correct definition of Hooke's law. (1Mark)

A. For a given amount of gas at constant pressure directly proportional to the absolute temperature.

B. The force needed to extend or compress a spring by some distance is directly proportional to that distance.

C. An object at rest stays at rest, and an object in motion stays in motion with the same speed and in the same direction unless acted upon by an unbalanced external force.

D. Mass attracts every other point mass in the universe with a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between their centers.

9. Metals are good conductors of_____. (1Mark)

A. Energy.

B. Force.

D. Sound.

10. Convert 345 centimetres to millimeters. (1Mark)

A. 34500.

B. 3450.

C. 34.5.

D. 3.45.

SECTION B (40 MARKS)

Answer ALL questions in this section.

11. Define the following standard unit of measurement
    i. Measurement. (2Marks)
    ii. Accuracy. (2Marks)
12. State FOUR characteristics of standard unit. (4Marks)
13. Benard bought 5645g of rice for food preparation in his institution. What is the weight of rice in kilograms? (3Marks)
14. Energy is the ability to do work. Name FIVE basic on the state of the matter. (5Marks)
15. A car travelling at a speed of 72 km/h is uniformly retarded by an application of brakes and comes to rest after 8 seconds. If the car with its occupants has a mass of 1,250 kg. Calculate the breaking force. (5Marks)
16. Friction is the resistance that one surface or object encounters when moving over another. State FOUR advantages of friction. (4Marks)
17. Friction depends on the nature of the surface in contact. List FOUR types of friction. (4Marks)
18. Physical changes involve moving molecules around, but not changing them. Name FOUR types of physical changes. (4Marks)
19. Heat can travel from one place to another. Name three methods of heat transfer(3Marks)
20. Differentiate the following terms as used in scientific principle
    ssure. (2Marks)
    ii. Density. (2Marks)