

Textbook questions

Revision test II

Instructions for students: Follow your teacher's instruction. Also you can attempt this test online and see your result.

[Attempt online and know results](#)

Topic: Textbook questions

Dates: 05.10.2022 until unlimited

Question count: 3

Total marks: 28

1. Answer in detail (7 m.)

1. Explain thermal expansion with suitable examples.

The

- A) change of state
- B) contraction of a substance
- C) increase in heat energy
- D) expansion of a substance

on

- A) heating
- B) cooling

is called the **thermal expansion** of that substance.

Uses of thermal expansion:

(i) Fitting the iron rim on the wooden wheel:

The iron ring is always made

- A) slightly higher
- B) slightly lesser
- C) same

in diameter than that of the wooden wheel.
Therefore, the iron ring

- A) cannot easily
- B) can easily

slip onto the rim of the wooden wheel.

Now the iron ring is heated to a higher temperature, it results in the

- A) reduction
- B) expansion
- C) remains same

in the size of the ring, and the hot ring is then easily slipped onto the wooden wheel's rim.
Coldwater is poured on the iron ring to

- A) contract
- B) remains same
- C) expand

in size and hold the wooden wheel tightly.

(ii) Riveting:

Riveting is one of the **most cost-effective and superior methods of fastening (join two parts)**. Rivets have a head on one side, a tail on the other used to join two steel plates together.

For using the rivets, they are

- A) cooled
- B) heated

till they become hot red and are then they are placed in the hole.

They are heated so that they become

- A) more brittle
- B) more ductile

and

- A) easily deform
- B) cannot easily deform

. Then they are pressed from one side, and ahead at the other end is formed. When the hot rivet is fixed, and it

- A) shrinks and presses
- B) expands and presses

the plates together. When cooled, the rivet will

- A) expand
- B) contract
- C) remains same

and keep the two plates tightly together.

(iii) Gaps are left in between the rails while laying a railway track:

An increase in temperature during the summer days causes

- A) expansion in rails**
- B) contraction in rails**

. So, in order to permit

- A) contraction**
- B) expansion**

at the joints of the rails, a

- A) slight gap**
- B) no gap**
- C) big gap**

is provided in between the rails while fixing a railway track.

If such a gap is not left at the rail's joints, the track will

- A) remains the due to thermal expansion**
- B) remains the due to thermal contraction**
- C) deform due to thermal contraction**
- D) deform due to thermal expansion**

. It will cause derailment of trains.

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2. Questions based on Higher Order Thinking Skills - I (14 m.)

1. When a window is accidentally left open on a winter night, will you feel uncomfortable because the cold is getting in, or because the heat is escaping from the room?

In cold winter season, room temperature is

- A) very high**
- B) very low**

, but

- A) slightly lower**
- B) slightly higher**

than the environment.

We know that heat will transfer from

- A) high temperature to low temperature**
- B) low temperature to high temperature**

When a window is left open on winter night,

- A) cool air**

B) warm air

escapes through these windows and an equal amount of

A) warm air

B) cool air

enters the room. So, the temperature will

A) increase

B) decrease

further.

So, they feel

A) uncomfortable

B) comfortable

2. Suppose your normal body temperature were lower than what it is.

How would the sensation of hot and cold change?

If the normal body temperature, (

A) 98.6°F

B) 273.15°F

C) 37°F

D) 0°F

) is lower than what it is, then it is called

A) hyperthermia

B) hypothermia

In such a case, the body feels

A) cold sensation

B) hot sensation

When we are too cold, our blood vessels

A) bulge

B) narrow

This

A) increases

B) reduces

blood flow to our skin to save body

A) heat

B) cold

We may start to shiver. When the muscles tremble this way, it helps to make

A) more heat

B) more cold

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3. Questions based on Higher Order Thinking Skills - II (7 m.)

If you heat a circular disk with a hole, what change do you expect in the diameter of the hole?

Remember that the effect of heating increases the separation between any pair of particles.

If I heat a circular disk with a hole the diameter of the hole will

- A) decrease
- B) increase

Because

- A) thermal contraction
- B) thermal expansion

takes place when we heat the disk.

When we heat the objects, the molecules within the object are moving at a

- A)** faster rate
- B)** slower rate

. The object's temperature will

- A)** decrease
- B)** increase

due to the

- A)** increase
- B)** decrease

in the movement of the molecules. The object

- A)** contracts
- B)** expands

because the

- A)** increase
- B)** decrease

in the molecule's energy

- A)** creates more vibrations and movements
- B)** reduces molecule's movements

, usually

- A)** creating more distance between themselves
- B)** closer together

.

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