

will begin to descend in the small tube, and will continue to do so until the thermometer marks 4°C . If a lower temperature be then reached, the water will ascend in the tube. This experiment shows that water has its greatest density at 4°C .

8. (a) Take a beaker of water and place it over a gas flame until the water begins to boil. Remove the flame and the water will stop boiling. Now place the beaker under the receiver of an air pump and exhaust the air. The water will soon begin to boil again, showing that the removal of the air permits the water to boil at a lower temperature.

8. (b) Take 20 grams of shot and 20 grams of water. Let the temperature of the water be 20°C . Heat the shot in a test tube to 100°C , and then put in the water and say the resulting temperature is 22°C .

Then heat lost by shot = 20 (100 - 22) (specific heat).

And heat gained by water = $20 \times 2 \times 1$.

Therefore, if x = specific heat of shot $20 \times 78 \times x$ is equal to 40 or $x = \frac{40}{20 \times 78}$.

$$\frac{40}{20 \times 78} = \frac{1}{39} = .025.$$

Specific heat of shot is .025.

ENGLISH DEPARTMENT.

FOR ENTRANCE.

I.

Analyse the following simple sentences :

1. *There* is still in existence a part of the seminary *built during* his administration.

2. *Meanwhile* several of the prisoners, *taking* advantage of the general alarm and confusion *caused* by the explosion, had succeeded in *making* their escape from the fort.

3. *In* his dim chapel *day* by *day*
The organist was *wont* to play,

And *please* himself with fluted reveries.

II.

Write out in full the subordinate clauses in the following sentences, and tell the kind and relation of each :

1. The head is so peculiarly formed that the ball either passes over the brain, or lodges in the solid bones and cartilages that contain the roots of the tusks.

2. Before he wrote the sketch of Rip Van Winkle he had never visited that part of the Catskills where Rip was supposed to live.

3. Thy grasp is welcome as the hand Of brother in a foreign land ;
Thy summons welcome as the cry That told the Indian isles were nigh

To the world-seeking Genoese.

III.

1. Parse the italicised words in the three sentences of I.

2. Give all the infinite forms of *wrote*, telling which are active and which are passive.

3. Tell what changes take place when a verb in a sentence is changed from the active to the passive, and give two sentences illustrating your answer.

4. Give all the separate inflections of *know*, *who*, *child*, *lazy*.

5. Form nouns from *part*, *please*, *form*, *solid*, *hand*, *foreign*.

6. Write sentences using *off* and *on* as prepositions ; *up* and *dowr* as adverbs ; *since* and *till* as conjunctions ; *there* and *now* as nouns ; *far* and *near* as adjectives.

7. Correct any grammatical errors in the following sentences, giving your reason in each case :

(a) Please, sir, can't Tom and me go when we finish this?

(b) She don't seem to care who she gets it from.