

**VARADHI
HIGH SCHOOL LEVEL
CLASS - 10**

**SCIENCE
WORKBOOK**



**State Council of Educational Research & Training
Amaravati, Andhra Pradesh**

Heat

Class X

Work Sheet-1

Date: _____

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I. Fill in the blanks.

- 1) Temperature is a measure of _____
- 2) Average kinetic energy of the molecules is directly proportional to _____
- 3) 1 Calorie = _____ Joule
- 4) Match the following quantities with their units

<u>Quantity</u>	<u>Unit</u>
P) SI Unit of Heat	() x) Kelvin
Q) CGS Unit of Heat	() y) Calorie
R) SI Unit of Heat	() z) Joule
	w) Degree Celsius

II. Answer the following in one sentence.

- 5) What is heat?

- 6) Define calorie?

- 7) Convert 27°C into Kelvin scale

- 8) Mention one difference between heat and temperature

III. Read the passage and answer the questions given under.

A cylindrical transparent jar contains, half filled with hot water (60°C) and other half with coconut oil (room temperature) two thermometers are kept one in water and the other in coconut oil.

- 9) What change is observed in the thermometer readings?

- 10) Which liquid loses heat energy?

III. Read the passage and answer the questions.

If the specific heat is high, the rate of rise or fall in temperature is low same quantity of heat supplied.

Substance: copper, aluminum, ice, water

Specific heat: 0.095, 0.21, 0.5, 1 (cd/g°C)

9) Which substance is used as coolant in radiator?

10) Why copper is preferred in the bottom of vessels?

Heat

Class X

Work Sheet-3

Date: _____

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I. Fill in the blanks.

- 1) The apparatus used to find specific heat of solved is _____
(Calorimeter, voltmeter, am meter)
- 2) According to principal of method of mixtures, net heat lost = _____
- 3) If the temperature of cold sample is 30⁰c and the temperature delta _____
- 4) Temperature of the hotter sample is 96⁰c; temperature of the mixture is 36⁰c,
then change in temperature is _____

II. Answer the question in one or two sentences.

- 5) Write the principal of method of mixtures

$$\Delta t =$$

- 6) What are the materials required in an experiment to find specific heat of solid

- 7) What would be the find temperature of a mixture of 50g of water at 20⁰c and
50g of water art 40⁰c ? ()

III) Read the passage, answer the questions given in an experiment to find specific heat of solid, according to method of mixture.

Heat lost by solid = heat gain by calorimeter + heat gain by water

8) Mention the cold body / bodies ?

9) Frame a question on this experiment ?

10) What is the use of starrer in the experiment ?

Heat

Class X

Work Sheet-4

Date: _____

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I. Fill in the blanks.

- 1) The process of escaping of molecules from the surface of a liquid at any temperature is called _____
- 2) _____ is the reverse process of evaporation.
- 3) _____ is a cooling process
- 4) Sultriness in summer is due to _____

II. Match the following.

- | | | |
|---------------------------------------|--------|-------------|
| 5) p) amount of water vapour in air | () | x) dew |
| q) water droplets condensed on grass | () | y) humidity |
| r) water droplets floating in the air | () | z) fog |

III. Answer the following questions.

- 6) What is evaporation?

- 7) What is condensation?

- 8) Mention the factors on which rate of evaporation depends upon ?

- 9) What happens to water when wet clothes dry ?

- 10) Write the differences between evaporation and condensation

Heat

Class X

Work Sheet-5

Date: _____



I. Fill in the blanks.

- 1) During melting or boiling process, its temperature _____
- 2) SI unit of latent heat is _____
- 3) The latent heat of fusion of ice is _____
- 4) Ice floats on water because _____

II. Match the following.

5) Phase change (at constant temperature)		Process
p) liquid to gas	()	x) freezing
q) solid to liquid	()	y) boiling
r) liquid to solid	()	z) melting

III. Answer the following questions.

- 6) What is the difference between latent heat of vaporization and fusion?

- 7) What is the boiling ?

- 8) Define melting ?

- 9) What is freezing ?

- 10) Calculate the required heat energy to convert 10g of ice at 0°C to water at 0°C
(latent heat of fusion of ice = 80cal/g)

Acids, Bases and Salts

Class X

Work Sheet-1

Date: _____

=====

I. Fill in the blanks.

- 1) Acids are _____ to taster
- 2) Bases turns _____ litmus to blue
- 3) In acidic medium the colour of methyl orange is _____
- 4) Pick the odd one from the following (Methyl orange, Phenolphthalein, clove oil, litmus solution)

II. Answer the following in one sentences.

- 5) Give two examples for natural acid base indicators.
- 6) Name the oftenly used acidbase indicators used in the laboratory.
- 7) Define olfactory indicator.
- 8) What is the colour of phenolphthalein indicator in acidic and basic media.

III. Read the passage and answer the questions given under.

Take few millilitres of dilute HCl in one test tube and dilut NaOH in another test tube. Add a drop of vanilla essence to both test tubes and stirr well with glass rod.

- 9) What is the odan in the test tubes?
- 10) Give few examples for olfactory indicators.

Acids, Bases and Salts

Class X

Work Sheet-2

Date: _____

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I. Fill in the blanks.

- 1) When acid reacts with metal hydrogen carbonate _____ gas evolved
- 2) Metal carbonate + Acid \rightarrow _____ + _____ + water
- 3) The correct observation in the reaction acid vs metal is
 - a) CO_2 gas evolved
 - b) Zinc turns to black
 - c) Zinc oils appears
 - d) No gas evolved
- 4) Acid vs metal : $\text{H}_2 :: \boxed{\phantom{\text{Zn}}}$: CO_2

II. Answer the following in one sentences.

- 5) How do you test the evolved gas when acid reacts with metal?

- 6) What would be the colour of the precipitate formed, when CO_2 passed through lime water.

- 7) Write a balanced chemical equation for the reaction between NaOH and Zinc granules

- 8) List the apparatus required to test the reaction between acids and metal carbonates.

- 9) What happens on passing of excess of CO_2 into lime water?

- 10) Predict the products when zinc granules are treated with nitric acid (HNO_3)

Acids, Bases and Salts

Class X

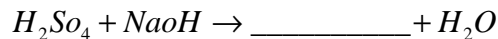
Work Sheet-3

Date: _____
=====**I. Fill in the blanks.**

- 1) The chemical nature of non - metallic oxide is _____
- 2) _____
- 3) Newtralization reaction is an exaple for _____ reaction
(exothermic, endothermic, redox)
- 4) Both matallic oxides and non-metallic oxides given _____ and _____
when treated with acids.

II. Answer the follwing in one sentences.

- 5) Write a generalized equation for acid - base newtralization reaction
- 6) What are the products when metallic oxide reacts with acid?



- 7) What is the chemical nature of metellic oxide?
- 8) Write a balanced chemmicel equation for the reaction between Copper oxide and Hcl.

III. Read the passage and answer the questions given under.

Take 2ml of oil. NaoH solution in a test tube and add one drop of phenolphshalen indicator. Colour change took place. Then add oil. Hcl solution to the above solution drop by drop the colour appears. Now add few drops of NaoH solution, again the mixture gains its colour.

- 9) What would be the colour of NaoH Solution when phenolphthalein indicator is added?
- 10) Why the colour appear when oil. Hcl Solution added to the mixture?

Acids, Bases and Salts

Class X

Work Sheet-4

Date: _____

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I. Fill in the blanks.

- 1) The common element in all the acids is _____
- 2) The acidity of acids is attributed to the _____ produced by them in solutions.
- 3) In water acids produce _____
- 4) Dilution of acid or base is an example for _____ reaction.
- 5) To remove from the gas _____ is used as a
- 6) What happens when water is added to concentrated acid?

- 7) Dry hydrogen chloride (HCl) could not change the colour of the blue litmus paper.
Why?

- 8) Define alkali. Give an example.

- 9) What is Di.....tion of acid or base?

- 10) Name the acid produced when H_2SO_4 reacts with solid NaCl and write a balanced chemical equation for this reaction.

Acids, Bases and Salts

Class X

Work Sheet-5

Date: _____

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I. Fill in the blanks.

- 1) pH of acid rain is _____
- 2) The oftenly used antacid is _____
- 3) I present in the sting of honey bee and caused irritation and pain. Guess who am I?
- 4) In a pH scale. moving towards left, then strength of acids _____
(decreases, increases, remains same)
- 5) Match the sample from Set - A with its pH given in set - B.

Set - A

- i) Strong basic
- ii) weak acid
- iii) strong acid
- iv) natural solution

Set - B

- p) 7
- q) 2
- r) 14
- s) 16

II. Ansewr thr question in one or two sentences.

- 6) Name the indicator that used to know the strength of acid or base.

- 7) What is the chemical nature of tooth paste? How is prevents tooth decay?

- 8) What is the colour at the universal indicator for the pH values
i) 5 ii) 9 iii) 13 iv) 3
- 9) If H^+ ions concetration is 10^{-4} , what would be the concentration of OH^- ions?

- 10) Define pH scale.

Acids, Bases and Salts

Class X

Work Sheet-6

Date: _____

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I. Fill in the blanks.

- 1) Salts are formed by the _____ reaction of base with acid.
- 2) The pH Value if a natural solution is _____
- 3) Baking powder is a mixture of _____ and baking soad.
- 4) To remove permanent hardness of water _____ is used.
- 5) Match the sample from Set - A with its pH given in set - B.

Set - A

Set - B

- | | |
|------------------------|-----------------------------|
| i) Mild base | p) NaHCO_3 |
| ii) Cleaning agent | q) Na_2CO_3 |
| iii) Fire extinguisher | r) CaOCl_2 |

II. Ansewr thr question in one or two sentences.

- 6) What is bride solution?
- 7) What are the products in colour - Allcali process?
- 8) How does baking powder make the cake soft and spings?
- 9) Write any two uses of bleaching powder.
- 10) Give any tgwo example for natural salts.

