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**The City School**

**North Nazimabad Boys Campus**

**Physics**

**Senior 10**

**Topic:Thermal physics(Worksheet)**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Max marks20

sec **\_\_\_\_\_\_** Time 25 min

**1(a)** Some water is poured onto a plastic table-top, forming a puddle. The same

 volume of water is poured into a plastic dish, which is placed alongside the puddle.

This is illustrated in Fig. 1.1

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**Fig. 1.1**

Both lots of water begin to evaporate.

**(i)** In terms of the behavior of molecules, describe what happens during the process

of evaporation.

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**(ii)** Explain why the puddle dries out more rapidly than the water in the dish.

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**(iii)** State two changes that would make both lots of water evaporate more rapidly.

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**(b)** In a place where refrigeration is not possible, a person attempts to keep a

 bottle of milk cool by using the procedure illustrated in Fig. 1.2.

**Fig. 1.2.**

Explain in terms of molecules why this procedure would be successful.

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**2(a)** State two differences between evaporation of water and boiling of water.

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**(b)** The specific latent heat of vaporization of water is 2260 kJ / kg.

Explain why this energy is needed to boil water and why the temperature of the water

does not change during the boiling.

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**(c)** A laboratory determination of the specific latent heat of vaporization of water uses a

120 W heater to keep water boiling at its boiling point. Water is turned into steam at the rate of 0.050 g / s.. Calculate the value of the specific latent heat of vaporization obtained from this experiment. Show your working.

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specific latent heat of vaporization = ................................................................... [3]

**3** Fig.3.1 shows a thermocouple set up to measure the temperature at a point on a solar panel.



**Fig.3.1**

**(a)** X is a copper wire.

**(i)** Suggest a material for Y.

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**(ii)** Name the component Z.

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**(b)** Explain how a thermocouple is used to measure temperature.

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**(c)** Experiment shows that the temperature of the surface depends upon the type of

surface used.Describe the nature of the surface that will cause the temperature to

rise most.

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