VISWABHARATI - GUDIVADA

WORK SHEET-1

Chapters: Heat

Class: X **Time: 1 ½ Hr**

Subject: Physics **Max.Marks: 50 M**

Name_____ Class/Sec: _____ Roll No: _____

I. Answer all the questions. Each Question carries half mark.

1. The factors directly proportional to the amount of heat conducted through a metal rod is
   A) Time of flow of heat B) Area of cross section
   C) Temperature gradient D) All the above
2. 1 gm of ice at 0^0C is mixed with 1 gm of steam at 100^0C. After thermal equilibrium, the temperature of the mixture is
   A) 0^0C B) 50^0C C) 80^0C D) 100^0C
3. Specific heat is
   A) The amount of heat conducted in 1 minute
   B) The energy needed to increase the temperature of 1 gram of substance by 1 degree Celsius
   C) The specific temperature at which the substance is in a solid state
   D) The heat needed to increase the temperature of 1 gram of water by 1 degree Fahrenheit.
4. What would happen to a hole in a metal sheet when the sheet is heated?
   A) It decreases in size B) No change is seen
   C) It increases in size D) First increases then decreases
5. When a solid, liquid or a gas changes from one physical state to another, the change is called
   A) Melting B) enthalphy C) a phase change D) sublimation
6. Compared to warm air, cool air can hold
   A) More water vapour B) less water vapour
   C) Same amount of water vapour D) Temperature unaffected
7. Measure of thermal equilibrium is _____
8. Define temperature
9. Define heat
10. Define specific heat
11. Define Calorie
12. What is the S.I unit of specific heat
13. Why does ice floats on water
14. When ice melts, its temperature
    A) Increases B) Decreases C) Remains constant D) Cannot say
15. Boiling point of water at normal atmospheric pressure in Kelvin scale? _____
16. The temperature of a steel rod is 330 k. Its temperature in ^{0}C is _____
    A) 55^0C B) 57^0C C) 59^0C D) 53^0C
17. Convert 20^0C into Kelvin scale
18. Name the reverse process of evaporation
19. What is the relation between average kinetic energy of the molecules to the absolute temperature
20. Name the process of escaping molecules from the surface of a liquid at any temperature?
21. Does the temperature of the ice change during the process of melting?
22. Which of the following substance has more specific heat
    A) Lead B) Copper C) Aluminum D) Iron
23. The amount of water vapour present in air is called _____
24. During the process of conversion from liquid to solid the internal energy of the water ……
    A) Increases B) Decreases C) remains same D) Cannot say
25. An object "A" at 10^0C and another object "B" at 10k are kept in contact. Then how heat will flow?

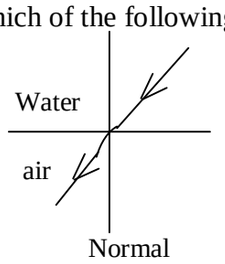
Remark:

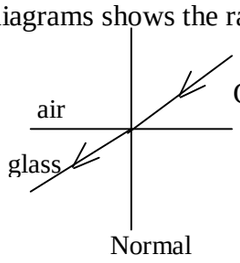
1. Why does water used as coolant in Automobiles
2. When two or more bodies at different temperatures are brought into thermal contact, then net heat lost by the hot bodies is equal to net heat gained by the cold bodies until they attain thermal equilibrium by the cold bodies until they attain thermal equilibrium.
   Name the principle involved in above situation.
3. Why do we sweat while doing work?
4. Why the water in newpot becomes cool?
5. Define Latetent heat of vapourization.

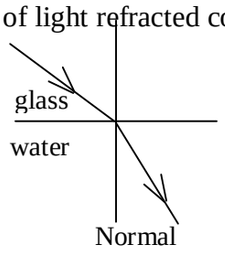
6. Define Latent heat of fusin
7. How much heat is transferred when 1 gm of boiling water at 100^0C cools to water at 0^0C?
8. How can you differentiate temperature from heat?
9. Why is the specific heat different for different substances?
10. Explain freezing?
11. "Condensation is a warming process". Why?
12. What is the difference between dew and fog.
13. What happens to the water when wet clothes dry?
14. During melting the temperature of ice does not same why?
15. Are the process of evaporation and boiling the same? Why?
16. Take 100ml of water at 90^0C and 200ml of water at 60^0C and mix the two samples. What is the temperature of the mixture?
17. State the principle of method of mixtures.
18. How the rate of rise in temperature depends on the nature of the substance?
19. Why the watermelon fruit has more coolness when it is take out from the refrigerator.
20. What are the heat "store houses" for the earth?

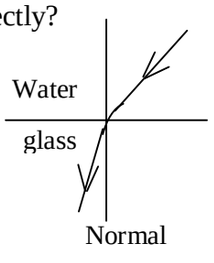
2. Refraction of light at plane surfaces

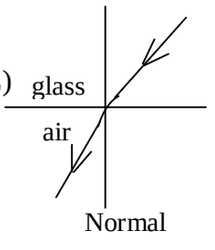
1. What is the basic principle behind working of optical fibre.
2. What is the radius of optical fibre?
3. A result of change in speed of light at the interface _____
4. Refractive index of glass relative to water is $\frac{9}{8}$. What is the refractive index of water relative to glass?
5. What is the angle of deviation produced by the glass slab?
6. $n_1 \sin i = n_2 \sin r$ is called _____
7. The refractive index of glass with respect to air is 2 then the critical angle of glass-air interface is ….
   A) 0^0 B) 45^0 C) 30^0 D) 60^0
8. The starts appear twinkling because of
   A) Total internal reflection B) Refraction
   C) dispersion D) Scattering
9. What is lateral shift
10. What is the value of speed of light in vaccum?
11. State Fermat's principle.
12. When light ray travels from a rarer medium to a denser medium the refracted ray …..
    A) bends towards the normal B) bends away from the normal
    C) retraces its path D) both A & B
13. Units of refractive index
    A) m/sex B) sec^{-1} C) m/sec^2 D) No units
14. The reason behind the shining of diamonds….
    A) Refraction B) total internal reflection
    C) Both A & B D) scattering of light
15. Write the formula to find out refractive index of the glass slab
16. What is formula for Absolute refractive index
17. What is formula for Relative refractive index?
18. What is R.I of diamond.
19. What is the critical angle of diamond.
20. What is the cause of refraction of light?
21. Which of the following diagrams shows the ray of light refracted correctly?

A) 

B) 

C) 

D) 

E) 

22. The refractive indices of kerosene, water, Rocksalt and Ruby are 1.44, 1.33, 1.54 and 1.71 respectively. In which of these material does light travel faster?

23. R.I of carbon disulphide and ethyl alcohol are 1.63 and 1.36 respectively. Which is optically denser.
24. When does refraction not possible.
25. What is refraction.

1 Mark

1. Why does the rising sum appear oval and bigger
2. A coin in a glass beaker appear to rise as the beaker is slowly filled with water. Why?
3. R.I of glass is $\frac{3}{2}$. What is the speed of light in glass?
4. Why does a ray of light bend when it travels from one medium to another medium.
5. Light travels faster in water than glass
   a) Which is optically denser?
   b) When light travelling from glass to water, how it will be bend.
6. When a vertical ray of light strikes the horizontal surface of some water, what is the angle of refraction in this condition.
7. Write the laws of refraction
8. Write snell's law.
9. Observe the table answer the following questions

Medium	A	B	C	D
R.I	1.33	1.44	1.52	1.65

   a)In which medium speed of light is maximum.
   b) In which medium angle of refraction is minimum.

10. A light ray travelling from medium (1) to medium (2). Its velocity in second medium is double that in medium (1). For the phenomenon of total internal reflection (1). For the phenomenon of total internal reflection to take place angle of incidence must be greater than a certain value, what is the value?
11. The propagation of light from one medium to another medium is given below.
    A) Air to water B) Air to glass C) Water to glass D) Glass to water
    In which situation/s. We can observe total internal reflection.
12. A glass slab of thickness 18 cm and refractive index of $\frac{3}{2}$ is placed on a printed matter. Then find the vertical shift?
13. What is mirage
14. When does snell's law fail
15. What is critical angle
16. Why do stars appears twinkling?
17. Why is it difficult to shoot a fish swimming in water
18. On what factors does the refractive index of a medium depend?
19. Give an example for refractive index of a medium varies throughout the medium.
20. Give two applications of refraction of light.