

Class – XI

St. Lawrence High School A Jesuit Christian Minority Institution <u>Term : 2nd</u> Work Sheet – 32 Subject – Physics



 $1 \times 15 = 15$

Date –21 .11.20 Topic – Viscosity & Thermal expansion

Choose the correct option for the following questions.

Chapter - Bulk Properties of Matter

1.	A body achieves termi a. Gravity	nal velocity due to b. viscosity	c. Buoyancy	d. All of these together	
۷.	n me facilità of a splici	h Halvad	a four times	d como os hoforo	
	a. Doubled	b. Halved	c. four times	d. same as before	
3.	The viscous frictional				
	a. Independent of its	velocity	b. difectly pro	portional to its velocity	
	c. inversely proporti	onal to its velocity	d. None of the	ese	
4.	A small metal ball of diameter 4mm and density 10.5g/cm ³ is dropped in glycerine of density 1.5g/cm ³ . The battains a terminal velocity of 8cm/s. The coefficient of viscosity of glycerine is (in poise)				
	a. 4.9	b. 9.8	c. 98	d. 980	
5.	A river 10m deep is $10^{-3}in SI unit$ a. $10^{-3} N/m^2$ b. $0.8 \times 10^{-3} N/m^2$ c. $0.5 \times 10^{-3} N/m^2$ d. $1N/m^2$	flowing at 5m/s. The	shearing stress between horizor	ntal layers of the river is (η =	

6. A spherical ball falls through viscous medium with terminal velocity v. if this ball is replaced by another ball of same mass but half the radius, then the terminal velocity will be (neglect the buoyancy)
a. V b. 2v c. 4v d. 8v

7. A solid sphere falls with terminal velocity 20m/s in air. If it is allowed to fall in vacuum, its terminal velocity will be

c. less than 20m/s d. none of these

8. A brass rod when heated through 80° C increases in length by 0.0032m. The coefficient of linear expansion of the brass is

a. $0.00002/{}^{0}C$ b. $0.0004/{}^{0}C$ C. $0.003/{}^{0}C$ d. $0.0006/{}^{0}C$

9. A steel wire of uniform area 0.000002 m² is heated upto 50^oC and is stretched by tying its end rigidly. The change in tension when temperature falls from 50^oC to 30^oC is ($Y = 2 \times 10^{11} N/m^2$, $\alpha = 1.1 \times 10^{-5}/°C$) a. $1.5 \times 10^{10} N$ b. 5N c. 88 N d. $2.5 \times 10^{10} N$

10.	A rectangular block is increase in its volume is	heated from 0° C to 100° C.	the percentage increase i	n length is 0.3%. the percentage			
	a. 0.3%	b. 0.2%	c. 0.4%	d. 0.9%			
11.	. A sheet of metal 0.5m long and 0.2m broad at 0^0C is heated to 100°C. The area of surface increases by $2.8 \times 10^{-4}m^2$. The α of the material is						
	a. 1.9×10^{-5} /°C	b. 1.4×10^{-5} /°C	c. 2.9 × 10 ^{−5} /°C	d. 4×10^{-5} /°C			
12.	Railway lines are laid wi temperature at which lin a. 40°C	th gaps. If the gap between st nes touch is ($lpha=12 imes10^{-6}$ / b. $60^\circ\mathrm{C}$	ceel rails 0.5m long be 0.0 '°C) c. 70°C	3m at 30°C, then the d. 80°C			
13.	A hole is drilled in a copper sheet of diameter 0.052m at 30°C. The change in diameter when temperature is increased to 330°C is ($\alpha = 1.7 \times 10^{-5}$ /°C)						
a.	$4.22 \times 10^{-5} m$	b. 2.65× $10^{-5}m$	c. 5.3× $10^{-5}m$	d. 2.65 $\times 10^{-4} m$			
14. a.	An iron tyre is to be fitte than that of the wheel. 209.4°C	ed on a wooden wheel of diar Femperature by which iron ty b. 418.8°C	neter 1.2m. The diameter re is to be heated ($lpha=1$ c. 420.6°C	r of the tyre is0.006m smaller 2 × 10 ⁻⁶ /°C) d. 416.7°C			

15. If the volume of a block of metal changes by 0.18% when heated through 30°C, then its α is

a.	4×10^{-5} /°C	b. 6× 10 ^{−5} /°C	c. 3×10 ^{−5} /°C	d. 2× 10 ^{−5} /°C
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Name of the teacher – Soumitra Maity