M. G.V.C.ARTS, COMMERCE AND SCIENCE COLLEGE MUDDEBIHAL

DEPARTMENT OF PHYSICS
LIST OF SLOW LEARNERS

(Identified on the basis of PUC-II year result- below 70%)

FOR THE YEAR 2023-24 Class- B.Sc -I SEMESTER

Sl. No	Reg. No	Name of the student	% of marks (puc-II year)
1	U15NU23S0056	Shweta Hongaragi	55%
2	U15NU23S0048	Soumya Hallur	55%
3	U15NU23S0013	Vinod Angadi	56%
4	U15NU23S0046	Soujanya Biradar	65%
5	U15NU23S0058	Laxmi Hosamani	60%
6	U15NU23S0041	Bhoomika Ingalagi	66%
7	U15NU23S0032	Neha Lamani	66.33%
8	U15NU23S0047	Bibiayisha Attar	66%
9	U15NU23S0009	Mubeena Mulla	66%
10	U15NU23S0070	Muskan Lakkadahara	66%

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DEPARTMENT OF PHYSICS

NOTICE

Date: 05.11.2023

The following students of B.Sc. I Semester selected for remedial cases are here by informed to attend the classes commencing from 08-11-2023 without fail.

Sl. No	Reg. No	Name of the student
1	U15NU23S0056	Shweta Hongaragi
2	U15NU23S0048	Soumya Hallur
3	U15NU23S0013	Vinod Angadi
4	U15NU23S0046	Soujanya Biradar
5	U15NU23S0058	Laxmi Hosamani
6	U15NU23S0041	Bhoomika Ingalagi
7	U15NU23S0032	Neha Lamani
8	U15NU23S0047	Bibiayisha Attar
9	U15NU23S0009	Mubeena Mulla
10	U15NU23S0070	Muskan Lakkadahara

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Headlines of Topics dealing in Remedial Classes

(FOR SLOW LEARNERS) Year 2023-24

1: Surface Tension

- Definition of surface tension, Angle of contact, Surface energy,
- relation between surface tension and surface energy,
- Pressure difference across curved surface.
- Excess of pressure inside spherical liquid drop, Capillary rise, derivation of expression for rise of liquid in a capillary tube.
- Determination of surface tension by Quinke's method.
- Effect of temperature, impurity on surface tension.

2: Viscosity

- Streamline flow, turbulent flow, equation of continuity,
- determination of coefficient of Viscosity by Poisulle's method,
- Stoke's law with derivation and expression for terminal velocity.
- Effect of temperature on viscosity.

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Department of Physics

Statement of Remedial Class Time Table for Slow Learners for the year 2023-24

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4.00 PM To 5.00 PM	Physics ABK	-	Physics AIA	-	Physics SMN	-
5.00 PM To 6.00 PM	-	Physics SNP	-	-	-	-

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Strategies for Slow learners 2023-24

1. Conducting Special classes
2. Supplying Study materials
3. Revising the concepts
4. Conducting tests

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NOTICE

Date: 30.11.23

The students of B.Sc. I Semester (Slow learners) are here by informed to attend the Test on 02-12-2023 without fail.

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DEPARTMENT OF PHYSICS

QUESTION PAPER FOR SLOW LEARNERS 2023-24

Class: B.Sc. I semester Date: 02-02-2024

Time : 4.00 to 5.00 PM Max marks: 20M

Answer the following questions (each question carries 4mark)

1. Derive an relation between Surface tension and surface energy.
2. Derive an excess pressure inside spherical drop
3. Explain Stoke's law
4. What is viscosity? Explain it's types
5. Derive an expression for terminal velocity

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DEPARTMENT OF PHYSICS

STATEMENT OF TEST MARKS (SLOW LEARNERS)

FOR THE YEAR 2023-24 **Class- B.Sc -I SEMESTER**

Sl. No	Reg. No	Name of the student	Max marks	Marks obtained
1	U15NU23S0056	Shweta Hongaragi	20	18
2	U15NU23S0048	Soumya Hallur	20	19
3	U15NU23S0013	Vinod Angadi	20	19
4	U15NU23S0046	Soujanya Biradar	20	17
5	U15NU23S0058	Laxmi Hosamani	20	18
6	U15NU23S0041	Bhoomika Ingalagi	20	17
7	U15NU23S0032	Neha Lamani	20	19
8	U15NU23S0047	Bibiayisha Attar	20	18
9	U15NU23S0009	Mubeena Mulla	20	18
10	U15NU23S0070	Muskan Lakkadahara	20	18

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MATOSHRI GANGAMMA VEERAPPA CHINIWAR
ARTS, COMMERCE & SCIENCE COLLEGE MUDDEBIHAL.
DEPARTMENT OF PHYSICS
ATTENDANCE OF SLOW LEARNERS FOR THE YEAR 2023-24

Sl.No	Name of the Student	8/11/23	09/11	10/11	11/11	13/11	14/11	15/11	16/11	17/11	18/11	20/11	21/11	22/11	23/11	24/11	25/11	26/11	27/11	28/11	29/11	30/11	01/12	02/12	Test
1	Shweta Hongargi																								
2	Soumya Hallur	S.SH	S.SH	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H	S.S.H
3	Vinod Angadi																								
4	Soujanya Biradar																								
5	Laxmi Hosamani																								
6	Bhoomika Ingalagi																								
7	Neha Lamani																								
8	Bibiayisha Attar																								
9	Mubeena Mulla																								
10	Muskan																								

19/20

STUDENTS NAME :		TOTAL MARKS OBTAINED
CLASS :	SUBJECT :	
ROLL NO. :	DATE :	

ಮಾತೋಶ್ರೀ ಗಂಗಮ್ಮ ವೀರಪ್ಪ ಬಿನಿವಾರ
ಪದವಿ ಮಹಾವಿದ್ಯಾಲಯ, ಮುದ್ದೇಬಿಹಾಳ.

ಪರೀಕ್ಷೆ-20 20

ಆಸನ ಸಂಖ್ಯೆ: U1CNU23SC0048 ದಿನಾಂಕ:.....

ವಿಷಯ: Physics ಪಡೆದ ಗುಣಗಳು: .....

ವಿದ್ಯಾರ್ಥಿಯ ಸಹಿ:..... ಪರೀಕ್ಷಕರ ಸಹಿ:.....

2) A spherical drop has a convex surface as shown in fig (d). The molecules on the surface experiences a resultant force acting inwards due to surface tension. Hence pressure within the drop is greater than the pressure outside the drop by an amount 'P'. Now consider the equilibrium of the upper half of the drop as shown in fig (e). There are two forces acting on it.

4

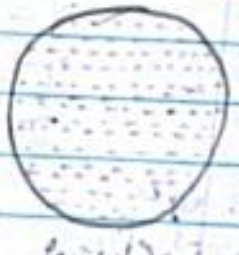

fig (d)

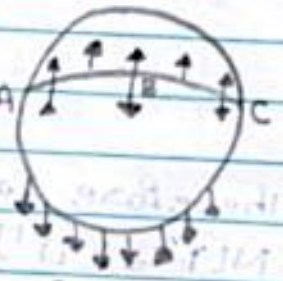

fig (e)

i) The upward force on the plane face ABCD due to the excess pressure in the other half. If r is the radius of the drop. then the upward force.
$= P \times \pi r^2$ (Force = Pressure × Area).

ii) The downward force due to surface tension acting round the edge of the circle ABCD. If T is the surface tension then this force.
$= T \times 2\pi r$ $\because F = T \times L$.
$= T \times$ circumference.

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If we neglect the weight of the drop. The hemisphere is in equilibrium under the action of these two forces.

$P \times \pi r^2 = T \times 2\pi r$

$P = \frac{2T}{r}$

Similarly, pressure inside a air bubble surrounded by a liquid

$P = \frac{2T}{r}$

3) Stoke's law.

The viscous force F experienced by a falling sphere in a viscous liquid depend on the terminal velocity 'v' of the ball. The radius 'r' of the ball and the coefficient of viscocity of a liquid.

viscous force

$F = k v^a r^b \eta^c$

where 'k' is a dimensionless constant

The dimensional formula for $F = MLT^{-2}$

$v = LT^{-1}$

$\eta = ML^{-1}T^{-1}$

$r = L$.

Therefore from above eqn.

$MLT^{-2} = (LT^{-1})^a L^b (ML^{-1}T^{-1})^c$.

$MLT^{-2} = M^c L^{a+b-c} T^{-a-c}$

Equating the power of M, L and T on either side on comparing dimension of

$M^c = 1$ comparing the dimension of T,

$-a - c = -2$

$a + c = 2$

$a = 2 - c = 2 - 1 = 1$

Comparing the dimension of L.

$a + b - c = 1$

$b = 1 + c - a = 1 + 1 - 1 = 1$

$\therefore F = k v r \eta$

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STUDENTS NAME :		TOTAL MARKS OBTAINED
CLASS :	SUBJECT :	
ROLL NO. :	DATE :	

where K has no dimensions. Stokes experimentally found the value of K to be 6π.

$$f = 6\pi\eta r v.$$

5) Let be ρ the density of the ball and σ be the density of the liquid, then.

The weight of the ball $= \frac{4}{3}\pi r^3 \rho g$.

The weight of the displaced liquid or the up trust on the ball $= \frac{4}{3}\pi r^3 \sigma g$.

The apparent weight of the ball = [weight of the ball] − [the weight of the displaced liquid]

$$= \frac{4}{3}\pi r^3 g(\rho - \sigma).$$

when the ball attain its terminal velocity V,

The apparent weight of the ball = viscous force

$$\therefore 6\pi\eta r v = \frac{4}{3}\pi r^3 (\rho - \sigma) g.$$

$$v = \frac{2}{9}\frac{r^2}{\eta}(\rho - \sigma) g.$$

4) Viscosity: the property of a liquid by virtue of which it tends to resist relative motion, between different layers of is called viscosity.

* streamline. * Turbulent flow.

* Streamline: If a liquid flows such that its velocity at a point is always the same in magnitude & direction, the fluid is said to have steady or stream line flow.

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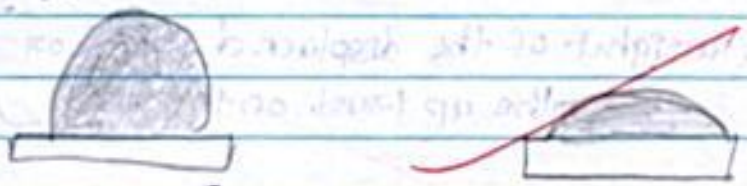
* Turbulent flow: The stream line flow break down The flow is said to be unsteady. Turbulent flow can be easily seen when a solid object is moved a solid object is moved through a liquid is allowed to flow across when a stationary objects at small velocity then flow is streamline.

is surface energy:
It is the amount of work done to increase the surface area of liquid is called surface energy.

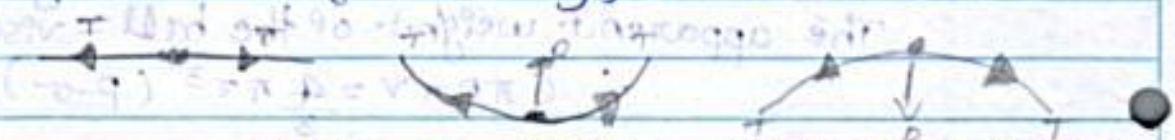
low surface energy



Relation between surface energy and surface tension

$$\text{Surface Tension} = \frac{\text{Surface Energy}}{\text{Increase in area}}$$

Thus the surface tension is numerically equal to the surface energy per unit area



excess of pressure across a liquid surface

* When the liquid is plane, there is no component of the force due to surface tension in a direction perpendicular to the surface of the liquid. Therefore the resultant force of surface tension on a molecule on the surface is zero.
* When the liquid surface is concave, the direction of the resultant force of surface tension is upwards

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