C. ABDUL HAKEEM COLLEGE (AUTONOMOUS),
MELVISHARAM - 632 509.
SEMESTER EXAMINATIONS, NOVEMBER - 2018

B.Sc., MATHEMATICS & CHEMISTRY **SEMESTER I**

U18APH101 – PHYSICS - I (ALLIED)

Time: Three Hours Maximum: 75 Marks

SECTION - A (10 X 2 = 20 Marks)

Answer **ALL** Questions.

1. What is Poisson's ratio?
2. Define surface tension of a liquid.
3. State Kepler's laws of planetary motion.
4. What is metacenter?
5. Write some applications of low temperatures.
6. Define coefficient of thermal conductivity.
7. State the principle of a capacitor.
8. What are the properties of a paramagnetic material?
9. What is piezoelectric effect?
10. Define absorption coefficient.

SECTION - B (5 X 5 = 25 Marks)

Answer **ALL** Questions.

11. a) Write the theory of non-uniform bending.

(Or)

b) Explain Jaeger's method of determination of surface tension of a liquid.

12. a) Explain the principle and working of a venturimeter.

(Or)

b) State Newton's law of gravitation. Derive an expression for the mass and mean density of the earth.

13. a) Derive an expression for the efficiency of a Carnot's engine.

(Or)

b) Describe the Onnes method of liquefying Helium.

14. a) How is an ammeter calibrated using a potentiometer? Explain.

(Or)

b) What is magnetic permeability? State the properties of a diamagnetic and ferromagnetic materials.

15. a) Explain the method of production of ultrasonic waves by piezo electric method. Mention its uses.

(Or)

b) Define reverberation time and Sabine's formula. What are the factors affecting the acoustics of buildings?

SECTION - C (3 X10 = 30 Marks)

Answer **ANY THREE** Questions.

16. Derive Poiseuille's formula for the rate of flow of liquid through a capillary tube.
17. Describe the Boy's method of determining the Gravitational constant.
18. Explain the construction and working of a Diesel engine. Also derive an expression for its efficiency.

19. Explain magnetisation. Derive the relation between the three magnetic vectors B, H and M.
20. State the laws of transverse vibration of stretched strings. Explain the verification of the laws with a sonometer.

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