

UNDERGRADUATE END SEMESTER EXAMINATION - OCTOBER 2025**SEMESTER 5 : PHYSICS (OPEN COURSE)****COURSE : 19U50CPHY1 : PHYSICS IN DAILY LIFE***(For Regular 2023 Admission and Supplementary 2022/2021/2020/2019 Admissions)*

Time : Three Hours

Max. Marks: 75

PART A**Answer any 10 (2 marks each)**

1. Define electric power.
2. Does the light speed up or slow down in glass? Comment.
3. What is hydroelectric power generation?
4. What is a satellite? Name the two different types of satellites?
5. Briefly explain apparent weight of an object.
6. Draw a neat diagram showing the dispersion of white light by a prism.
7. Give the relation between the following: i) kgF and N and ii) N and dyne.
8. What is meant by albedo?
9. What is meant by order of magnitude of a physical quantity? Give one example.
10. Mention any two applications of superconductivity?
11. Why does the rising sun appear bigger?
12. What is the Fahrenheit equivalent of 80°C ?

(2 x 10 = 20)**PART B****Answer any 7 (5 marks each)**

13. As a phonograph record turns, a certain groove passes the needle at 25 cm/s. If the wiggles in the groove are 0.1 mm apart, what is the frequency of the sound that results?
14. A flywheel whose moment of inertia is 5 kg m^2 is acted upon by a constant torque of 70 N-m. (a) What is its angular acceleration? (b) How long does it take to go from rest to a velocity of 90 rad/s?
15. State and prove theorem of perpendicular axes in moment of inertia.
16. An object is kept at a distance of 15 cm from a plane mirror. The mirror is moved 5 cm towards the object and simultaneously object is moved 2 cm away from the mirror. Find i) the distance between the new positions of the image and object? ii) distance between old position of the object and new position of the image?
17. A 900-kg car rounds a turn of radius 25 m at a velocity of 8 m/s. (a) How much centripetal force is required? (b) Where does this force come from?
18. Draw the path of a light ray which falls obliquely on a glass slab.
19. The velocity of sound in seawater is 1231 m/s. Find the wavelength in seawater of a sound wave whose frequency is 356 Hz.
20. The length, breadth and height of a glass slab are respectively 50 cm, 20 cm and 2.5 cm. Find the volume of the slab in SI unit.
21. Briefly discuss the working of Microwave oven?
22. Calculate the moment of inertia of earth about its diameter, taking it to be a sphere of mass 10^{25} kg and diameter 12800 km.

(5 x 7 = 35)

PART C

Answer any 2 (10 marks each)

23. Discuss with a ray diagram, the phenomenon of dispersion of white light when pass through a prism. Also, derive an equation for refractive index of the material of an equilateral glass prism in terms of angle of the prism (A) and angle of minimum deviation (D).
 24. State and explain i) viscosity ii) capillary rise iii) Bernoulli's theorem.
 25. What do understand by the term GPS? What are its major components and briefly explain the working of GPS?
 26. Explain the terms a) moment of inertia b) torque c) centripetal and centrifugal force.
- (10 x 2 = 20)**