

# Question Paper

Exam Date & Time: 29-May-2024 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BSc. HEALTH SCIENCE DEGREE EXAMINATION - MAY 2024  
SUBJECT: BHS-204 - PHYSICS - II

Marks: 75

Duration: 180 mins.

Answer all the questions.

1. Answer the following questions:

- 1A) While making a thermometer what properties we should take care of? (2)
- 1B) What do you mean by latent heat of vaporization? (2)
- 1C) A gas is contained in a vessel fitted with a movable piston. The container is placed on a hot stove. A total of 100 Cal of heat is given to the gas and the gas does 40 J of work in the expansion resulting from heating. Calculate the increase in internal energy in the process. (2)
- 1D) Write first law of Kirchoff for circuits. (2)
- 1E) Discuss about the capacitance of a system of capacitors connected in series. (2)
- 1F) A circular coil of radius 1.5 cm carries a current of 1.5 A. If the coil has 25 turns, find the magnitude of the magnetic field at the centre. ( $\mu = 4\pi \times 10^{-7} \text{ TmA}^{-1}$ ) (2)
- 1G) Write the Lenz's law. (2)
- 1H) If a 1200 watt hair dryer is connected to a 120 Volt line, how much current will it draw? (2)
- 1I) What is the difference between Direct current (DC) and Alternating current (AC)? (2)
- 1J) Explain the following terms with reference to lasers: (2)
- a) Spontaneous emission
  - b) Stimulated emission
- 1K) Define radioactivity. (2)
- 1L) What are Isotopes? Give example. (2)
- 1M) What are x-rays? (2)
- 1N) Write Einstein's Photoelectric equation. (2)
2. Answer the following questions:
- 2A) During winter how the life inside a frozen lake is saved? (3)
- 2B) Explain mutual inductance. (3)

2C) A rock of mass 50 g is thrown with a speed of 40 m/s. What is its de-Broglie wavelength? (3)

2D) Explain the principle of laser with a neat diagram. (3)

3. Answer the following questions:

3A) Draw neat circuit diagram of a Wheatstone bridge and explain it's working. (5)

3B) Explain the working of Nuclear fission reactor with necessary diagram. (5)

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