

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BSc. HEALTH SCIENCE DEGREE EXAMINATION - JULY 20223 SUBJECT: BHS-204 - PHYSICS - II (MAKEUP)

Marks: 75

Duration: 180 mins.

1.. Answer the following questions briefly.

- 1A) The pressure of the gas in a constant volume thermometer at steam point 373.14 K is 1.50×10^4 Pa. What will be the pressure at triple point of water? (2)
- 1B) What is specific heat capacity? (2)
- 1C) Calculate the number of gas molecules in each cubic metre of a gas at 1atm and 27oC. Boltzmann constant is given as 1.38×10^{-23} J/K. (2)
- 1D)What is an adiabatic process? (2)
- 1E)Write the first law of thermodynamics. (2)
- 1F)What are dielectrics? (2)
- 1G)Write the second law of Kirchoff on electric circuits. (2)
- 1H)Explain the Biot-Savart law. (2)
- 1I)Draw a neat circuit diagram of a parallel resonance circuit. (2)
- 1J) What do you mean by work function? (2)
- 1K) Explain stimulated emission. (2)
- 1L) What do you mean by radioactive decay? (2)
- 1M) A transmission wire carries a current of 100 A. What would be the magnetic field B at a point on the road if the wire is 8 m above the road. Given $\mu = 4\pi \times 10^{-7}$ N/A². (2)
- 1N) The atomic mass of H1 is 1.00783 u. Calculate the mass excess of hydrogen. $m = 1.00783$ u and $1u = 931 \text{ MeV}/c^2$. (2)

2.. Answer the following questions.

- 2A) Write some properties and usage of LASER. (3)
- 2B) Explain the working of an ammeter. (3)
- 2C) Write some properties of nuclear force. (3)
- 2D) Calculate the wavelength of radiation emitted when He⁺ makes a transition from the state n=3 to the state n=2. Given $R = 1.097 \times 10^7 \text{ m}^{-1}$. (3)

3. Answer the following questions. (5)

- 3A) What were Bohr's postulates on atomic model? Write about successes and drawbacks of this model.

3B) Explain the mechanism of the photo-electric effect. Write about different experimental observations of photo-electric effect.

(5)