

# C.U.SHAH UNIVERSITY

## Winter Examination-2015

**Subject Name: Applied Physics**

**Subject Code: 2TE02APH1**

**Branch: DIPLOMA (ALL)**

**Semester: II**

**Date: 20/11/2015**

**Time: 10:30 To 01:30**

**Marks: 70**

**Instructions:**

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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**Q-1**

**Attempt the following questions:**

**(14)**

- a) Main scale of vernier caliper is calibrated in mm. There are 100 divisions in its vernier scale. Then find out the least count of value of vernier caliper.
- b) Define: Derived physical quantity.
- c) Define: Angle of contact.
- d) Give the range of Infrasonic waves.
- e) Give the definition of mechanical waves.
- f)  $1\text{\AA} = \underline{\hspace{2cm}}\text{m}$ .
- g) Write down the statement of principle of magnetostriction transducer.
- h) Write down the formula of velocity of light and define each term in it.
- i) Write down the statement of Newton's first law of motion.
- j) Give the names of the types of the interference.
- k) Write down the statement of Ohm's law.
- l) What is Polarization?
- m) Define: Mass defect
  
- n) State the names of types of the nuclear chain reaction.

**Attempt any four questions from Q-2 to Q-8**

**Q-2**

**Attempt all questions**

- 1 Explain: Vernier caliper. **(7)**
- 2 State the name, units and symbols of the fundamental physical quantity according to S.I. system. **(7)**

**Q-3**

**Attempt all questions**

- 1 The main scale of vernier caliper is calibrated in mm. There are 100 divisions in its vernier scale While measuring diameter of one sphere, zero of vernier scale lies between 4.3 and 4.4cm of main scale. The 8<sup>th</sup> division of vernier scale coincide with some division of main scale. Given vernier caliper is errorless. Then find out the radius of the given metal sphere. **(7)**



- 2 Explain surface tension by the molecular phenomenon. (7)
- Q-4** **Attempt all questions**
- 1 Explain cohesive force and adhesive force with example. (5)
- 2 Explain Angle of contact with necessary diagram. (5)
- 3 Give the applications of the ultrasonic waves. (4)
- Q-5** **Attempt all questions**
- 1 Explain any one method of production of ultrasonic waves with necessary diagram. (7)
- 2 Explain the laws of radioactivity with necessary formula. (7)
- Q-6** **Attempt all questions**
- 1 Derive the formula for surface tension. (5)
- 2 State the distinction between transverse and longitudinal waves. (5)
- 3 Explain interference of light with its types and figure. (4)
- Q-7** **Attempt all questions**
- 1 Explain the phenomenon of Nuclear fission. (5)
- 2 Draw the figure of nuclear reactor and explain about any two parts of it. (5)
- Explain the series combination of the resistance with its circuit diagram. (4)
- Q-8** **Attempt all questions**
- 1 Give the statement of Newton's third law of motion and derive the expression of conservation of momentum from it. (7)
- 2 What is semiconductor diode? Explain the V-I characteristics of the P-N junction diode, with necessary diagram. (7)



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