

BACHELOR OF VOCATION**Tool and Die Manufacturing****Subject: Applied Physics****Subject Code: ZBSC-103****Semester: First****July 2022****Theory (External): 35 Marks****Time: 03 Hours****Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

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SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- A What is the unit of energy and work in SI system?
- B Define Light Year?
- C Explain Hooke's law?
- D Define Viscosity.
- E A plane wall of 10 cm thickness and 3 m² area is made of a material whose conductivity is 8.5 W/mK. The temperatures of the wall surfaces are steady at 100°C and 30°C respectively. Find the temperature gradient and heat flow across the wall.
- F What are the applications of simple screw jack and worm wheel?
- G Explain spontaneous and stimulated emission of radiation.
- H Explain types of optical fibres.
- I Define photovoltaic process.
- J What are Carbon Nano Tubes?

SECTION –B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

- Q1 What is the basic principle of a thermoelectric thermometer?
- Q2 What does Pascal's law state? Explain with example.
- Q3 What is compound machine? How do you calculate the efficiency of a compound machine?
- Q4 What is Thermal conductivity? Explain modes of heat transfer.
- Q5 Describe the principle, construction and working of He-Ne laser.
- Q6 Explain acceptance angle and Numerical aperture of optical fiber.
- Q7 Define solar cell and its characteristics.
- Q8 Define nanomaterials. What are the applications of nanomaterials?

*****END OF THE PAPER*****