**Khyber PakhtunKhwa Board of Technical Education Peshawar**

**Diploma of Associate Engineer**

Roll No: - \_\_\_\_\_\_\_\_\_\_\_

Candidate’s Sign:-

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Superintendent Sign:-

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ist Year Auto & Diesel / Auto & Farm / Civil / Mechanical /**

**Electronics /Telecomm / / Architecture / Bio-Medical / RACT /**

**Computer Information Technology (New Course)**

**Paper: - Applied Physics (Phy-122 / Phy-112)**

**Model Paper**

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**Time Allowed: - 02 ½ Hours. Max. Marks: - 50**

**Note: -** This paper consists of three sections A, B and C. Section A has fifteen minutes and should

be submitted to the Supdt with in specified time . It should be attempted on the question

paper. Cutting, overwriting and use of pencil is not allowed.

**Time Allowed: - 15 Minutes. ( Section – A ) Marks: - 10**

**Q.1: - Choose the correct answer of the following statements. (05)**

* + 1. There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fundamental units in the S.I system.

a) Five b) six c) Seven d) Eight

* + 1. One Horse Power (H.P ) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

a) 100 watts b) 550 watts c) 746 watts d) 850 watts

* + 1. If two vectors make an angle of 90 with each other. Its dot product = \_\_\_\_\_\_\_\_\_\_\_

a) 0 b) 1 c) -1 d) 2

* + 1. One complete revolution of a body in a circle is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) 90° b) 180° c) 270° d) 360°

* + 1. The time period of second pendulum is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) 1 sec b) 2 sec c) 3 sec d) 4 sec

**Q.2: - Tick True or False of the following statements (05)**

1. Sound is the form of energy. True / False
2. When light enters from rare medium to a denser medium, it bends away from the normal. True / False
3. The light waves are mechanical waves. True / False
4. Optical fiber is made of glass and plastic. True / False
5. LASER beam is used as cutting tool in the industries. True / False

**( Section – B )**

**Q.3**  **Attempt any seven short questions from section B. each question carries three marks. (21)**

* + 1. A car is moving with velocity of 90 km/h. Convert it into m/sec.
    2. A force of 15N is acting at an angle of 30° with x-axis. Find its components Fx and Fy.
    3. Derive the equation of motion. S=vit + ½ at2.
    4. Define angular velocity angular acceleration and momentum.
    5. Write two conditions of equilibrium with equations.
    6. A simple pendulum has length of 1.5m. Find its time period if g= 9.8m/sec2.
    7. Write down three factors for the production of sound.
    8. An object is placed at a distance of 24cm from a convex lens of focal length of 6cm. Find the position of its image.
    9. Write down three uses of optical fiber.
    10. Write the names of three types of LASER.

**( Section – C ) Marks: - 19**

**Note: -** **Attempt any two questions. Each question carries equal( 9.5) marks.**

**Q.4: -**  Explain Newton’s Three laws of motion in detail.

**Q.5: -**  Describe the motion under elastic restoring force with mathematical expressions.

**Q.6:-**  Derive thin lens formula for a convex lens.

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