| **BFW-036**

B.Sc. FOOTWEAR TECHNOLOGY (BSCFWT)
Term-End Examination
December, 2017

⊡⊡1⊟1

BFW-036 : APPLIED SCIENCE

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) Distinguish between scalar and vector quantities giving examples of each type.

   (b) What are Air Pollutants ? List five air pollutants commonly released in the air. List five health effects of air pollution.   *5+5*

2. (a) A cyclist moves along a circular path of radius 70 m. If he completes one round in 11 seconds, calculate

   (i) total length of the path,

   (ii) magnitude of the displacement, and

   (iii) average speed.

   (b) The mass of an electron is 9.11×10^{-31} kg. How many electrons would make 1 kg ?   *5+5*

3. (a) A race car accelerates on a straight road from rest to a speed of 180 km/hr in 25 sec. Assuming uniform acceleration of the car throughout, find the distance covered in this time.

   (b) Ultrasonics sent by a SONAR return back to it after reflection from a rock under water after a time lapse of 2·2 sec. If the velocity of ultrasonics in water is 1450 m/sec, find the depth of the rock below the water surface.   5+5

4. (a) What is the difference between static friction and kinetic friction ? Which of the two is smaller, sliding friction or rolling friction ?

   (b) A body travels from A to B at 40 ms^{-1} and returns back from B to A at 60 ms^{-1}. Calculate the average speed.   5+5

5. (a) Discuss the advantages of rainwater harvesting.

   (b) Define Power. What is the SI unit of power ?   5+5

6. (a) How does the kinetic energy of an object change if its momentum is doubled ?

(b) Find the work done, if a weight of 25 kg is lifted through a vertical height of 2 m from the ground. (Take g = 9·8 m/sec^2) *5+5*

7. (a) What are the factors which affect the atmospheric pressure at a place ?

(b) Explain surface tension. Give its unit. *5+5*

8. (a) State and explain Ohm's law.

(b) The normal temperature of the human body is 98·4°F. Find the temperature on the Celsius scale. *5+5*

9. (a) If the mean of 3, 4, x, 7, 10 is 6, find the value of x.

(b) If it takes 18 days to assemble 4 cars, how long would it require to assemble 14 cars ? *5+5*

10. (a) A man buys a watch for ₹ 25 and sells it for ₹ 23. Find his loss percent.

(b) The area of a square is 625 m^2. Find the length of the side 'a' and the diagonal 'd' of the square. *5+5*

─────────