BFW - 036

B.Sc. FOOTWEAR TECHNOLOGY (BSCFWT)

Term-End Examination

00532

December, 2011

BFW-036 : APPLIED SCIENCE

Time : 3 hours   *Maximum Marks : 70*

Note : *Use of scientific calculator is permitted.*

1. Do *any five* questions. All questions *carry equal*
    marks.   5x6=30

    (a) If a commission of 10% is given on the
         written price of an article, the gain is 20%.
         If the commission is increased to 20%, what
         is the gain ?

    (b) The average of 11 results is 50. If the average
         of the first six results is 49 and that of last 6
         is 52, find the 6th result.

    (c) The values of a machine depreciates by 10%
         per year. If the present value of machine is
         Rs. 36,980. Find the value of the machine
         4 years ago and 4 years after.

(d) After covering a distance of 20 kilometer with uniform speed some defects occurs in a rail engine and hence the speed is reduced to 70% of its original speed. Consequently the train reached its destination late by 40 minutes. Had it happen after 15 kilometer more the train would have reached 10 minutes earlier. Find the speed of the train and the distance of the journey.

(e) A car travels 30 km. One hour faster than a bus for a journey of 600 kms. The bus takes 15 hours mare than the car. Find the speed of car and bus.

(f) A cardboard sheet of rectangular shape with dimensions 48 cm × 36 cm from each one of its corners a square of 8 cm is cut off. An open box is made of the remaining sheet. Find the volume of the box.

(g) 8 men and 12 boys can finish a work in 10 days while 6 men and 8 boys can finish in 14 days. Find the time taken by one man alone that 1 boy alone to finish the work.

(h) The incomes of A and B are in the ratio of 8:7 and their expenditures are in the ratio of 19:16. If each saves Rs. 1250, find their incomes.

(i) A bus travels some distance at the speed of 120 kms per hour and returns at 90 kms per hour and takes 2 hours and 20 minutes. Find the distance.

2. (a) **Write true and false.** 5

(i) One calorie is equal to 4.2 joule.

(ii) Velocity of wave motion does depend upon the nature of medium.

(iii) Energy of a body is the capacity for doing work.

(iv) Heat energy is the sum total of kinetic energy possessed by the molecule of the body.

(v) Energy is neither created nor destroyed.

(b) **Fill in the blanks.** 5

(i) Distance and displacement may be _____ .

(ii) In CGS system unit of work is _____ .

(iii) Paraffin wax is an example of perfectly _____ .

(iv) Normal human body temperature is _____ degree Fahrenheit.

(v) Unit of surface tension is _____ .

(c) A ball is thrown vertically upward. It 5 reaches maximum height in 10 second. If acceleration of ball is 10 m/s^2 directed towards earth. Find the initial velocity of the ball.

OR

Describe distance, displacement and acceleration with example.

(d) What is Heat ? At what temperature both 5 the Fahrenheit and Celsius reading is same.

OR

Describe specific heat and latent heat capacity.

3. (a) Define along with suitable examples. 5x1=5

   (i) Monomer

   (ii) Polymer

   (iii) Elastomers

   (iv) Copolymer

   (v) Cross - linked polymers.

   (b) (i) Define ionic bond. 2x2.5=5

   (ii) Define polymerization.

(c) Write electronic configuration of calcium 5
(At no. 12)

OR

Write the IUPAC name of acetic acid.

(d) **Answer any two :** 2x2.5=5

(i) Name the different ways of classification of polymers.

(ii) What are the three parts of IUPAC name of any organic compound ?

(iii) What is the use of polymer in Footwear industry ?

———