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B.Sc. FOOTWEAR TECHNOLOGY (BSCFWT)

Term-End Examination

June, 2011

BFW-036 : APPLIED SCIENCE

Time : 3 hours

Maximum Marks : 70

Note : All questions are compulsory. Use of calculator is permitted.

1. Answer *any five* questions. 5x6=30

- (a) A producer of tea blends 2 varieties of tea from 2 tea gardens in the ratio 5:3. One costing Rs. 18/kg and another Rs. 20/kg. If he sells the blended variety at Rs. 21/kg, what is his gain percent ?
- (b) A cardboard sheet of rectangular shape has dimensions 48cm × 36cm. From each of its corners a square of 8cm is cut off. An open box is made of the remaining sheet. Find out the volume of the box.
- (c) 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.

- (d) The value of a machine depreciates by 14% per year. If the present value of machine is Rs. 36,980, find the value of the machine 2 years ago and 2 year after.
- (e) After covering a distance of 30 kilometer with uniform speed, some defects occurs in a rail engine and hence the speed is reduced to 80% of its original speed. Consequently, the train reached its destination late by 45 minutes. Had it happen after 18 kilometer more the train would have reached 9 minutes earlier. Find the speed of the train and the distance of the journey.
- (f) A car travels 25 km. One hour faster than a bus for a journey of 500 kms. The bus takes 10 hours more than the car. Find the speed of car and bus ?

2. Answer *any five* questions.

5x4=20

(a) Write down *True & False*.

- (i) Distance and displacement may be equal.
- (ii) In CGS system unit of work is erg.
- (iii) Normal body temperature is 98.4 degree F.
- (iv) One calorie is equal to 4.2 joule.

- (b) Fill in the blanks :
- (i) Paraffin wax is an example of perfectly _____.
 - (ii) Velocity of wave motion depends upon the _____ of medium.
 - (iii) Energy of a body is its capacity for doing _____ .
 - (iv) Heat energy is the sum total of _____ possessed by the molecule of body.
- (c) A car travels 30 km with a speed of 40km/hr and next 30km at a uniform speed of 20km/hr. Calculate average speed.
- (d) Describe Newton's law of motion.
- (e) At what temperature does the Fahrenheit and Celsius thermometer gives the same reading ?
- (f) A ball is thrown vertically upward. It reaches maximum height in 4 seconds. If acceleration of ball is 10m/s^2 directed towards earth. Find out the initial velocity of the ball.

3. Answer *any five* of the following. 5x4=20

(a) What is the atomic mass of an atom ?

OR

What is an Orbital or shell ?

(b) Write the differences between metals and nonmetals.

OR

Write the characteristics of d-block elements.

(c) Write the differences between ionic and covalent compounds.

OR

Describe hydrogen bonding with examples.

(d) Write properties of metal, nonmetals with suitable examples.

(e) Write down the electronic configuration of oxygen. (Atomic mass = 16)
