

B.Sc. FOOTWEAR TECHNOLOGY (BSCFWT)

Term-End Examination

June, 2017

00364

BFW-036 : APPLIED SCIENCE

Time : 3 hours

Maximum Marks : 70

Note: Attempt **all** questions. Use of calculator is permitted.

1. Answer any **five** questions : 5×6=30

- (a) The average of 11 results is 50. If the average of the first six results is 49 and that of the last six is 52, find the 6th result.
- (b) One cylinder, one cone and one hemisphere have the same base and height. Compute the ratio of their respective volumes.
- (c) The value of a machine depreciates by 10% per year. If the present value of the machine is ₹ 36,980, find the value of the machine 4 years ago and 4 years after.

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

(e) A cardboard sheet is of rectangular shape with dimensions $48 \text{ cm} \times 36 \text{ cm}$. 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.

(f) After covering a distance of 20 kilometres with uniform speed, some defects occur in a rail engine and the speed reduces to 70% of its original speed. Consequently the train reached its destination late by 40 minutes. Had it happened after 15 km more, the train would have reached 10 minutes earlier. Find the speed of the train and the distance of the journey.

2. Fill in the blanks : 5×1=5

- (a) The unit of surface tension is _____ .
- (b) Paraffin wax is an example of perfectly _____ .
- (c) Normal human body temperature is _____ degree Fahrenheit.
- (d) Velocity of wave motion depends upon the _____ of medium.
- (e) Energy of a body is its capacity for doing _____ .

3. Describe Newton's law of motion. 5

4. What is the atomic mass of an atom ? 5

5. Write the differences between ionic and covalent compounds. 5

6. Explain distance, displacement and acceleration with suitable examples. 5

7. Describe specific heat and latent heat capacity. 5

8. Define the following with suitable examples : $5 \times 2 = 10$

- (a) Monomer
 - (b) Polymer
 - (c) Elastomers
 - (d) Copolymer
 - (e) Cross-linked Polymers
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