

FIFTH SEMESTER DIPLOMA EXAMINATION IN POLYMER
TECHNOLOGY — MARCH, 2015

TYRE TECHNOLOGY

[Time : 3 hours

(Maximum marks : 100)

PART—A

(Maximum marks : 10)

Marks

I Answer all questions in one or two sentences. Each question carries 2 marks.

1. Write the name of any four important tyre cords.
2. What is dip pickup ?
3. What is crown height ?
4. What are the advantages of moulded tube ?
5. Explain denision bend test. (5×2=10)

PART—B

(Maximum marks : 30)

II Answer *any five* of the following questions. Each question carries 6 marks.

1. Write a short note on : (i) Bias Tyre (ii) Radial Tyre.
2. (a) What are the requirements for tyre code adhesive ?
(b) Explain the curing of inner tube.
3. (a) Compare hot and cold process of re-treading.
(b) Design a suitable compound for cushion gum.
4. (a) Distinguish between flat spotting and aquaplaning.
(b) Design a suitable formulation for curing bladder.
5. Explain the production of solid tyre with a suitable formulation.
6. Explain the endurance test of tyres.
7. Explain the methods of determination of cord strength and casing strength of cycle tyre. (5×6=30)

PART—C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT—I

- III (a) What are the requirements of a fibre to use as a tyre cord ? 7
 (b) Explain briefly the functions of pneumatic tyre. 8

OR

- IV (a) What are the important tyre cords ? Explain their advantages and disadvantages. 8
 (b) What are the basic tyre constructions ? Explain with neat sketch. 7

UNIT—II

- V (a) With a suitable formulation explain the different steps involved in the production of truck tyre inner tube. 10
 (b) What is PCI ? Explain. 5

OR

- VI (a) Explain the different steps involved in the treatment of fabric with a neat sketch. 6
 (b) Describe the calendaring of fabric and cutting into carcass plies. 9

UNIT—III

- VII (a) Explain the mono-band and drum building method of cycle tyre. 8
 (b) Explain the different steps involved in hot process of retreading. 7

OR

- VIII (a) Explain the production of cycle tyre tread and carcass with a suitable formulation. 8
 (b) Explain the production of cushion gum for tyre re-treading with a suitable formulation. 7

UNIT—IV

- IX (a) What are the non-destructive tests done on pneumatic tyre ? Explain. 10
 (b) Explain the cut tyre analysis. 5

OR

- X (a) Explain laboratory testing of tyre cord and compound. 8
 (b) Explain the method of determination of tension set of cycle tyre and tube. 7