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Roll No. ....

## EIGHTH SEMESTER

**B.E. (PT)**

MID SEMESTER EXAMINATION **MARCH**

**2005**

### PT-411 TYRE TECHNOLOGY

Time: 1 Hour 30 Minutes

Max. Marks : 20

**Note :** Attempt **THREE** questions.  
Question No. **ONE** is compulsory.  
Assume suitable missing data, if any.

- 1 Give brief answers to the following: 6
- [a] What is a balloon tyre ?
  - [b] How was the problem associated with rayon cords vis a vis carcass rubber solved?
  - [c] What is a tyre geometrically and mechanically?
  - [d] What is aspect ratio?
  - [e] Why was square woven cotton fabric replaced by bias plies of warp fabric made from cotton cords?
  - [f] How is percent deflection of a loaded tyre calculated?
- 2[a] Describe the important developments in the evolution of pneumatic tyres to its present state. 4
- [b] Discuss the functions and desirable properties of pneumatic tyres. 3
- 3[a] Discuss various types of tyres categorized on the basis of carcass design along with their relative merits and demerits. 4
- [b] Discuss the role of various factors responsible for the phenomenon of tyre wear. 3

- 4[a] Explain the merits and demerits of tubeless tyres vis a vis conventional tubed tyres. 4
- [b] Discuss the phenomenon of heat build up and flat spotting in pneumatic tyres. 3

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## EIGHTH SEMESTER

**B.E. (PT)**

MID SEMESTER EXAMINATION **MARCH**  **2005**

### PT-412 MOULD & DIE DESIGN

Time: 1 Hour 30 Minutes

Max. Marks : 20

**Note :** Question No. **ONE** is compulsory.  
Attempt any **TWO** questions from the remaining questions.  
Assume suitable missing data, if any.

- 1[a] Draw a neat diagram of assembly of an Injection Mould.  
[b] Label all the important parts of Mould Assembly and mention their materials to be used.  
[c] Name the parts used for mould alignment with sketch. 8
- 2[a] What are different Ejector Systems used in Moulds for component ejection? Explain with sketches.  
[b] What are the main criteria for selection of Parting Line. Brief the importance of Air Venting in Moulds. 6
- 3[a] Explain the following defects observed in moulding and discuss their remedy:  
(i) Short-filled component  
(ii) Sink marks  
(iii) Weld line  
[b] Define importance of gates. Name five different types of gates with sketches. 6
- 4[a] Name the different type of runners used in moulds. Define Runner Efficiency for at least two types of runners.  
[b] Discuss the importance of cooling in Injection Mould. Explain at least four types of cooling and their applications. 6

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## EIGHTH SEMESTER

**B.E. (PT)**

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### PT-413 ION EXCHANGE MATERIALS

Time: 1 Hour 30 Minutes

Max. Marks : 20

**Note :** Question No. **ONE** is compulsory.  
Attempt any **TWO** questions.  
Assume suitable missing data, if any.

- 1 Explain the following terms..  
(i) Cation exchanger (ii) Anion exchanger (iii) Amphoteric ion exchanger (iv) Matrix (v) Counter ions (vi) Co-ions (vii) Swelling (viii) Cross linking. **1 x 8 = 8**
2. Write brief note on any **THREE** of the following:  
(i) Synthetic Inorganic Ion exchangers.  
(ii) Ion Exchange coals.  
(iii) Mineral Ion Exchangers.  
(iv) Liquid Ion Exchangers. **2 x 3 = 6**
- 3[a] What do you understand with the ion exchanger membranes? Give their detail.  
[b] Write about any two condensation polymers which can be converted as cation exchanger. **3,3**
- 4[a] Discuss the pearl polymerization. What are its merits?  
[b] How do you obtain an anion exchange resin from addition polymers? Support your answer with example. **3,3**

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## EIGHTH SEMESTER

**B.E. (PT)**

MID SEMESTER EXAMINATION **MARCH 2005**

### PT-414 INDUSTRIAL WASTE MANAGEMENT

Time: 1 Hour 30 Minutes

Max. Marks : 20

**Note :** Answer any **FOUR** questions.  
Assume suitable missing data, if any.

- 1 Define Industrial wastes and discuss briefly the nature and general characteristics of Industrial wastes. (5)
- 2 Discuss briefly the major causes of Industrial pollution making them difficult to handle. (5)
- 3 Differentiate between degradable, Non degradable and biologically accumulative groups stating their relative importance. (5)
- 4 Prepare a brief note on Toxic chemicals present in industrial wastes needing special attention. (5)
- 5 Discuss briefly the effects of Industrial wastes on waste water treatment plants. (5)