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Roll No.

EIGHTH SEMESTER

B.E. (PT)

MID SEM EXAMINATION

March 2006

PT-411 TYRE TECHNOLOGY

Time: 1 Hour 30 Minutes

Max. Marks : 20

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

- 1 Give brief answers to any Six of the following: 6
- [a] What is a tyre chemically and structurally?
 - [b] Tyre treads having prominent bars are un-suitable for use on hard roads.
 - [c] Which is better option, flat tread or grooved tread on wet pavement and why?
 - [d] Why are tyres with large cross section better than tyres having horse shoe shape cross section?
 - [e] What role does a tyre cord play in the working of a tyre?
 - [f] Why are two ply tyres better than 4-Ply tyres?
 - [g] What is the role of a belt in a radial tyre?
 - [h] Which adhesive is used for (a) rayon cords, and (b) cotton cords in a tyre?
- 2[a] Describe the relative merits of radial vis-à-vis bias tyre. 3
- [b] Explain the tyre sizing and designation methods with relevant examples. 4
- 3[a] Describe the various desired properties with respect to proper tread design. 4
- [b] Give an account of fundamental requirements of pneumatic tyres. 3

4 Write short notes on any *TWO* of the following:

- [a] Aeroplane tyres
- [b] Tubeless tyres vs conventional tubed tyres
- [c] Tyre wear
- [d] Under inflation vs over inflation.

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EIGHTH SEMESTER

B.E. (PT)

MID SEM EXAMINATION

March

2006

PT-412 MOULD AND DIE DESIGNING

Time: 1 Hour 30 Minutes

Max. Marks : 20

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

- 1 Make a neat sketch of an "Injection Mould Housing". Label all the part and mention material to be used for each of them and their hardness. 6
- 2[a] Explain the function of Ejectors and their types. 2
[b] Show sleeve ejector with the help of sketch. 3
[c] What are the requirements of split mould? 2
- 3[a] Explain the importance of cooling in moulds. Design any one of cooling system adopted in moulds. 4
[b] Why the gates are incorporated in moulds? 2
[c] Discuss the function of return pin. 1
- 4[a] What is the role of EDM process in manufacturing of moulds? Discuss. 2
[b] What are the aspects to be considered while designing, manufacturing and processing the injection mould? 3
[c] What do you mean by efficiency of runner? 2
- 5[a] Discuss the requirements, functions of Bushes, Pillers, tublar dowels and ejection systems in moulds. 3
[b] Sketch any two types of gates used in injection moulds. 2
[c] Briefly mention the working cycle of an injection mould. 2

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EIGHTH SEMESTER

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PT-413 ION EXCHANGE MATERIALS

Time: 1 Hour 30 Minutes

Max. Marks : 20

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

- 1 Explain the following terms
(i) Counter ions (ii) Co-ions (iii) Matrix
(iv) Cation Exchanger (v) Anion Exchanger (vi) Swelling
1x6=6
- 2[a] Write about the synthetic inorganic ion exchangers. Report their differences with organic ion exchange resins.
[b] Give brief of any two of the following (i) Ion Exchange coals (ii) oil membranes (iii) mineral ion exchangers. **3,4**
- 3[a] Discuss the principles of ion exchange resin preparation.
[b] How do these resins get converted to cation exchange and anion exchange resins? **3,4**
- 4[a] What is Pearl polymerization? Report its merits.
[b] Explain any two of the following terms in respect of ion exchange.
(i) Scientific weight capacity
(ii) Sorption capacity
(iii) Break through capacity
(iv) Volume capacity. **3,4**

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EIGHTH SEMESTER

Roll No.

B.E. (PT)

MID SEM EXAMINATION March

2006

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 State the status of Industrial waste generation in Delhi. What general strategies would you suggest to make their disposal as safe as possible. **5**
- 2 State alternative types of classifications used to classify industrial wastes. Also state their typical features and applications. **5**
- 3 What general and specific tests you would recommend to characterise industrial wastes. State significance of important ones. **5**
- 4 Discuss some special provisions/ methodologies required to handle/ treat industrial wastes. State their specific applications. **5**
- 5 Why toxic chemicals are considered important in handling industrial wastes. How will you handle sludges generated from industrial wastes. **5**
- 6 Draw a table giving general comparison of industrial wastes versus domestic sewage with respect to pollutional loads (for some typical industries). How will you utilise such table to work out overall load on a treatment system. **5**