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MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

SECOND SEMESTER M.TECH. (PRINTING AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, APR/MAY 2017

ELECTIVE II - ENVIRONMENT MANAGEMENT FOR PRINTING INDUSTRY

[PME 5237]

REVISED CREDIT SYSTEM

(27/04/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitably assumed.

- 1A.** Define the term hazardous wastes. Explain the hazardous traits exhibited by them.
- 1B.** Explain the recommended EHS guidelines for the prevention and control of VOC emissions from printing industry.
- 1C.** Explain the steps involved in waste stream analysis.

[04 + 04 + 02]

- 2A.** Discuss the principle involved, advantages and disadvantages of the following silver recovery methods:

- a)** Electrolytic method
- b)** Reverse osmosis

- 2B.**
- i.** Explain the recommended EHS guidelines (Four) for waste water prevention strategies in printing industry.
 - ii.** Mention the options (Four) to reduce ozone release from UV unit in printing industry.

- 2C.** Define the term 'Environmental aspect'. Mention the criteria for defining environmental policy.

[04 + 04 + 02]

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- 3A.** List the major wastes given out from screen printing process. Indicate the hazardous wastes and their possible treatment method
- 3B.**
- i. Explain the main advantages (Four) of using vegetable oil based ink over solvent based ink in controlling pollution from printing industry.
 - ii. “The installation of ink viscosity measuring system and web brake detector in any printing unit can reduce pollution”. Justify this statement.
- 3C.** Explain the benefits (Four) of implementation of life cycle assessment in printing industry.

[04 + 04 + 02]

- 4A.**
- i. Mention the pollution prevention strategies (Four) with reference to shop towels as the potential P2 area in press.
 - ii. Explain the steps involved in the selection of waste stream under chartering Phase.
- 4B.**
- i. Explain the following elements of EMS:
 - a) Objectives and Targets
 - b) Emergency preparedness and response
 - ii. What do you mean by the term ‘Environmental Management System’? Explain the potential problem areas that need to be considered in implementing Environmental Management System?
- 4C.** Explain any four best possible options for performing ecofriendly printing.

[04 + 04 + 02]

- 5A.** What are listed wastes? Discuss on the major categories of listed wastes.
- 5B.** Explain the importance of the following in the P2 program:
- a) Setting the Goals
 - b) Defining the Problems
- 5C.** List the major wastes given out from a press unit in gravure process. Mention hazardous wastes and their suitable treatment method.

[04 + 04 + 02]