

**BACHELOR OF PRINTING ENGINEERING
2ND YEAR SECOND SEMESTER EXAMINATION 2018
ENVIRONMENTAL SCIENCES**

Full Marks: 100

Time: 03 Hrs.

Answer any five questions taking at least one question from each group

Group-1

1. (a) What are the factors responsible for creating pollution in our environment?
(b) Classify the pollutants according to their durability in the environment.
(c) Discuss the role of the following pollutants in atmospheric pollution
i) Carbon monoxide ii) Chlorofluoro carbons
2. (a) Mention the processes with examples which are responsible for generation of different pollutants causing air pollution.
(b) Distinguish between primary air pollutants and secondary air pollutants with examples.
(c) Distinguish between mass concentration and volume concentrations of air pollutants.

5+5+10=20

10+5+5=20

Group-2

3. (a) The maximum one-hour carbon monoxide concentrations in Kolkata reaches 50 ppm. Calculate the equivalent concentration in " $\mu\text{g}/\text{m}^3$ " at standard conditions.
(b) Mention the basic mechanisms involved with removing particulate matter from industrial gas streams.
(c) Explain different types of filtration mechanisms for removing matter from industrial gases.
4. (a) Explain the working principle of electrostatic precipitator with neat diagram.
(b) Explain the working principle of cyclone separator with a neat diagram. Why it is called reverse flow type?

6+4+10=20

10+10=20

Group-3

5. (a) What is VOC? How VOC is generated in a printing house? What type of VOCs are contained in printing ink, fountain solutions and cleaning products?
(b) How do you minimize VOC emission in the press area?
(c) Mention the type of hazardous wastes generated by Printers and Publishers.

8+6+6=20

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6. (a) How do you minimize hazardous ink related wastes? Mention also the causes of ink related wastes.
(b) What is storm water pollution? How storm water pollution can be prevented in a publishing house?

10+10=20

Group-4

7. (a) Explain the working principle of noise measuring instrument. How can you measure the intensity of sound level? What is Frequency Weighting Networks?
(b) Mention the sources of noise pollution in printing industry? What are the different ways to reduce noise level in different sections of a printing house?

10+10=20

8. Write short notes on (any four)
- (a) Marbel Cancer
 - (b) Green House Effect
 - (c) Hi-volume dust sampler
 - (d) Gravitational Settling chamber
 - (e) Spray type Wet scrubber

4x5=20