

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – ENVIRONMENTAL SCIENCE

INDUSTRIAL PROCESS AND WASTE MANAGEMENT

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

1. _____ is the time after processing during which a dairy product normally remains suitable for human consumption.
(i) Packaged date (ii) Shelf life
(iii) Product code (iv) Product life
2. Which is the most commonly used dyeing fibre?
(i) Rayon (ii) Polyester
(iii) Nylon (iv) Viscose
3. _____ process is used to increase water resistance of paper.
(i) Sizing (ii) Stretching
(iii) Filling (iv) Sheeting
4. Dyeing process generates _____ wastewater.
(i) Acidic (ii) Alkaline
(iii) Turbid (iv) Coloured
5. _____ is the removal of calcium, magnesium and certain other metal cations in hard water.
(i) Sedimentation (ii) Softening
(iii) Disinfection (iv) Cleaning
6. The most common applications of chemical reduction is _____.
(i) Cr (VI) to Cr (II) (ii) Cr (V) to Cr (III)
(iii) Cr (VI) to Cr (III) (iv) Cr (V) to Cr (I)
7. Solvent used for dewaxing of petroleum products are
(i) Furfural (ii) Methyl ethyl ketone
(iii) Propane (iv) Butane
8. India is a third largest producer of _____ fertilizers.
(i) Potash based (ii) Nitrogen based
(iii) Complex (iv) Phosphorous based
9. Electroplating wastes can be treated as per _____ process.
(i) Hydrolysis (ii) Neutralization
(iii) Oxidation and reduction (iv) Chemical precipitation
10. Operating principle of cyclone separator is based on the action of _____.
(i) Diffusion of (ii) Gravitational force on
(iii) Electrostatic force on (iv) Centrifugal force on

Cont...

SECTION - B (25 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

- 11 a What are the sources of waste generation in sugar industry?
OR
b Describe the characteristics of dairy industry wastewater.
- 12 a List out and explain various steps involving in the pulp preparation.
OR
b Illustrate the textile manufacturing process with flow chart.
- 13 a How tannery effluent affects receiving water bodies?
OR
b Discuss the role of surfactants in water pollution.
- 14 a Analyze the role of oil refineries on ambient air pollution.
OR
b Elucidate the nitrogenous fertilizer manufacturing process.
- 15 a "Electroplating is essential for increasing the shelf life of the product"
Justify.
OR
b Investigate the sources of waste generation in food processing industry.

SECTION -C (40 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

- 16 a Justify the importance of anaerobic treatment in distillery waste management.
OR
b Determine the various stages of dairy processing.
- 17 a Investigate the characteristics and effects of dyeing effluents.
OR
b Describe the methods employed for paper and pulp effluents treatment.
- 18 a How plastic wastes affects the environment?
OR
b Evaluate the different tanning process with neat sketch.
- 19 a Explain mineral acid manufacturing process.
OR
b Discuss the significance of the oil refining process.
- 20 a Analyze the role of air pollution control devices in cement industry.
OR
b How to remove emerging contaminants from pharmaceutical industry effluents?

Z-Z-Z

END