

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION JUNE 2016

V

(Fourth Semester)

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Branch - ENVIRONMENTAL SCIENCE

INDUSTRIAL PROCESS & WASTE MANAGEMENT

Time : Three Hours

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 15 = 75)

- 1 a Explain the composition of molasses and spentwash.. (6)
- b Describe the methods used for the colorant removal from molasses distillery wastewater; (9)
- OR
- c Give an account on applications of membranes in dairy processing. (5)
- d How anaerobic treatment effectively used for dairy effluents? Explain. (10)
- 2 a Describe the electrochemical methods in membrane reactor for the treatment of pulp and paper industry effluents. (15)
- OR
- b Discuss the various effect of textile wastewater into the environment. (5)
- c Explain the characteristics of different class of dyes used in textile industry and its method of application. (10)
- 3 a Describe the different steps involved in tannery processes with sketch. (15)
- >1. OR .
- b What are the two common vulcanizing processes in rubber industry? Explain. (5)
- c Explain the sulphate reduction and ozonation for treatment of rubber wastewater. ' ■ •. > (10)
- 4 a How electrocoagulation used for removal of phenol in oil refinery waste effluent? • (7)
- b Describe the steps involved in ammonia production with neat sketch. (8)
- v OR
- c Explain the manufacturing process of sulphuric acid with precise flow diagram. (15)
- 5 a What are the techniques available to reduce CO₂ emissions from the cement manufacturing industries? Explain in detail. (15)
- OR ..
- b How ozonation and perozone methods effectively used to treat pharmaceutical wastewater effluents? Explain. (8)
- c Explain the food wastes converted into valuable products and fuels by hydrothermal liquefaction. (7)