

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2018
(Third Semester)

Branch – ENVIRONMENTAL SCIENCE

CORE ELECTIVE-I : ENVIRONMENTAL ENGINEERING

Time : Three Hours

Maximum : 75 Marks

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 15 = 75)

- 1 a Explain :
 - (i) Ion Exchange (7.5)
 - (ii) Reverse Osmosis (7.5)

OR
- b Explain slow and rapid sand filtration techniques. (7)
- c Discuss various techniques of disinfection of water. (8)
- 2 a Write a note on Grit Chamber with a neat sketch. (5)
- b What is the purpose of an equalization tank? How will you design it? Explain. (10)

OR

- c Explain with neat sketches :
 - (i) Rectangular sedimentation tank (7.5)
 - (ii) Circular sedimentation tank. (7.5)
- 3 a What is aerobic treatment? What are its advantages? (7)
- b Explain the principle and operation of RBC with a neat sketch. (8)

OR

- c Explain the principles of Activated sludge process. (7)
- d If you are asked to choose any of the aerobic method for treatment of waste water in your industry, what method will you choose? Why? (8)
- 4 a Explain sludge digestion and thickening processes. (8)
- b What is the principle behind UASB? Explain its design and operation with a neat sketch. (7)

OR

- c What is a septic tank? Where should the septic tank be located? Draw a layout sketch of a septic tank as per Indian standards. (8)
- d Explain the design and operation of a sludge drying bed with a neat sketch. (7)
- 5 a Explain Plume Rise with diagram. (5)
- b Explain the principle and operation of a cyclone collector with diagram. (10)

OR

- c How does Stoke's Equation help in designing a Gravitational Settling Chamber? Explain. (10)
- c Explain the advantages and disadvantages of Gravitational Settling Chamber. (5)