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Code No. : 31004 S

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (Civil Engg.) III Year I-Semester Supplementary Examinations, May/June-2017

Environmental Engineering

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. Enumerate the need for protected water supply.
2. Mention the permissible limits of chlorides, nitrates, fluoride and hardness for potable water.
3. What is the principle involved in filtration process?
4. Differentiate between sterilization and disinfection.
5. Write a short note on self-purification of water.
6. Define the terms sewage and sullage.
7. Draw the flowchart of wastewater treatment.
8. List out the end products of aerobic and anaerobic decomposition in wastewater treatment.
9. What are various methods in low cost waste water treatment?
10. Mention the various sources of solid waste.

Part-B (5 × 10 = 50 Marks)

(All bits carry equal marks)

11. a) Discuss the various sources of water.
b) Forecast the population of a town for three decades by incremental increase method.

Year	1980	1990	2000	2010
Population	18000	22000	27000	32500

12. a) Differentiate between slow sand and rapid sand filters.
b) What is breakpoint chlorination? Explain briefly with a neat sketch.
13. a) Briefly explain the various sewerage systems.
b) The catchment area of a city is 100 ha. The maximum intensity of rainfall is 10mm/hr. The total population of the city is 10000 and the rate of water supply is 250 lit/capita/day. Assume the coefficient of runoff is 0.45. Estimate the quantity of sanitary sewage.
14. a) Draw the flowchart of activated sludge process and describe the various steps in ASP.
b) Enumerate the principles of trickling filter. Draw the flow diagrams for low rate and high rate trickling filters.
15. a) Define sludge digestion. Explain the factors affecting sludge digestion.
b) Discuss the various sludge disposal methods.
16. a) Describe the various types of water distribution systems.
b) Explain the design principle and steps involved in the design of sedimentation tank.
17. Write short notes on any *two* of the following:
 - a) Septic and Imhoff tanks.
 - b) Problems in filtration.
 - c) Disposal of solid waste.
