

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2150603

Date:01/05/2017

Subject Name: Environmental Engineering

Time:02:30 PM to 05:00 PM

Total Marks: 70

Instructions:

1. Question No. 1 is compulsory. Attempt any four out of remaining Six questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	Objective Question (MCQ)	MARKS
		14
	1. Per capita water demand is calculated in liters. (a) per person per day (b) per person per hour (c) per person per year (d) None of the above. 2. Waste water from bathrooms, kitchen etc. is called (a) refuse (b) sullage (c) sewage (d) garbage 3. Heating the solid waste at a very high temperature in absence of air is called (a) compositing (b) incineration (c) pyrolysis (d) land filling 4. The colour of the water is measured on (a) turbidity scale (b) silica scale (c) platinum cobalt scale (d) threshold scale 5. Which of the following compound can harm plants? (a) Sulphur dioxide (b) Ozone (c) Hydrogen fluorides (d) All of the above 6. Correct relationship between theoretical, biochemical and chemical oxygen demand is given by (a) $TOD > BOD > COD$ (b) $TOD > COD > BOD$ (c) $COD > BOD > TOD$ (d) $BOD > COD > TOD$ 7. Maximum percentage by weight of refuse for a typical Indian city is (a) ashes (b) rubbish (c) garbage (d) None of the above 8. If P is the population in thousands, then fire demand of water in liters per minute, according to Kuichling formula is given by (a) $3182\sqrt{P}$ (b) $4640\sqrt{P}$ (c) $5663\sqrt{P}$ (d) None of the above 9. Population forecasting method in which percentage growth rate is assumed to be constant. (a) Incremental increase method (b) Decrease rate of growth method (c) Arithmetic average method (d) None of the above 10. Pipe which is installed to preserve the water seal in a trap is _____ (a) waste pipe (b) vent pipe (c) anti syphonage pipe (d) soil pipe 11. Collection routes of municipal waste is decided based on (a) vehicle type (b) crew size (c) pickup points (d) All of the above 12. Phenomenon in which soil pores or voids may get filled up and clogged with sewage matter is called _____ (a) soil sickness (b) soil blockage (c) sewage sickness (d) All of the above 13. An element play key role in process of Eutrophication is _____ (a) sulphur (b) carbon dioxide (c) phosphorus (d) Chlorides 14. In which layer of atmosphere ozone gas is found? (a) Troposphere (b) Mesosphere (c) Thermosphere (d) Stratosphere	
Q.2	(a) What are the limitations of BOD test? (b) Discuss various control measures of water borne diseases. (c) Write a short note on self purification of natural streams.	03 04 07
	OR	
	(c) Write a short note on transfer stations. How location of transfer stations is decided?	07

- Q.3** (a) Which factors are considered while fixing design period for any water supply scheme? **03**
- (b) Discuss domestic and public use water demand. **04**
- (c) Enlist various parameters used to assess the quality of water. Discuss briefly turbidity and hardness. **07**
- OR**
- Q.3** (a) What are the objectives of solid waste management? **03**
- (b) Explain growth pattern of micro organism based on number. **04**
- (c) Explain various methods of disposal of sewage effluents. Discuss any one natural method of sewage disposal. **07**
- Q.4** (a) Write a brief note on Anglo Indian type water closet with sketch. **03**
- (b) Discuss mechanical composting method of disposal of solid waste. **04**
- (c) Which factors are considered in design of landfills? How gas movement is control in landfills? **07**
- OR**
- Q.4** (a) What are the characteristics of good water closet? **03**
- (b) Explain trap which is provided at a junction of house sewer and public sewer line with sketch. **04**
- (c) Which chemical processes are adopted to treat industrial waste water? Discuss reverse osmosis and electro dialysis method. **07**
- Q.5** (a) Discuss relationship between different components of environment. **03**
- (b) Define air pollutant. Explain effects of air pollution on building materials/properties. **04**
- (c) What is noise? Explain various effects and control measures used for noise pollution. **07**
- OR**
- Q.5** (a) Explain effects of air pollution on human health. **03**
- (b) Write brief note on bag house filter used for controlling particulate matters. **04**
- (c) What are the objectives of Environment Protection Act-1986, Explain power of central government to take measures to protect & improve environment. **07**
