

CVL 100 Environmental Science and Engineering

Major Exam

Marks: 8*5 = 40

Time: 1 Hr 30 Mins

Please read these instructions before you start answering:

This is an open book / open PPT examination. But no downloading / copying from internet allowed. Also, no exchange of documents and no discussions.

If there is any assumption to be made, indicate that it in your answer script.

There is negative marking for irrational / illogical statements/answers. This is not for wrong answers. Maximum of -2 per question.

Kindly stop writing by 11.30 AM (that is 1 Hr 30 mins), scan your answer script, and email to the following ID as a single PDF doc once. After that, kindly upload the same on the Moodle. Kindly use your serial number and your name as the file name.

All these operations must be over before 12.00 Noon. No answer scripts will be accepted after 12 noon.

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1. Explain: how do you choose the right treatment technique for a given organic wastewater based on the values of COD and BOD. Give reasons for your choice.
(05 marks)
 2. Both 'Destrotherm' and 'Sprannihilator' are based on a basic idea / requirement for incinerating distillery spent wash. Briefly explain that. Also, list the main differences between 'Destrotherm' and 'Sprannihilator' ?
(05 marks)
 3. A distillery is planning to implement strict ZLD plans using External Evaporation-Incineration system along with steam generation. A part of the steam generated is used to run a turbine for power generation. The distillery wishes to reuse / recycle every drop of water. Draw the process flow sheet of the entire facility with Venturi Scrubber for air pollution control. No explanations required.
(05 marks)

4. What is the basis of di-phasic anaerobic digester ? Why is it better than the conventional anaerobic reactor ? **(05 marks)**

5. What was the basis of proposing the usage of RCFB for the incineration of distillery spent wash ? Explain briefly with a sketch. **(05 marks)**

6. Explain the manifestations of global warming. **(05 marks)**

7. What are the expected outcomes of a big asteroid hitting the earth at a high velocity ? **(05 marks)**

8. What is the basis of CLC ? When a Circulating Fluidized Bed is used for CLC, two seals are used. What purpose they serve ? **(05 marks)**