

**STELLA MARIS COLLEGE, AUTONOMOUS, CHENNAI -86**

**For candidates admitted in 2017-18 & thereafter**

**SUBJECT CODE : 16VF/VM/WM66**

**B.VOC DEGREE, END SEMESTER EXAMINATION, MARCH '2021.**

**FOOD PROCESSING AND QUALITY CONTROL.**

**COURSE : MAJOR CORE**

**MARKS :100**

**(50 THEORY +50 PRACTICAL)**

**PAPER : WASTE MANAGEMENT IN FOOD INDUSTRY**

**All sections are compulsory.**

**Section A**

**20x1=20**

**I. Choose the correct option**

1. The dark colour of the waste waters is due to the presence of \_\_\_\_\_.
  - a. Mineral salts
  - b. Microorganisms
  - c. Food Colours
  - d. Colloidal and suspended impurities.
2. The nutrient content in vermicasts are a result digestion of \_\_\_\_\_.
  - a. Non biodegradable wastes
  - b. Organic compounds
  - c. Waste impurities
  - d. Inorganic compounds.
3. The secondary treatment of waste waters is highly effective due to application of \_\_\_\_\_.
  - a. Aerobic microflora
  - b. Suspended media
  - c. Combined effect of aeration and microflora
  - d. Advanced techniques.
4. The use of \_\_\_\_\_ involves constant flow of waste water over a media film to facilitate degradation of organic matter.
  - a. Activated sludge process
  - b. Disinfection
  - c. Trickling filters
  - d. Sedimentation
5. Which of the following gives the correct hierarchy for management of wastes.
  - a. Recycle, reuse, Prevention at source, energy recovery, recovery
  - b. Recycle, reuse, Prevention at source, energy recovery, recovery
  - c. energy recovery, recycle, reuse, prevention at source, recovery
  - d. prevention at source, reuse, recycle, recovery, energy recovery
6. The most preferred method for solid waste disposal should be \_\_\_\_\_.
  - a. Segregation and direct disposal
  - b. Direct burning
  - c. Segregation and composting
  - d. Landfilling.
7. The release of untreated food industrial waste waters into water bodies will cause \_\_\_\_\_.
  - a. Death of aquatic life
  - b. Depletion of marine resources
  - c. Alteration in composition
  - d. Increase in the BOD levels.

8. The process of removal of large sized impurities and non biodegradable matter is called \_\_\_\_\_.
  - a. Sedimentation
  - b. Ozonisation
  - c. Screening
  - d. Flocculation.
9. By products such as \_\_\_\_\_ can be produced from fruit and vegetable wastes.
  - a. Protein isolates and substitutes.
  - b. Fatty acid esters
  - c. Pectin and Vinegar.
  - d. Flavanoids and amino acids.
10. The EMS for a food industry is a structure which \_\_\_\_\_.
  - a. Assesses the food quality control practices.
  - b. Controls the sales and profit scales
  - c. Assesses and controls the activities having an environmental impact
  - d. Monitors the logistics and production procedures.

**II. True or False**

11. The DO levels in waste waters is an indicator for mineral content present in it.
12. The oilseed residues remaining after the extraction can be utilised only as cattle feed.
13. The total dissolved solids content signifies the level of impurities present in water.
14. The use of microorganisms in treatment of waste waters increases toxicity.
15. Whey protein isolates are an example of by product generated in marine processing.

**III. Explain the following.**

16. Flocculation
17. COD
18. Sludge
19. Nematodes
20. Composting.

**Section B**

**Answer any six questions**

**6X3=18**

21. Difference between primary treatment and tertiary treatment.
22. Role of ETP in a food industry
23. Define food wastes. How are they classified.
24. Why is pre-treatment of wastes essential and how is it carried out?
25. How are earthworms beneficial in treating solid wastes?
26. Explain physical characteristics of waste waters.
27. What are the by products produced from marine wastes
28. Explain the hierarchy of management of wastes.
29. Explain in detail the need for processing food wastes.
30. Explain the following terms
  - a. Fish oils
  - b. BOD
  - c. Ozonization

**Section C**

**Answer any two**

**2x6 =12**

31. Justify- By product utilisation of meat wastes is essential.
32. What are methods under Secondary treatments of waste waters.
33. EMS- Is it important for a food industry?
34. With an example, identify the steps of waste generation during processing. Write about any three by products produced from fruit and vegetables wastes.

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**MARKS :50**

**All questions are compulsory.**

- 1. Estimate the phosphorous content in the given sample.**

(concentration : 1 ml = **8  $\mu$ g**).

Write aim, principle, procedure, observation table, calculation, result and graph.

- 2. Estimate the D.O. content of the given sample.**

Write aim, principle, procedure, observation and calculations, result.

- 3. Identify the given spotter and explain working and application.**