Register Number: **0823**

Name of the Candidate:

M.E. DEGREE EXAMINATION, 2016

(ENVIRONMENTAL ENGINEERING)

(SECOND SEMESTER)

ENVC-201: INDUSTRIAL WASTE WATER TREATMENT

(Common with Part-Time)

May] [Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions *(5×15=75)*

1. Briefly explain the following characteristics of wastewater:
   a) Total nitrogen (5)
   b) Total Phosphorous (5)
   c) Heavy metals (5)
2. Explain the organic and inorganic impurities present in wastewater and their effects on agricultural land. (15)
3. Briefly describe the flow equalization process, design parameters with neat sketches. (15)
4. Explain the working principles of clarifiers and construction with neat sketches. (15)
5. Draw a flow diagram for a conventional activated sludge plant and explain any three processes and operations. (15)
6. Briefly explain the working principles and constructions of UASB reactor. (15)
7. Briefly discuss the different types of membrane technologies and their merits and demerits. (15)
8. Explain the complete operations and processes for sugar CETP with a neat flow diagram. (15)

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Register Number:

0824

Name of the Candidate:

M.E. DEGREE EXAMINATION, 2016

(ENVIRONMENTAL ENGINEERING)

(SECOND SEMESTER)

ENVC-202: PROCESSES AND UNIT OPERATIONS FOR WASTE WATER TREATMENT

May] [Time: 3 Hours

Maximum: 75 Marks

Draw neat sketch If needed
Use SI Unit
Assume suitable data if needed
Answer any FIVE questions *(5×15=75)*

1. The Cumulative flow of waste water reaching a treatment plant in a day varies as shown in the table. Determine the capacity of an equalization tank for the given flow variation.

Time(Hr)	0	2	4	6	8	10	12	14	16	18	20	22	24
Cumulative Flow	0	25	50	75	110	120	130	140	150	160	170	198	225

(15)

2. Write short notes on :
   a) Hindered settling. (7½)
   b) Clarifier (7½)
3. Mention the various types of reactor and explain in detail with a neat sketch. (15)
4. Explain the principle and operation of pressure media filter with a neat sketch. (15)
5. Explain in detail about the various forms of Chlorination with a neat sketch of Break Point Chlorination. (15)
6. Write short notes on:
   a)Membrane technologies. (7½)
   b) Nano filtration and Reverse osmosis (7½)
7. Settling column analysis is run on a Type –I suspension. The column is 2m deep and data are shown below. (15)

Time (minute)	0	50	100	150	200	250	400
Concentration(mg/l)	250	180	150	130	110	90	30

What will be the theoretical removal efficiency in a settling tank with a load rate of $20m^3/m^2/day$?

8. Explain briefly about working and function of secured landfill with neat sketch. (15)

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Register Number:

0825

Name of the Candidate:

M.E. DEGREE EXAMINATION, 2016

(ENVIRONMENTAL ENGINEERING)

(SECOND SEMESTER)

ENVC-203: ENVIRONMENTAL IMPACT ASSESSMENT

May] [Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions *(5×15=75)*

1.	a)	With a help of a flow chart, describe the E.I.A process.	(8)
	b)	Give the Indian and W.H.O standard for Air quality monitoring.	(7)
2.	a)	Explain briefly the zoning procedures for an urban and industrial areas.	(8)
	b)	Explain briefly the various restrictions and bans imposed on certain development of Industrial areas.	(7)
3.	a)	What are the uses of air pollution indices?	(8)
	b)	Explain any two methods of determining air pollution index.	(7)
4.	a)	Describe briefly the E.I.A for Hazardous wastes.	(8)
	b)	Write short notes on "Fault tree analysis".	(7)
5.	a)	Describe briefly the aims and objectives of pollution control agency.	(6)
	b)	Explain briefly the toxic effects, and its impact on soil quality/ ground water quality.	(9)
6.	a)	Describe the social objectives, health objectives, economic aspects of pollution control efforts.	(8)
	b)	Write a brief note on Technology transfer and its importance in water quality management.	(7)
7.	a)	Explain briefly about the Land pollutions caused from liquid and solid wastes.	(8)
	b)	Write a brief note on the provisions in the law for initiating action against the violated industry.	(7)
8.	a)	What are the different types of information to be depicted in an Environmental Audit Report?	(8)
	b)	Describe briefly, the procedure of evaluating audit results.	(7)

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Register Number:

0826

Name of the Candidate:

M.E. DEGREE EXAMINATION, 2016

(ENVIRONMENTAL ENGINEERING)

(SECOND SEMESTER)

ENVC-204: SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT

(Common with Part-Time)

May]

[Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions *(5×15=75)*

1. a) Explain the role of separation and storage system in Solid Waste Management. (10)
   b) Explain the legislative trends and impacts of solid waste management. (5)

2. Describe the different methods of volume reduction in Solid Waste Management. (15)

3. Explain the recovery and reuse process in Solid Waste Management. (15)

4. Write the short notes on the following:
   a) Ocean Disposal (5)
   b) Characteristics of Hazardous waste (6)
   c) Incineration (4)

5. Enumerate the factors affecting Sold Waste generation. (15)

6. With neat sketch explain the incineration process. (15)

7. In Solid Waste Management explain the role of compositing. (15)

8. Explain the following:
   a) Characteristics of Hazardous Wastes
   b) Ground water pollution by landfill
   c) Treatment Methods (15)

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Register Number:

Name of the Candidate:

0827

M.E. DEGREE EXAMINATION, 2016

(ENVIRONMENTAL ENGINEERING)

(SECOND SEMESTER)

ENVC – 205: AIR POLLUTION MONITORING AND CONTROL

May] [Time : 3 Hours

Maximum : 75 Marks

Answer any FIVE questions (5 × 15 = 75)

1. Sketch the following plume phenomena and discuss each in relation to dry adiabatic lapse rate.
   a) Trapping. (5)
   b) Conning. (5)
   c) Fumigating. (5)
2. a) Discuss in detail the different methods of control of gaseous contaminants. (5)
   b) Briefly describe the Guassian dispersion model for air pollutants. (10)
3. a) Write about instrument for sampling gas vapours. (5)
   b) Explain Iso-kinetic condition and ambient air quality monitoring. (10)
4. a) Explain with neat sketch the construction and working of fabric filter. (10)
   b) Explain in detail the different types of condensation system. (5)
5. What are the objective of sampling of atmosphere and explain about selecting sampling stations. (15)
6. What is a high volume sampler? Explain its salient features and procedure adopted for the sampling and measurement of suspended particulate matter in air. (15)
7. Describe the process of adsorption and give examples of its application in air pollution control. (15)
8. Discuss the pollution control process of gaseous contaminants throught absorption. With the help of suitable diagrams explain the working principles of spray tower and tray tower used for the absorption of gaseous contaminants. (15)

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0828

Register Number:

Name of the Candidate:

M.E. DEGREE EXAMINATION, 2016

(ENVIRONMENTAL ENGINEERING)

(SECOND SEMESTER)

ENVE-206: NOISE POLLUTION AND CONTROL

(Elective)

May] [Time: 3 Hours

Maximum: 75 Marks

Answer any FIVE questions *(5×15=75)*

1. a) Discuss briefly, the sources of noise due to Air, rail and road traffics. (10)
   b) Discuss the following terms
      i) Air borne noise
      ii) Structure borne noise (5)
2. a) Explain with neat sketch, the human hearing mechanisms. (10)
   b) Brief the effect of noise pollution, with reference to hearing loss. (5)
3. a) Discuss in detail, how the noise pollution leads to stress and annoyance. (10)
   b) Brief the explosive limit of noise. (5)
4. a) Describe briefly, the fundamentals and principles of sound generation. (10)
   b) Discuss briefly about the behavior of reflected sound waves from flat, convex and concave surfaces. (5)
5. a) Explain briefly the various components of sound level meter. (10)
   b) Brief the various types of sound level meters available. (5)
6. a) Find out the noise levels in decibels if the sound pressure level measured is 6×10^{-3} N/m^2. (10)
   b) Write short notes on noise sampling technique. (5)
7. With neat sketch explain the sound insulation and noise reduction methodology adopted in the acoustical design of studios meant for broad casting/recording. (15)
8. Discuss briefly the various noise control measures adopted for the community and industrial noises. (15)

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