

AR13

CODE: 13OE4001

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

AIR QUALITY MANAGEMENT
(Civil Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

- 1 a) Define the term Smog.
- b) What is meant by Natural Pollutant and state an example for the same?
- c) What is meant by Acid Rain?
- d) Name any two effects of Air Pollution
- e) What is meant by Heat Island?
- f) Define the term Fabric filter.
- g) State an example for Dry Scrubber.
- h) What is the function of Gravity Settling chamber?
- i) What is meant by Flue gas?
- j) State the function of Cyclone Dust separator.

PART-B

Answer one question from each unit

[5 x 12=60M]

UNIT-I

2. (a) Explain briefly about the advantages and disadvantages of Natural Pollutants. [6M]
- (b) Explain about the causes of Air Pollution. [6M]
- (OR)
- 3 (a). Discuss about the measures to be adopted to control Air Pollution. [6M]
- (b). Discuss in brief about the various measurement of Pollution classifications. [6M]

UNIT-II

4. (a) Write a note on the effects of Air Pollution on Human Life and Vegetation. [6M]
- (b) Discuss the importance in the study of Green House effect and Acid rains. [6M]

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(OR)

- 5 (a) Discuss about the various meteorological aspects of Air Pollution. [6M]
(b) Write a note on the study of Heat Islands and Ozone Holes [6M]

UNIT-III

- 6 (a) Discuss about Dry and Wet scrubbers and mention its uses [6M]
(b) Write a short note upon the Preventive measures of Air Pollution. [6M]

(OR)

- 7 (a) Discuss briefly about the various source and Physiological effects of Air Pollution. [6M]
(b) Discuss about the functioning of Centrifugal separator [6M]

UNIT-IV

- 8 Explain about various In-plant control measures and Process changes to be taken in control of NO₂ and SO₂ emissions. [12M]

(OR)

- 9 Explain the general methods of control of NO₂ and SO₂ emissions. [12M]

UNIT-V

- 10 (a) Write a note on the Ambient Air Quality Management. [6M]
(b) Discuss in brief the various meteorological factors which must be considered while selecting a Monitoring Site. [6M]

(OR)

- 11 (a) Explain in brief about the Inter Laboratory proficiency testing of Ambient Air Quality Management. [6M]
(b) Discuss the principle factors that affect while selecting a Monitoring Station [6M]

AR13

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SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

RENEWABLE ENERGY

(Electrical & Electronics Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What does a pyranometer measure?
b) What is the greenhouse effect and why is it important?
c) What is a 'solar pond'?
d) What is a wind farm? Why are many new wind farms built offshore?
e) What is the minimum number of absorbed solar photons needed to produce one molecule of oxygen?
f) How is a carbon atom in biomass different in effect from a carbon atom in fossil fuel?
g) What is biodiesel and in what ways does it differ from bioethanol?
h) Lord Kelvin calculated the age of the Earth assuming it is a hot body cooling in a vacuum from a molten mass. Was he correct in the assumption, and if not, why not?
i) What are the advantages of ocean tidal energy?
j) Draw the schematic of a Fuel Cell.

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. (a) Evaluate the monthly average clearness index for 16 March 2001, at a surface located 30°N. The monthly average daily terrestrial radiation on a horizontal surface is 28.1 MJ/m²/day. **[8M]**
(b) Discuss the following terms: i) Diffuse radiation ii) Reflected radiation. **[4M]**

(OR)

3. (a) At Nagpur the following observations were made: theoretical maximum possible sunshine is 9.5 hours, average measured length of a day during the April is 9.0 hours, and Solar radiation for a clear day, H_0 is 2100 kJ/m²/day. Calculate the average daily global radiation. **[6M]**
(b) Discuss various types of solar radiation measuring instruments. **[6M]**

UNIT-II

4. (a) Discuss the parameters governing the performance of a flat plate collector. [6M]
(b) Explain the principle of solar thermal energy storage system. [6M]
(OR)
5. (a) Discuss the uses of solar energy for heating purposes. [6M]
(b) Explain the solar air-conditioning and refrigeration. [6M]

UNIT-III

6. (a) What benefits may occur if an anaerobic digester is installed at a cattle farm? [4M]
(b) Discuss the different types of wind turbines used to extract wind energy [8M]
(OR)
7. (a) What are the environmental impacts of using wind energy? [6M]
(b) Briefly explain the biomass cogeneration. [6M]

UNIT-IV

8. (a) What types of engine can operate from geothermal energy? Explain how they function. [6M]
(b) Describe with the help of simple schematic the process of an ocean thermal energy conversion based on steam cycle. [6M]
(OR)
9. (a) Discuss the various ways of geothermal power generation [6M]
(b) Discuss the relative advantages and limitations of tidal power projects. [6M]
How can the tidal power supply be made continuous?

UNIT-V

10. (a) Explain Carnot cycle. What is the theoretical Carnot efficiency of a simple steam-engine working in an environmental temperature of 20°C? [6M]
(b) Explain important factors to be considered for selecting materials for MHD generator. [6M]
(OR)
11. (a) Discuss the operating characteristics of a fuel cell. [6M]
(b) Write a short note on (i) Seebeck Effect (ii) Hall effect (iii) Joule Thompson effect. [6M]

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**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

**TOTAL QUALITY MANAGEMENT
(Mechanical Engineering)**

Time: 3 Hours

Max Marks: 70

Note: Graph sheets are to be supplied to the students and Control Chart Constants Table may be permitted.

PART – A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a). List the dimensions of Quality.
b). Distinguish between Quality Control and Quality Assurance.
c). What do you mean by Kaizen?
d). What are the three components of Juran Trilogy?
e). Is cleanliness the only benefit of implementing '5 S' practices?
f). What are the uses of the control charts?
g). List the advantages of Benchmarking.
h). Draw the general structure of House of Quality.
i). Suggest the areas where Quality Function Deployment (QFD) is employed.
j). What is the need for ISO 9000?

PART-B

Answer one question from each unit

[5 x 12=60M]

UNIT-I

2. a). How the quality of a service organization can be improved? Discuss the Deming's 14 points for managing never-ending improvement. [6 M]
b). Explain in detail the barriers for the implementation of TQM [6 M]
(OR)
3. a). What are the major similarities and differences between Deming's, Juran's, and Crosby's perspectives of quality management? [6 M]
b). Explain the terms: [6 M]
 - i. Statistical Process Control (SPC)
 - ii. Process Capability (PC)
 - iii. Statistical Quality Control (SQC)

UNIT-II

4. a). Discuss the role to be played by the employees for effective implementation of Kaizen? [6 M]
b). What is a team? Describe the characteristics of successful teams. [6 M]

(OR)

5. a). Discuss the importance of employee involvement and motivation for enhancing quality. [6 M]
 b). Explain the issues related to customer's complaints and retention. [6 M]

UNIT-III

6. A high voltage power supply should have a nominal output voltage of 350 V. A sample of 4 units is selected each day and tested for process control purposes. The data given below gives the difference between the observed reading on each unit and the nominal voltage times ten. Set up \bar{X} and R charts on this process by determining the trial central line and control limits. Verify if the process is in control or not. [12 M]

Sample No.	X ₁	X ₂	X ₃	X ₄	Sample No.	X ₁	X ₂	X ₃	X ₄
1	6	9	10	15	11	8	12	14	16
2	10	4	6	11	12	6	13	9	11
3	7	8	10	5	13	16	9	13	15
4	8	9	6	13	14	7	13	10	12
5	9	10	7	13	15	11	7	10	12
6	12	11	10	10	16	15	10	11	14
7	16	10	8	9	17	9	8	12	10
8	7	5	10	4	18	15	7	10	11
9	9	7	8	12	19	8	6	9	12
10	15	16	10	13	20	13	14	11	15

(for sample size $n=4$, $A_2=0.73$, $D_3 = 0$, $D_4 = 2.28$)

(OR)

7. a). Discuss the role of Six Sigma in service sectors. [6 M]
 b). Explain the objective and concept of Total Preventive Maintenance (TPM). [6 M]

UNIT-IV

8. a). Discuss about POKAYOKE and state the principles of POKAYOKE. [6 M]
 b). List the benefits of Failure Mode and Effect Analysis (FMEA). [6 M]

(OR)

9. a). Highlight the benefits of Quality Function Deployment (QFD). [6 M]
 b). What three different outcomes can benchmarking studies reveal? What course of action is appropriate for each outcome? [6 M]

UNIT-V

10. a). Explain the classification of ISO 9000 Quality Systems standards. [8 M]
 b). Write a brief note of Quality System Auditing. [4 M]

(OR)

11. a). Explain the features of ISO 14000 and the procedure to obtain ISO 14000 certification [8 M]
 b). What are the benefits of ISO : 14000 certification [4 M]

Time: 3 Hours**Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

1. a) Define the Warrant?
b) Explain the importance of Arrest?
c) Mention any two new crimes created with the internet itself?
d) What is the importance of Cyber-Punks?
e) Differentiate between Source versus Residence?
f) Differentiate between Business Income and royalty?
g) Define Certifying Authority?
h) Define E-Governance?
i) Explain the concept of Consumer Complaint?
j) Define RTP?

PART-B**Answer one question from each unit****[5x12=60M]****UNIT-I**

2. Narrate any two major crimes of this millennium? [12M]
(OR)
3. a Differentiate between the bailable and Non-bailable [6M]
b Justify the statement "Arrest, but no punishment three conditions of grounds" [6M]

UNIT-II

4. Define Hacking? And Mention the motivating factors and causes for hacking in detail? [12M]
(OR)
5. a Write a short notes on Teenage Web Vandals ? [6M]
b Differentiate between the Cyber Fraud and Cyber Cheating ? [6M]

UNIT-III

6. Describe the Finding the PE in cross border E-commerce and illustrate with any four supportive conditions? [12M]
(OR)
7. a Mention tax reliefs that have granted to the IT Sector under the Income Tax Act, 1961? [6M]
b Write a short note on Permanent Establishment (PE)? [6M]

UNIT-IV

8. Explain about Certifying Authorities and Liability in the Event of Digital Signature compromise. [12M]
(OR)
9. Explain E-Governance importance in the cyber laws thoroughly. [12M]

UNIT-V

10. Explain in brief Restrictive and Unfair Trade Practices. [12M]
(OR)
11. Explain the terminology in detail "Defect in Goods and Deficiency in Services". [12M]