AR13

CODE: 13OE4001 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

AIR QUALITY MANAGEMENT

(Open Elective)

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Which gas was the cause of deaths in the Bhopal gas tragedy?
   b) Give example of a secondary air pollutant which is carcinogenic.
   c) What is the global warming potential of marsh gas? What are its common sources?
   d) Why is heat island effect not found in rural areas and forested areas?
   e) What is filter ratio in fabric filters? How does it affect pollutant removal efficiency?
   f) What is a mechanical scrubber?
   g) Why is lignite not preferred in thermal power stations?
   h) Name two materials which can adsorb Nitrogen oxides from flue gases.
   i) What is RSPM? What is its particle size range?
   j) What does PM2.5 mean?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) What are point and non-point sources of air pollution? Give examples. 6M
   b) What is photochemical smog? How is it formed? What are its undesirable effects in urban areas? 6M

(OR)

3. a) What are stationary and mobile sources of air pollution? Give examples. 6M
   b) How can electric or hybrid vehicles help reduce mobile air pollution? 6M

UNIT-II

4. a) Explain the effects of air pollution on the respiratory system of human beings. 4M
   b) How are ozone holes formed? What action has been taken under the United Nations to contain the damage to ozone layer? What can we do at personal level to limit further damage to ozone layer? 8M

(OR)

5. a) What are the economic losses incurred due to air pollution? 4M
   b) What is Green House Effect? What is global warming potential (GWP) of a gas? What is the GWP of CO_2 ? 8M

UNIT-III

6. a) Explain how process changes in manufacturing facilities can help reduce particulate emissions. 6M
   b) Sketch the outline of a gravity settling chamber and explain how it helps to remove particulate air pollutants. 6M

(OR)

7. a) What is a bag house filter? How can it be used for capturing particulates from an emission stream? 6M
   b) Explain the working principle of a cyclone and how it helps remove particulates from effluent streams. 6M

UNIT-IV

8. a) How can liquids be used to remove gaseous pollutants. Name a few commonly used liquids for air pollution control. 6M
   b) What are the by products of wet methods for removing polluting gases? What are their uses. 6M

(OR)

9. a) List the important in-plant control measures for reducing gaseous pollutants in emissions. 6M
   b) Explain the control methods of Nitrogen Oxide emissions. 6M

UNIT-V

10. a) What is SPM? Why is it important to monitor their levels in ambient air? What are the important sizes in particulates that are monitored in urban areas? 6M
    b) What are Bharat Stage IV emissions standards for Petrol vehicles? How are they different between 2 wheelers and 4 wheelers? 6M

(OR)

11. a) What are the important polluting gases that are monitored in urban areas? Explain the sources of these gases in urban areas and how they are monitored. 6M
    b) Draw up a table and list the important gas and particulate pollutants and their limits as per the World Health Organisation of the United Nations Organisation. 6M

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AR13

CODE: 13OE4007 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

RENEWABLE ENERGY

(Electrical & Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Define solar constant.
   b) What is the instrument used for measuring only beam type solar radiation?
   c) Draw I-V curve of a solar cell.
   d) What is photo electric effect?
   e) What is the difference between biomass and biogas?
   f) Name the various models of biogas plants.
   g) Define tidal range?
   h) What is ocean thermal energy?
   i) What is Hall's effect?
   j) What is the principle of operation of fuel cell?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) What is meant by renewable energy source? Explain in brief these energy sources with special reference to Indian context. 6 M
   b) Define extra-terrestrial and terrestrial radiation and explain how do they propagate to the Earth with suitable diagram? 6 M

(OR)

3. a) Describe the principle of pyrheliometer. 6 M
   b) Discuss how energy is produced in the Sun with suitable equations and write about different layers of Sun with suitable diagram. 6 M

UNIT-II

4. a) What are the advantages and disadvantages of concentrating collectors over flat plate collectors? 6 M
   b) Explain the principle of solar photovoltaic power generation. What are the main elements of a photovoltaic system? 6 M

(OR)

5. a) Write a short note on solar distillation? 6 M
   b) What are the types of thermal energy storage systems? Explain about them in brief? 6 M

UNIT-III

6. a) Discuss the combustion characteristics of biogas and justify how will it be suitable for cooking? 6 M
   b) Discuss advantages and disadvantages of horizontal and vertical axis wind mill. 6 M

(OR)

7. a) What is meant by anaerobic digestion? What are the factors, which effect bio-digestion? Explain briefly. 6 M
   b) Explain a vertical axis wind mill with a neat diagram. 6 M

UNIT-IV

8. a) What is wave energy? Explain the working principle of a wave energy conversion system. 6 M
   b) With a neat sketch explain the working of an Anderson OTEC power plant. 6 M

(OR)

9. a) With a neat sketch explain about a typical geothermal field. 6 M
   b) With help of neat sketch explain the working of a mini–hydel power plant 6 M

UNIT-V

10. a) with block diagram explain closed cycle MHD system. 6 M
    b) Explain Carnot cycle with suitable diagram, write the limitations of Carnot cycle 6 M

(OR)

11. a) Describe, with the help of neat diagram, the working principle of a thermoelectric power generator. 6 M
    b) What is a fuel cell? Describe the principle of working of a fuel cell with reference to H_2- O_2 cell. 6 M

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CODE: 13OE4009 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

TOTAL QUALITY MANAGEMENT

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1x10= 10 M]**

1. a) Define quality
   b) Define TQM
   c) What is customer satisfaction
   d) What is supplier selection
   e) What are variable control charts
   f) Define reliability in series
   g) Define POKA VOKE
   h) Defne QFD
   i) Define Documentation
   j) What is quality system

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Explain Demings contribution (6m)
   b) Explain various concepts of TQM (6m)

(OR)

3. a) Discuss Barriers to TQM (6m)
   b) Write a brief notes on need of quality (6m)

UNIT-II

4. a) Discuss various performance measures (6m)
   b) Explain steps in PDSA cycle (6m)

(OR)

5. a) Write a brief note on customs complaints (6m)
   b) Briefly explain various performance measures (6m)

UNIT-III

6. a) Explain process capabilities (6m)
   b) Discuss control charts (6m)

(OR)

7. a) Explain BPR (6m)
   b) Explain Reliability (6m)

UNIT-IV

8. Explain seven management tools (12m)

(OR)

9. Explain FEMA (12m)

UNIT-V

10. a) What are advantages of ISO 9000 standards (6m)
    b) Explain quality auditing (6m)

(OR)

11. Discuss various quality systems in detail (12m)