

Name :  
Reg No :

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY  
07 THRISSUR CLUSTER**

**SECOND SEMESTER M.TECH. DEGREE EXAMINATION APR 2017**

**Civil Engineering**

**Environmental Engineering**

**07CE6104 AIR QUALITY MANAGEMENT AND METEOROLOGY**

**Time : 3 hours**

**Max.Marks: 60**

Answer all six questions. Part 'a' of each question is compulsory.

Answer either part 'b' or part 'c' of each question

<b>Q.no.</b>	<b>Module 1</b>	<b>Marks</b>
<b>1a</b>	Write a short note on air pollution?	<b>4</b>
	<b>Answer b or c</b>	
<b>b</b>	Explain the various scales of concentration?	<b>5</b>
<b>c</b>	Carbon monoxide is present in standard atmospheric air at a concentration of 50ppm. Compute $Y_p$ , $\rho_p$ , $w_p$ values for the CO concentration in the atmosphere. Given $\rho_a = 1.185 \text{ Kg/m}^3$ , $M_p = 28$ .	<b>5</b>
<b>Q.no.</b>	<b>Module 2</b>	<b>Marks</b>
<b>2a</b>	What are different types of lapse rates?	<b>4</b>
	<b>Answer b or c</b>	
<b>b</b>	Name the different types of plumes? Explain.	<b>5</b>
<b>c</b>	Write a note on Gaussian plume model?	<b>5</b>
<b>Q.no.</b>	<b>Module 3</b>	<b>Marks</b>
<b>3a</b>	Write a note on ambient air sampling?	<b>4</b>
	<b>Answer b or c</b>	
<b>b</b>	Explain in detail any two methods used for collection of gaseous air pollutants?	<b>5</b>
<b>c</b>	Describe with a neat sketch the working of a Non dispersion infrared analyser (NDIR)?	<b>5</b>

<b>Q.no.</b>	<b>Module 4</b>	<b>Marks</b>
<b>4a</b>	What are the different source correction methods?	<b>4</b>

**Answer b or c**

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|----------|---|----------|
| <b>b</b> | Write a short note on gravitational settling chamber?               | <b>5</b> |
| <b>c</b> | Derive the equation for collection efficiency for settling chamber? | <b>5</b> |

<b>Q.no.</b>	<b>Module 5</b>	<b>Marks</b>
<b>5a</b>	Explain the working mechanism of fabric filters?	<b>5</b>

**Answer b or c**

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|----------|--|----------|
| <b>b</b> | Explain the working of an electrostatic precipitator with a neat sketch?   | <b>7</b> |
| <b>c</b> | A plate type electrostatic precipitator for use in a cement plant for removing dust particles consist of ten equal channels. The spacing between the plates is 0.15m and the plates are 2m high and 2m long. The unit handles 1000m <sup>3</sup> /hr of gas. What is the collection efficiency? What should be the length of the plates for achieving 99% collection efficiency if other conditions are same. Particle migration velocity $V_{pm}=0.1\text{m/s}$ | <b>7</b> |

<b>Q.no.</b>	<b>Module 6</b>	<b>Marks</b>
<b>6a</b>	Write a short note on noise pollution?	<b>5</b>

**Answer b or c**

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| <b>b</b> | With a neat sketch explain Reinluft process?                                       | <b>7</b> |
| <b>c</b> | What are the various process modifications adopted for control of nitrogen oxides? | <b>7</b> |