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Name:

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SECOND SEMESTER M.TECH DEGREE EXAMINATION, APRIL 2018
07 Thrissur Cluster
Civil Engineering
Environmental Engineering
07CE6104 Air Quality Management & 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

Q.no.	Module 1	Marks
1a	Explain the economic effects of air pollution	4
	Answer b or c	
b	Explain briefly any two removal methods of gaseous pollutants.	5
c	CO is present in standard atmospheric air at a concentration of 40ppm. Compute the mass concentration for the CO concentration in atmosphere.	5
Q.no.	Module 2	Marks
2a	Explain the causes and effects of inversion in the atmosphere.	4
	Answer b or c	
b	Explain the role of meteorological elements in the dispersion of air pollutants in the atmosphere	5
c	Calculate the plume rise, if the stack exit velocity is 15 m/sec, inner diameter of the stack is 26m, with the following data Atmospheric pressure=1012mb Stack gas temperature=420 ⁰ K Ambient air Temperature=297 ⁰ K Wind speed =3m/sec	5
Q.no.	Module 3	Marks
3a	Differentiate grab sampling and freeze-out sampling.	4
	Answer b or c	

b	Describe the method of sampling suspended particulates by high volume filtration.	5
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c	Explain the methods for the analysis of carbon monoxide.	5
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Q.no.	Module 4	Marks
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4a	What are the basic mechanisms for removing particulate matter from gas stream?	4
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Answer b or c

b	Compare settling chambers and cyclones with reference to the removal of particulate matter	5
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c	Explain how particulate matter is removed from gas stream using cyclone separator.	5
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Q.no.	Module 5	Marks
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5a	What are the factors affecting the selection of scrubbing medium.	5
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Answer b or c

b	Explain the functioning of electrostatic precipitator.	7
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c	Derive the equation for efficiency in terms of volume of precipitator	7
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Q.no.	Module 6	Marks
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6a	. Explain the sources of noise pollution and their control methods.	5
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Answer b or c

b	Explain the methods used for the control of hydrocarbons.	7
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c	What are the modifications of operating conditions for the control of Nitrogen oxides	7
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