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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- Oct 2019

B.Tech 7th Semester

COURSE CODE: 10B13CE742

MAX. MARKS: 25

COURSE NAME: Air Pollution Monitoring and Control

COURSE CREDITS: 3

MAX. TIME: 1Hr 30 Min

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume any other necessary data suitably.

1. Determine the effective height of a stack, given the following data :
 - (a) Physical stack is 170 m tall with a 1.25 m inside diameter
 - (b) Wind velocity is 5.17 m/s
 - (c) Air temperature is 18 °C
 - (d) Atmospheric pressure is 1000 millibars
 - (e) Stack gas velocity is 8.75 m/s
 - (f) Stack gas temperature is 128 °C (4)
2. A parcel of dry air rising over a grass fire has a temperature of 60 °C at 10 m. Assuming a dry adiabatic lapse rate, determine the temperature at 200 m. (2)
3. Sketch and explain different kinds of plumes depending upon different environmental conditions. (4)
4. Describe the sources, sinks and effects of carbon dioxide. (3)
5. Define and explain the relationship between ambient and adiabatic lapse rates and atmospheric stability. What is meant by effective stack height and what factors control this? (3+2)
6. (a) Differentiate with examples
 - i. Primary and secondary air pollutants
 - ii. Stationary and mobile source(b) Green house effect is a global issue. Explain the term green house effect and its consequences. (2+2+3)