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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST IIIEXAMINATION (May- 2017)
M. Tech. (II- SEM.)

COURSE CODE: 14M31CE211 MAX. MARKS: 35
COURSE NAME: Air and Noise Pollution Control
COURSE CREDIT: 3 MAX. TIME: 2 HRS

Note: Attempt all Questions. Carrying of mobile phones during exams will be treated as case of unfair means. Assume suitable data if required.

1. With neat diagrammatic sketches and detailed expressions explain the following (a) importance of stability class in air pollution modeling, (b) significance of Gaussian Plume Model for regulatory purposes and (c) wind profile law. **(10)**

2. Discuss some of the major health problems associated with noise pollution. In this context, in a neat tabular configuration mention the maximum permissible noise levels associated with different human health concerns. **(4)**

3. Determine the following using CPCB formulae (a) minimum stack height for particulate matter emitted from a stack at rate of 650g/s, (b) minimum stack height for SO_2 emitted from a stack at rate of 250 g/s. **(5)**

4. A reverberant room has dimensions of 5m by 12m by 4m high. The measured reverberation time for the room is 5 seconds. The air in the room is at 298K and 101 kPa, at which condition the speed of sound is 350 m/s. The measured sound pressure level in the 500 Hz octave band due to the noise from pump in the room is 85 dB. Determine the sound power level for the pump in the 500 Hz octave band. **(4)**

5 Explain the terms L_{10} , L_{50} , L_{90} and their significance. Explain equivalent noise level and noise climate and how they are computed from these terms **(4)**

6 With a neat sketch and mathematical expressions where appropriate explain the functioning of (a) Sound Level Meter (SLM), (b) Intensity Level Meter (ILM) **(4)**

7 Determine the effective stack height using the following data: (a) Physical stack is 250 m high with 1.5 m internal diameter. (b) Wind velocity is 5 m/s (c) Air Temperature is 15^0C. (d) Barometric pressure is 1200 millibars (e) Stack gas velocity is 9.5 m/s and (f) stack gas temperature of 165^0C. Also determine the stack height using Moses and Carson's equation for neutral conditions. **(4)**