

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT**  
**TEST 1 EXAMINATION (February- 2018)**  
**M. Tech. (II- SEM.)**

COURSE CODE: 14M31CE211

MAX. MARKS: 15

COURSE NAME: Air and Noise Pollution Control

COURSE CREDIT: 3

MAX. TIME: 1 HR

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

1. Estimate the quantity of carbon in atmosphere corresponding to a concentration of 2.5 ppm<sub>v</sub> of CO<sub>2</sub>. Assume that total mass of air is  $5.5 \times 10^{21}$  g. The density of air at 0°C and 1 atmospheric pressure is 1.35 kg/ m<sup>3</sup> (2)
2. Determine the saturation value of HbCO in the blood if the air breathed in contains 100 ppm<sub>v</sub> of CO concentration. For the same condition as above, determine the % HbCO in the blood if the person is exposed for 2.5 hours and is working under heavy working conditions. How much exposure time is required to reach equilibrium levels of HbCO ? Assume M = 210 (1+1+1)
3. With a neat sketch and using the concept of *lapse rate*, briefly explain how categorization of atmosphere is done as 'stable', unstable and 'neutral' category (4)
4. With a neat chemical reactions explain the procedure as how ozone is broken down in the stratosphere. In this context, explain the role of CFC with chemical reactions (3)
5. With a neat sketch of an air sampling train explain the principle of Jacob and Hochheisser method to estimate SO<sub>2</sub> concentration in air. (3)