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BIMEE-018

B.Tech. – VIEP – MECHANICAL ENGINEERING (BTMEVI)

Term-End Examination

December, 2014

00685

BIMEE-018 : INDUSTRIAL ERGONOMICS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Assume any missing data suitably.*

1. What do you understand by occupational ergonomics ? How will this guide for improving productivity of the system ? Discuss. *14*

2. (a) Describe the factors that will contribute in developing back troubles among the industrial workers. *7*

(b) Explain the following terms in context of risk involved in industrial tasks, specifically for industrial workers : *7*

(i) Intervertebral disc

(ii) Disc pressure

(iii) Slip of disc

3. (a) State and describe the factors of the thermal work environment that will affect the human body. 7

(b) Describe the effect of cold and heat on human performance in the context of industrial tasks. 7

4. (a) Differentiate between hand, arm and whole body vibration. Assign numerical values for dangerous, quite uncomfortable, uncomfortable and no vibration. 7

(b) In the context of the characteristics of the whole body vibration, describe the following : 7

(i) Vibration magnitude

(ii) Vibration direction

(iii) Vibration duration

5. (a) What is role of anthropometric data in design of work-stations ? 7

(b) What do you understand by reach and clearance dimensions in the context of work-station design ? 7

6. (a) Describe your understanding about physiological and psychological effects of noise. 7

(b) What devices can be used to protect the workers from the ill-effects of noise ? Describe any two of them. 7

7. (a) What do you understand by the following terms in the context of Human Visual System : 7

(i) Accommodation

(ii) Visual capacity

(iii) Adaptation of retina

(b) Describe the perception of Job design for monotonous tasks in the context of man-machine system. 7