B. Tech.
(SEM. III) EXAMINATION, 2006-07
ERGONOMIC PRINCIPLES & PRACTICES
(ELECTIVE - I)

Time : 2 Hours] [Total Marks : 50

Note : Attempt all questions.

1. Attempt any two parts of the following : \(2 \times \frac{6}{2} = 13\)
   
   (a) Define ergonomics. Explain its importance and application.
   
   (b) Discuss any one of physiological responses and techniques of measurement.
   
   (c) Write short notes : (i) human biology (ii) Muscular work.

2. Attempt any two parts of the following : \(2 \times \frac{6}{2} = 13\)
   
   (a) Discuss with diagram the working principles of instrument used for measurement of body dimensions.
   
   (b) What are the design parameters of hand tools? Discuss.
   
   (c) Write short notes (i) arrangement of controls in tractor (ii) anthropometric data.
3. Attempt any **four** parts of the following: \(4 \times 3 = 12\)
   (a) What are the physiological factors affecting operator – machine performance? Discuss.
   (b) What is meant by noise? Discuss any method of measurement of noise emitted by tractor.
   (c) Discuss various provisions available on combine for reducing noise.
   (d) What are the different types of noise? Discuss.
   (e) Discuss factors affecting performance in hot environment.
   (f) Write short notes (i) Work place (ii) Vibration control

4. Attempt any **four** parts of the following: \(4 \times 3 = 12\)
   (a) What is meant by postural comfort? Discuss postures adopted while weeding the field.
   (b) What are the causes of accident? Discuss.
   (c) Suggest measures for preventing accident while using tractor in field and on road.
   (d) What are the different road signs used for mechanized farms? Discuss.
   (e) Discuss with diagram “Pressure distributions” of human body when sitting on tractor seat.
   (f) Explain with diagram “body joint angles” within comfort range.