

P P SAVANI UNIVERSITY

Six Semester of B. P. T. Examination

July 2021

SPPT3100 Bioengineering and Ergonomics

26.07.2021, Monday

Time: 10 a.m. To 1:00 p.m.

Maximum Marks: 70

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.

SECTION - I

- Q - 1 Essay Question(Any One) [10]**
- (i) What is Assistive Aids? Write down assessment for prescription of Assistive Device.
 - (ii) Write down any 2 types of Occupational Hazards and its management.
- Q - 2 Short Note(Any Two) [10]**
- (i) Parts of Wheelchair.
 - (ii) What is Barrier free environment? Write types of Barrier.
 - (iii) Write a note on Arm sling-An Upper Extremity Orthosis.
- Q - 3 Very Short Notes(Any Five) [15]**
- (i) Ergonomics advice for workers who is associated with lifting task.
 - (ii) What is Cognitive Ergonomics?
 - (iii) Vertical reach.
 - (iv) Prevention strategies for noisy work environment.
 - (v) Why Anthropometric measurements are important at workplace?
 - (vi) What is manual material handling?
 - (vii) Definition: Occupational stress.

SECTION - II

- Q - 1 Essay Question(Any One) [10]**
- (i) Write down components of upper limb prosthesis. Write different types of control mechanism for the same.
 - (ii) Write Principles of Universal Design with example.
- Q - 2 Short Note(Any Two) [10]**
- (i) RULA Tool for postural analysis.
 - (ii) Effects of excessive illumination on workers at workplace.
 - (iii) What is human error? Give types and examples of human errors.
- Q - 3 Very Short Notes(Any Five) [15]**
- (i) Write formula for NIOSH Lifting equation and mentions the variables.
 - (ii) Occupational Fatigue.
 - (iii) Horizontal reach.
 - (iv) What is Human factor?
 - (v) Repetitive strain injuries.
 - (vi) Difference between Endoskeleton and Exoskeleton prosthesis.
 - (vii) Any 2 Types of Manual wheelchair.
