

**P P SAVANI UNIVERSITY**

**Sixth Semester of B. P.T. Examination  
December 2021**

**SPPT3100 Bioengineering and Ergonomics**

**10.01.2022, Monday**

**Time: 09:30 a.m. To 12:30 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.
4. Use of scientific calculator is allowed.

**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 office workers.
- (ii) What is Human Information processing?
- (iii) Vertical reach.
- (iv) What is Work Physiology?
- (v) NIOSH Equation of lifting.
- (vi) What is manual material handling?
- (vii) Ring Orthosis.

**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.
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- Q - 2      Short Note(Any Two)      [10]**
- (i) REBA Tool for postural analysis.
- (ii) Effects of excessive Cold on workers at workplace.
- (iii) What is human error? Give types and examples of human errors.
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- Q - 3      Very Short Notes(Any Five)      [15]**
- (i) Cock Up Splint.
- (ii) Occupational Fatigue.
- (ii) Horizontal reach.
- (iv) What is Human factor ?
- (v) Repetitive strain injuries.
- (vi) Difference between Endoskeleton and Exoskeleton prosthesis.
- (vii) Any 2 Types of Manual wheelchairs.

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