



**SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH**

(A DEEMED TO BE UNIVERSITY)

**Bachelor of Physiotherapy (CBCS)**

**First Year Semester-II September 2025 Examination**

**Time: 3.00 Hrs.**

**[Max. Marks: 100]**

**BIOMECHANICS**

**Q.P Code: B2030**

*Your answers should be specific to the questions asked.*

*Draw neat labelled diagrams wherever necessary.*

**LONG ESSAY (Answer any Two)**

**2 X 10 = 20 Marks**

1. What is the functional position of hand? Add note on power grips (7+3)
2. Describe phases of gait. Explain any 4 factors affecting gait . (8+2)
3. Define Posture. Explain analysis of posture from posterior and lateral view with neat diagram. (3+7)

**SHORT ESSAY (Answer any Ten)**

**10X 5 = 50 Marks**

4. What is Muscle Tension? Classify it and explain in detail force - velocity relationship
5. Explain types of muscle contraction with suitable examples
6. Write a note on mechanical advantage of levers with examples in human body.
7. Describe Lumbo-pelvic rhythm
8. Give the properties and functions of intervertebral disc.
9. Discuss the load deformation & stress relaxation properties of connective tissues.
10. Explain palmar arches- give its types and uses.
11. Explain the kinetics & kinematics of elbow joint
12. Explain any 5 gait variables
13. Describe the kinematics of subtalar joint
14. Explain scapula humeral rhythm
15. Discuss the kinematics & kinetics of tibio femoral joint

**SHORT ANSWER (Answer any Ten)**

**10 X 3 = 30 Marks**

16. Define Q angle.
17. Define postural control
18. Define cadence and angle of toe out.
19. Explain anatomic pulley with example
20. What are the features of muscle fiber type II?
21. Define trabeculae system in hip joint.
22. Give few indications of using parallel bars.
23. Give the patellar motions
24. Define creep and hysteresis.
25. list the knee joint stabilizers
26. Explain kinematics of radioulnar joint
27. What are the functions of Golgi tendon organ and muscle spindle.

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**Time: 2.30 Hrs.**

**[Max. Marks: 80]**

## **Psychology and Sociology**

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### **Section - A**

**Psychology (40 marks)**

**QP Code: B2305**

*(Use Separate answer booklet for Section A & B)*

### **LONG ESSAY**

**1 X 10 = 10 Marks**

1. Define psychology? Describe introspection and observation method?

### **SHORT ESSAY**

**3X5=15 Marks**

2. Describe the psychological and physiological changes of adult age?
3. Describe Maslow's theory of needs?
4. Define stress. Describe the management of stress?

### **SHORT ANSWER**

**5 X 3 = 15 Marks**

5. Write 2 definitions of leadership??
6. What is reasoning? List different types of reasoning?
7. Explain approach – approach conflicts?
8. List theories of motivation?
9. List the stages of human development?

### **Section – B**

**Sociology (40 Marks)**

**QP Code: B2306**

*(Use separate answer booklet for section B)*

### **LONG ESSAY**

**1 X 10 = 10 Marks**

1. Explain the family and marriage problems in India

### **SHORT ESSAY**

**3X5=-15 Marks**

2. Explain the characteristics of the primary group
3. Distinguish between joint and nuclear family
4. What are the Causes of poverty

### **SHORT ANSWER**

**5 X 3 = 15 Marks**

5. Define anticipatory socialization
6. What is Polygamy?
7. Expand the Concept of Social Change and Deviance.
8. State the health consequences of alcoholism
9. Mention the beliefs in Indian Culture which have beneficial effect on health care system.



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**MAX MARKS: 80**

**BIOCHEMISTRY**

**Q.P. CODE: B2040**

*Your answers should be specific to questions asked.*

*Draw neat labelled diagrams wherever necessary*

**LONG ESSAY (answer any two)**

**10X2=20 Marks:**

1. Describe energy requirements and calculations based on activity levels.
2. Explain the digestion and absorption of lipids with the enzymes involved.
3. Describe the hormonal regulation of blood glucose and the pathophysiology of diabetes mellitus.

**SHORT EASY (answer any six)**

**6X5=30 Marks:**

4. Explain the classification of fatty acids.
5. What are essential amino acids? Give examples.
6. Describe the bicarbonate buffer system.
7. Write about lactose intolerance.
8. Write a short note on lipolysis.
9. Discuss the classifications and biological functions of cholesterol.
10. Define and classify vitamins. Mention sources and deficiency symptoms of Vitamin C.
11. What is Respiratory Quotient? Explain its physiological significance.

**SHORT ANSWERS (answer any ten)**

**10X3=30 Marks:**

12. Define basal metabolic rate.
13. What are ketone bodies?
14. Mention the contractile elements of muscle.
15. Mention symptoms of Vitamin A deficiency.
16. What is gluconeogenesis?
17. Name three dietary fibers.
18. Define net protein utilization.
19. Write any three examples of disaccharides.
20. What is the role of rRNA?
21. Mention any three hormones affecting metabolism.
22. What is BMI?
23. What is nitrogen balance?



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**[Max. Marks: 80]**

**BIOMECHANICS**

**Q.P Code: B2280**

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**LONG ESSAY**

**$2 \times 10 = 20$  Marks**

1. Discuss static and dynamic stabilizers of shoulder joint.
2. Define gait cycle. Explain gait variables. (2+8)

**SHORT ESSAY**

**$6 \times 5 = 30$  Marks**

3. Explain about the medial longitudinal arches structure and function
4. Write in detail about Analysis of posture in lateral view
5. Explain biomechanics of thorax and chest wall
6. Explain kinematics in temporomandibular joint.
7. Explain kinematics of tibiofemoral joint.
8. Explain the type & variety of joint, osteokinematics, arthrokinematics of 1st CMC, MCP & IP joint

**SHORT ANSWER**

**$10 \times 3 = 30$  Marks**

9. Define trabecular system
10. Define stress & strain
11. Define optimal posture
12. Explain isotonic contraction with example.
13. Write the uses of crutches
14. Define cadence.
15. Explain anatomic pulley with example
16. List the types of synovial joint classification
17. What is the role of gluteus medius in pelvic motions.
18. What are the uses of parallel bars.



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**TIME -2.30 HRS**

**MAX MARKS: 80**

#### **BIOCHEMISTRY**

**Q.P. CODE: B2290**

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#### **Long Essay**

**2x10 = 20 marks**

1. Define Enzymes. Classify enzymes. Give two examples for each class and the reaction catalyzed by them. (1+5+4)
2. Mention sources, Recommended Daily Allowance, biochemical functions and deficiency manifestations of folic acid. Add a note on folate antagonists. (1+1+4+2+2)

#### **Short Essays**

**6x5 = 30 marks**

3. Describe Cori's cycle & write the clinical significance of this cycle. (3+2)
4. Discuss the hormonal control of fluid and electrolyte homeostasis
5. What are steroids? Give the structure of cholesterol. Name the biologically important compounds derived from cholesterol. (1+2+2)
6. Write the differences between oxidative phosphorylation and substrate level phosphorylation. Give examples for substrate level phosphorylation. (3+2)
7. Name ketone bodies. Explain the pathophysiology of Ketoacidosis. (1+4)
8. List the hormones regulating plasma calcium & Describe their effects on regulation of calcium in the blood. (1+4)

#### **Short Answers**

**10 x3 = 30 marks**

9. Mention 3 disorders of urea cycle with the metabolic defect
10. Define Transamination. Give two examples of Transaminases.
11. Lactose Intolerance
12. Explain the protein sparing action of carbohydrates in the body
13. Define Anaplerosis? Give two examples of Anaplerotic reactions. (1+2)
14. Define Isoenzymes. List two examples with their serum biological reference range.
15. What are conjugated proteins? Give two examples and mention their functions. (1+2)
16. Define Osmolality, osmolarity & Colloidal osmotic pressure. (1+1+1)
17. What is the Biological reference range of potassium? List two conditions associated with hypokalemia. (1+2)
18. What is alkali reserve? Mention its biomedical importance (1+2)

