

[LN 0818]

AUGUST 2018

Sub. Code: 2457

**BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR
PAPER VII – PROSTHETIC SCIENCE – I**

Q.P. Code: 802457

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Prosthetic management for Syme's Amputation.
2. Explain about Prosthetic Alignment for Trans Tibial Prosthesis.
3. Biomechanics of Partial foot prosthesis.

II. Write notes on:

(8 x 5 = 40)

1. Trans Tibial Prosthetic gait deviation.
2. Check-Out Procedures for Syme's Prosthesis
3. Prosthetic Components used for Trans Tibial Prosthesis.
4. Types of Prosthetic Feet.
5. Suspension System Used for Trans Tibial Prosthesis.
6. Explain about Endoskeleton prosthesis and Exoskeletal prosthesis.
7. Biomechanics of Trans Tibial Prosthesis.
8. Materials used for partial foot prostheses.

III. Short answers on:

(10 x 3 = 30)

1. Check-out Procedures for Chopart.
2. PTB Socket.
3. Check-out Procedures for Trans Tibial Prosthesis.
4. PTBSC Socket Trim lines.
5. SACH Foot.
6. Trans Tibial Patient Physical Assessment.
7. Roles of Multidisciplinary team members.
8. TSB Socket.
9. Casting Procedure for Syme's Amputation.
10. Syme's Prosthesis Suspension System.

[LO 0219]

FEBRUARY 2019

Sub. Code: 2457

BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR
PAPER VII – PROSTHETIC SCIENCE – I

Q.P. Code: 802457

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Prosthetic Management for Partial Foot Amputation.
2. Syme's Prosthetic Gait Deviation.
3. Explain about types of Prosthetic Feet.

II. Write notes on:

(8 x 5 = 40)

1. Types of Trans Tibial socket designs.
2. Fabrication techniques of partial foot prosthesis.
3. Explain about PTB-SCSP Socket.
4. Fabrication Technique for Trans-Tibial Conventional Prosthesis.
5. Endoskeletal prosthesis and Exoskeletal prosthesis.
6. Check-out Procedures for Chopart.
7. Materials used for Trans – Tibial Prosthesis.
8. Prosthetic Management for Trans Tibial knee flexion contracture.

III. Short answers on:

(10 x 3 = 30)

1. Trans Tibial Prosthesis Suspension System.
2. Measurement Techniques for Partial Foot Prostheses.
3. Trans – Tibial Resin Lamination socket fabrication Procedure.
4. Check-Out Procedure for Syme's Prostheses.
5. Material Used for Partial foot Prosthesis.
6. SACH Foot.
7. Casting Technique for Syme's Prosthesis.
8. PTBSC Socket Trim lines.
9. Roles of Multidisciplinary team members.
10. Trans Tibial Prosthesis Bench alignment.

[LP 0819]

AUGUST 2019

Sub. Code: 2457

**BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR
PAPER VII – PROSTHETIC SCIENCE – I**

Q.P. Code: 802457

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Types of Prosthetic Feet. Partial Foot Measurement Procedures.
2. What is Jaipur foot? Chopart amputation describe in detail.
3. Check-Out Procedures for Trans Tibial Prosthesis.

II. Write notes on:

(8 x 5 = 40)

1. Partial Foot prosthesis Fabrication Procedures.
2. Syme's Prosthesis check-Out Procedures.
3. Trans Tibial Prosthetic Gait Deviation.
4. Components used for Trans Tibial Prosthesis.
5. Measurement Procedure for Syme's Prosthesis.
6. Prosthetic Components used for Syme's Prosthesis.
7. Biomechanics of partial foot prosthesis.
8. Explain about energy storage foot.

III. Short answers on:

(10 x 3 = 30)

1. Types of Trans Tibial Prosthetic Suspension.
2. Trans Tibial Prosthetic Measurement.
3. Bench Alignment for Syme's Prosthesis.
4. Materials used for Trans-Tibial Prosthesis.
5. Exoskeletal Prosthesis.
6. Lower Extremity Levels of Amputation.
7. PTB-SCSP socket Trim line.
8. Trans Tibial Prosthesis Static Alignment.
9. Endoskeletal prosthesis.
10. Materials Used for Partial foot Prosthesis.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0422]

APRIL 2022

Sub. Code: 2457

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSIONS)

BACHELOR IN PROSTHETICS AND ORTHOTICS

FIRST YEAR (Regulations 2017-2018)

PAPER VII – PROSTHETIC SCIENCE I

Q.P NO. 802457

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3X10=30)

1. Historical development in Lower Extremity Prosthetics.
2. Trans-tibial Prosthetic Prescription Guidelines.
3. Biomechanics of Symes foot prosthesis.

II. Write Notes on :

(8X5=40)

1. Distinguish between PTB and PTS socket designs.
2. Distinguish between Open and Closed ended below knee Socket.
3. Describe TSB transtibial Socket with a neat labelled diagram.
4. Describe supracondylar cuff suspension with a neat labelled diagram.
5. Dynamic alignment of transtibial prostheses.
6. Patellar tendon bearing socket principles.
7. Gait characteristics of a unilateral transtibial amputee with a prosthesis.
8. Effects of Ill-fitting Transtibial sockets.

III. Short Answers on :

(10X3=30)

1. STEN Foot.
2. Hydrostatic Socket.
3. Multi-axial prosthetic feet.
4. Uses of Prosthetic Socks.
5. Prosthetic solution of Ray Amputation.
6. Thigh Corset Suspension for below knee Prostheses.
7. Wood and metal Below knee prosthetics.
8. Exoskeletal Below knee leg.
9. Pressure-relief areas in Transtibial Socket.
10. Conventional Prostheses.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0423]

APRIL 2023

Sub. Code: 2457

BACHELOR IN PROSTHETICS AND ORTHOTICS
FIRST YEAR (Regulation 2017-2018 onwards)
PAPER VII – PROSTHETIC SCIENCE I
Q.P. Code: 802457

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on : **(3X10=30)**

1. Draw a neat labeled diagram of SACH Foot and describe its mechanism of action.
2. Draw a neat labeled Antero-posterior (AP) and Medio-lateral (ML) diagrammatic view of Trans-tibial Ideal residual limb. Mention the Pressure Tolerant and Intolerant area on the Residuum.
3. Describe with neat labeled sketch different types of Trans-tibial socket designs.

II. Write Notes on : **(8X5=40)**

1. Brief on Historical development in Lower Extremity Prosthetics in India.
2. Describe Biomechanics of Partial foot Prosthesis.
3. Classify various types of Prosthetic Feet.
4. Brief on various types of Symes Prosthesis.
5. Different types of suspension mechanism for transtibial Prostheses.
6. Brief on various types of materials used in fabrication of partial foot Prosthesis.
7. What would be the possible biomechanical effects of inappropriately designed transtibial prostheses socket?
8. Consider a young active trans-tibial amputee. During the alignment process the patient complains that the knee is being pushed into excessive extension during the mid-stance. What alignment change should be performed?

III. Short Answers on : **(10X3=30)**

1. What are the gait deviations observed during swing phase in Transtibial Prosthesis user?
2. Explain Socket/stump interface in below knee amputees.
3. Suggest Prosthetic design for Chopart amputation.
4. Explain Pressure distribution in Total Surface Bearing Transtibial socket.
5. Write Trans-tibial Prosthetic Prescription principles.
6. Enumerate Engineering materials used in Trans-tibial Prosthesis.
7. Draw a neat labeled sketch of Jaipur Limb design.
8. State the Benefits of Open ended socket.
9. What are the Causes of Lateral trunk bending in transtibial gait?
10. What do you mean by Good transtibial prosthetic socket fit?

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1123]

NOVEMBER 2023

Sub. Code: 2457

BACHELOR IN PROSTHETICS AND ORTHOTICS

FIRST YEAR (Regulation 2017-2018 onwards)

PAPER VII – PROSTHETIC SCIENCE - I

Q.P. Code: 802457

Time: Three Hours

Answer All questions

Maximum : 100 Marks

I. Elaborate on :

(3X10=30)

1. Explain various suspension systems used in Transtibial Prosthesis under following headings: a) Indication b) Contra-indication c) Function.
2. Explain the check-out procedure of a Transtibial amputee with Prosthesis.
3. Elaborate on the Biomechanics of Syme's Prosthesis.

II. Write Notes on :

(8X5=40)

1. Illustrate with neat diagram the procedure of Bench Alignment in Transtibial Prosthesis in relation to sagittal and frontal views.
2. Parts and working mechanism of C-walk foot.
3. Explain the causes of early and delayed knee flexion in view of Transtibial Prosthesis.
4. With neat diagram, explain a prosthetic management for Chopart's Amputation.
5. Describe in detail with a neat diagram a non-articulated foot that helps in barefoot walking.
6. Explain VASS System.
7. Differentiate between PTB and TSB socket designs.
8. Write a brief note on SACH foot with a labelled diagram.

III. Short Answers on :

(10X3=30)

1. State the evolution of Socket of Syme's amputation.
2. Draw a labelled diagram showing various components of a Transtibial Prosthesis.
3. What are the challenges a Prosthetist will face during fabrication of a Syme's Prosthesis?
4. With neat diagram mention the trimlines of a PTB-SC socket design.
5. State the surface anatomy of Lower Extremity.
6. Classify Prosthetic feet with examples.
7. What do you mean by IPOP? Write a brief note on it.
8. What is pyramid adapter, its use and placement in Transtibial Prosthesis?
9. Explain evolution of Lower Extremity Prosthetics in India.
10. Draw a flow chart illustrating the Prosthetic Clinical Procedure.
