



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEPT-DECEMBER 2024 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 334 UNIT NAME: PROSTHETICS AND ORTHOTICS

DATE: Friday/ 6th/ December
TIME: TWO HOURS
START: 9am STOP : 11am

INSTRUCTIONS (physical exams)

Do not write on this question paper

(Marks and questions distribution as per program curriculum.)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This exam shall take 2 Hours

SECTION 1: MCQs ANSWER ALL THE QUESTIONS (30 Marks)

1. On assessing a patient with foot amputation, you realized that the stump was mature and ready for a prosthesis. Which prosthesis will you recommend for this patient?
 - A. Foot orthotics
 - B. Foot splint
 - C. Prosthetic foot
 - D. Ankle prosthesis
2. The athletes with foot amputation prefer which type of prosthesis for sports?
 - A. Flexible prosthetic foot
 - B. Hydraulic prosthetic foot
 - C. Microprocessor prosthetic foot
 - D. Dynamic prosthetic foot
3. When should ambulation activities with a lower extremity prosthesis begin?
 - A. Weeks 10-11 after amputation
 - B. Week 6-7 after amputation
 - C. Week 14-15 after amputation
 - D. Week 3-4 after amputation
4. When training a below knee amputee on a prosthetic, which leg should ascend stairs first?
 - A. Prosthetic limb
 - B. Both limbs
 - C. Non-prosthetic limb
 - D. all of the above
5. In order to achieve good forward and backward weight transference during ambulation in a patient with a prosthesis, the patient should begin with
 - A. Pelvic movements only
 - B. Entire body weight
 - C. Upper extremity movements only
 - D. Lower extremity movements only
6. Single leg stance on the prosthetic side can be progress by?
 - A. High stepping with the prosthetic side
 - B. Low stepping with the non-prosthetic side
 - C. low stepping with the non-prosthetic side
 - D. High stepping with the non-prosthetic side
7. In regards to managing below knee amputation, the following position is not appropriate ;
 - A. No pillows under affected limb when in bed.
 - B. No crossing legs in bed.
 - C. Avoid prolonged knee flexion
 - D. Avoid abduction of the residual limb

8. The primary goal of stump shaping is?
 - A. To reduce stump edema
 - B. prevents the occurrence of hematomas,
 - C. facilitates conical shaping,
 - D. all of the above
9. The appropriate way of evaluating an amputee's rehabilitation potential;
 - A. Fitting a temporary prosthesis
 - B. Taking correct stump measurements
 - C. Checking on the expectations of the patient
 - D. Assessing the maturity of the stump
10. Which is the recommended lying position in above-the-knee amputation?
 - A. Side lying
 - B. Half lying
 - C. Prone
 - D. Supine
11. To prevent abduction contracture of the hip joint, the patient must maintain?
 - A. Horizontal orientation of the pelvis
 - B. Vertical orientation of the pelvis
 - C. Sagittal orientation of the pelvis
 - D. Transverse orientation of the pelvis
12. For upper limb amputations, the patient should:
 - A. Place a pillow under the stumps
 - B. Not place a pillow under the stumps.
 - C. place a pillow under the stumps
 - D. place a pillow under the stumps
13. Which type of amputation deformity is commonly seen in foot amputations?
 - A. Equinus contracture
 - B. Ankle dorsiflexion contracture
 - C. external rotation contracture
 - D. Abduction
14. To increase muscle strength to the residual limb following amputation, which type of exercises are recommended
 - A. Isometric exercises
 - B. Passive exercises
 - C. Stretching exercises
 - D. isotonic exercise
15. The indication for deep friction massage performed vertically around the stump scar line is to:
 - A. To reduce stump sensitivity
 - B. To prevent tissue pain
 - C. To break adhesions
 - D. To improve on blood circulation

16. In below-knee amputation, the patella is not a satisfactory landmark because?
- A. It shifts with quadriceps action
 - B. It's not easily palpable
 - C. It's too small to locate
 - D. It is very rigid
17. The prosthesis that is often the most challenging in ambulation is?
- A. Trans-radial,
 - B. Trans-femoral,
 - C. Trans-tibial, and
 - D. Trans-humeral.
18. Hemipelvectomy amputation is?
- A. Removal of the entire leg
 - B. Removal of the entire leg and the pelvis
 - C. Removal of the entire leg and part of the pelvis
 - D. Removal of the entire leg, part of the pelvis and trunk
19. Phantom pain is?
- A. It's a sensitive feeling from the amputated limb
 - B. It's a sensitive feeling from the residual limb
 - C. It's a sensitive feeling from the non-amputated limb
 - D. It's a sensitive feeling from the stump
20. In order to improve mobility, support rehabilitation and biomechanical goals, the ideal orthoses to give is?
- A. Ankle Orthoses
 - B. Knee Orthoses
 - C. Ankle-Foot Orthoses
 - D. Spinal Orthoses,
21. Patients with multiple joint structures problems require;
- A. Customized orthosis
 - B. ready- made orthosis
 - C. Dynamic orthosis
 - D. Static orthosis
22. The recommended appropriate time to wear Ankle foot orthoses to prevent contractures is?
- A. At night
 - B. During day time
 - C. A few hours at night
 - D. A few hours during day time
23. Thermoformed plastic materials are mostly recommended for fabrications of orthoses because?
- A. The material is very rigid and durable
 - B. The material is cheap and available
 - C. The material enables to add modification and adjustments
 - D. The material is the heaviest and good

24. In order to prevent medial instability in a patient who is using ankle foot orthosis, the support should be inserted on which side of the orthosis?
- A. Medial side
 - B. Posterior side
 - C. Lateral side
 - D. Anterior side
25. Which of the following is not considered during taking measurements of the ankle foot orthosis?
- A. The length of the foot from the longest point.
 - B. The width of metatarsal heads at the widest point of the foot.
 - C. Measurement above the ankle at the level of the two malleoli.
 - D. Two circumference measurements of the lower
26. How does the philadelphia collar function?
- A. Limits flexion / extension movements
 - B. Allow lateral bending movements
 - C. Allows rotation movements
 - D. Allows flexion/extension movements
27. Which of the following cervical orthoses are surgically applied?
- A. Philadelphia collar
 - B. Halo brace
 - C. Sterno-occipital mandibular orthosis (SOMI)
 - D. Minerva
28. Spinal Jacket are indicated for?
- A. Mild spinal abnormalites
 - B. Scoliosis
 - C. Spina-bifida
 - D. Head injury
29. To achieve appropriate knee joint in extension you should consider?
- A. knee immobilizer
 - B. knee-ankle foot orthosis
 - C. ankle foot orthoses
 - D. foot orthoses
30. Resting hand splints are indicated for?
- A. To align the bones
 - B. To prevent muscle weakness
 - C. To prevent deformity
 - D. To provide support

Section C: Short answer questions. Answer all the questions (20 marks)

31. List five advantages of some amputations 5 marks
32. Outline the pre-prosthetic assessment that you will undertake in preparation of fitting a prosthesis. 5 marks
33. Outline ways of shaping the stump. 5 marks
34. List five factors to consider when procuring an orthosis. 5 marks

SECTION C. LONG ESSAY QUESTION. ATTEMPT ONLY 2 QUESTIONS (20 MARKS)

35. Formulate a prosthetic rehabilitation programme for a below hip amputation patient. (10 marks)
36. Discuss the purpose of physiotherapy post-stump management. (10 marks)
37. Discuss the causes of amputation (10 marks)