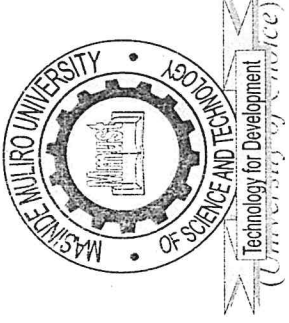


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MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SECOND YEAR SECOND TRIMESTER EXAMINATIONS

(Special/Supplementary examination)

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

COURSE CODE: BSP 221

COURSE TITLE: ELECTROTHERAPY II

DATE: TUESDAY 19TH APRIL 2022 TIME: 8:00-11:00 am

INSTRUCTIONS TO CANDIDATES

Answer all Sections

Sec A: Multiple Choice Questions (MCQ) (20 Marks)

Sec B: Short Answer Questions (SAQ) (40 Marks)

Sec C: Long Answer Questions (LAQ) (40 Marks)

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 6 Printed Pages. Please Turn Over.



SECTION A: MCQs

1. Laser promotes wound healing by:
 - A. Increase in RNA production
 - B. Cell proliferation
 - C. Increase in collagen formation
 - D. All of the above
2. Conventional TENs is
 - A. High frequency, low intensity stimulation
 - B. Low intensity, high frequency stimulation
 - C. High intensity, low frequency stimulation
 - D. High intensity, high frequency stimulation
3. Deep heating modalities are contraindicated in patient with?
 - a. Superficial sensory impairment
 - b. Deep sensory impairment
 - c. Implants
 - d. All of the above
 - e. None of the above
4. A 35-year-old suffers from vascular disorder of the lower limb and osteoarthritis of the knee. Which of the following is the best modality to use?
 - A. Pulsed diathermy
 - B. Iontophoresis
 - C. TENs
 - D. Infrared
5. Prior to treatment using heat therapy/ cold therapy, body temperature of the patient must be put into consideration. Which one of the following statements is true about body temperature?
 - a. Core temperature of the body is relatively unstable and kept within a narrow range of 37 degrees Celsius.
 - b. Cell temperature of the body varies according to the temperature of the core and external environment.
 - c. Core temperature of the body varies according to the temperature of the Cell and external environment.
 - d. Cell temperature of the body is relatively stable and kept within a narrow range of 37 degrees Celsius.

6. The type of muscle fibers mostly activated by electrical stimulation are:
- Type-I fibers
 - Type-ii-a fibers
 - Type-ii-b fibers
 - none of the above
7. patient with an idiopathic acute tenderness, edema and loss of function in multiple joints of the hands and foot visited Physiotherapy department for treatment using E.P.As. Which one of the following is a suitable Physiotherapy action plan?
- Relieve pain and edema using cryotherapy and then improve range of motion of affected joint by free active exercises.
 - Assure the patient of his condition and advise him to rest for at least 5 days for the symptoms to resolve
 - Refer the patient to a physician for further examination and accurate diagnosis.
 - Relieve patient symptoms by applying heat therapy to the affected joints.
8. Which one of the following is not a hemodynamic effect of heat therapy?
- Inflammation
 - Perspiration
 - Vasodilation
 - Release of prostaglandins
9. When using luminous infrared radiation in treatment of Bell's palsy, all of the following factors must be put into consideration, Except?
- Distance of the luminous infrared lamp should be placed 30 cm away from the side of the face to be treated.
 - Duration of treatment should not exceed 10 minutes since facial nerve is very sensitive to heat therapy.
 - The infrared lamp should be placed at a right angle to the area treated.
 - The eye on the affected side should be covered by a clean moist cotton wool prior to radiation exposure.
10. W Changing ultrasound transducer from 1 MHz to 3 MHz would generally produce?
- Faster imaging.
 - Deeper penetration.
 - Shorter wavelengths.
 - Long ultrasound pulses.

- 11 Which of the following modality is best used in treatment of wounds?
- Iontophoresis
 - Laser therapy
 - Therapeutic Ultrasound
 - None of the above
- 12 Physiological responses to heat: heat increases the extensibility of collagen tissue and decreases joint stiffness. Achievement of this goal is dependent on all of the following factors EXCEPT.
- Amount of time the tissue is heated
 - The type of modality used in treatment
 - The depth of the tissue heated
 - The degree of stretch applied after heat
- 13 Which of the following is NOT a method of application of hydrotherapy?
- Deep immersion
 - Whirlpool
 - Hubbard tank
 - Contrast bath
- 14 Joseph, a valley-baller sustained a medial collateral ligament sprain of the right knee while playing volleyball. 6 hours later, he was referred to a physiotherapy for further examination and possible treatment. Which of the following should not be part of treatment plan?
- Rest
 - Heat
 - Compression
 - Ice
- 15 The following are indications of cold therapy EXCEPT?
- Muscle spasm
 - Inflammation
 - Regenerating peripheral nerve
 - Multiple sclerosis
 - pain
- 16 Jacob, a 9 year old boy sustained a displaced supracondylar fracture of the left humerus. The fracture was reduced and immobilised in a cast. He developed elbow stiffness as a result of prolonged immobilization. He was referred to you for rehabilitation with the main goal of improving the joint range of motion using E.P.A and arthrokinematics techniques. Which one of the following modalities is best suited in above condition?
- Short wave diathermy
 - Therapeutic ultrasound

- c. Cryotherapy
- d. Paraffin wax**
- e. None of the above.

17 The following are methods of application of paraffin wax EXCEPT?

- a. Glove method
- b. Dip immersion
- c. Paint application
- d. Deep wrap
- e. Brush method

18. The following are indications of spinal traction, EXCEPT?

- A. Unstable vertebrae
- B. Herniated disc
- C. Spinal nerve impingement
- D. Narrowing of intervertebral foramen

19 owing are effects of cold to blood flow. Which one is NOT

- a. Increased blood viscosity
- b. Cold induced vasodilation
- c. Lewis Hunting reaction
- d. Decreased blood viscosity

20 When using luminous infrared radiation in treatment of Bell's palsy, all of the following factors must be put into consideration, Except?

- A. Distance of the luminous infrared lamp should be placed 30 cm away from the side of the face to be treated.
- B. Duration of treatment should not exceed 10 minutes since facial nerve is very sensitive to heat therapy.
- C. The infrared lamp should be placed at a right angle to the area treated.
- D. The eye on the affected side should be covered by a clean moist cotton wool prior to 1. radiation exposure.

SECTION B: SAQs 40MKS

- 1. Giving examples differentiate between deep heating and superficial heating electrotherapy modalities (2MKS)
- 2. Elaborate acoustic steaming in ultrasound (2mks)
- 3. Explain how therapeutic ultrasound NEGATIVELY affect pregnant uterus 3mks
- 4. Explain contraindication of interferential therapy (5mks)
- 5. Discuss 4 types of Transcutaneous Electrical Nerve Stimulation (TENS) (4mks)

6. Briefly explain the mechanisms by which TENS brings about pain relief in patients with acute low back (5mks).
7. Name contraindication of short wave diathermy (4mks)
8. Explain Uses of electrical stimulation in innervated muscle (5mks)
9. Elaborate Role of biophysical agents in orthopaedic and neurology (5mks)
10. explain production of LASER electro physical agent agents (2mks)
11. Name physiological and therapeutic effects of ultraviolet rays (3mks)

SECTION C: 40MKS ANSWER ALL THE QUESTIONS (40 marks)

1. During clinical ward rotation at Kakamega County and referral hospital, a patient was referred to you with rheumatoid arthritis and stiffness of small joints of hand. Chief physiotherapist requested you to discuss in detail, paraffin wax therapy as a treatment of choice under the following subheadings: (20 marks)
 - a) Composition of wax bath Therapy unit.
 - b) Method of application of wax
 - c) Physiologic and therapeutic effects of wax therapy.
 - d) Indication and contraindications of wax therapy
 - e) Dosage.
 - f) Dosage and dangers
 - g) Methods of paraffin wax application
2. Discuss Short Wave Diathermy:
Define short wave, Frequency and Wavelength of SWD, Principle of Production of SWD, Circuit diagram and Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode. Placement and Spacing of Electrodes, Tuning, Testing of SWD Apparatus. (20 marks)
3. Discuss Laser Therapy, Types of Lasers. Principles of Production. Production of Laser by various methods. Methods of application of Laser. Dosage of Laser. Physiological and Therapeutic effects of Laser, Safety precautions of Laser. Classification of Laser. Energy density and power density of Laser (20marks)