



(University of Choice)
**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

SCHOOL OF NURSING MIDWIFERY AND PARAMEDICAL SCIENCES

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**FIRST YEAR THIRD TRIMESTER FOR THE DEGREE OF MASTER OF
SCIENCE IN ADVANCED NURSING PRACTICE - CRITICAL CARE
MAIN EXAMINATION**

COURSE CODE: NCC 8132:

COURSE TITLE: RESPIRATORY AND THORACIC CRITICAL CARE

NURSING-THEORY & PRACTICUM

DATE: 25 July 2022

Time: 11:30AM-2:30 pm

INSTRUCTIONS TO CANDIDATES

All questions are compulsory

DURATION: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This paper consists of 5 (Five) printed pages. Please turn over.

1. Mr. Topias was admitted two days ago following emergency surgery for an ischemic bowel. He is hemodynamically stable, but has failed a spontaneous breathing trial. On chest xray, his lungs are hyperinflated with interstitial disease and his chest appears barrel shaped.

Discuss the components of a focused and comprehensive examination of a critically ill patient on mechanical ventilation (15 marks)

2. Mohammad aspirated at the time of intubation and develops ARDS with worsening hypoxemia, with SpO₂ of 85% on FiO₂ 0.8 and PEEP 5 cmH₂O.

Discuss the role of a critical care nurse in the preparation and process of intubating a patient in critical care unit?

3. Low tidal volume ventilation is associated with higher P_cO₂ levels, which can increase the ICP and cause secondary injury it may also worsen the hypoxemia if introduced before the PEEP is increased. Once the oxygenation is stabilized, low tidal volume ventilation should only be considered if it can be introduced without raising the P_cO₂ above 40 mmHg in the setting of acute intracranial hypertension

Using nursing care process discuss the comprehensive management of a patient on mechanical ventilation for the first seventy two hours (72hrs)?

4. Prolonged use of high oxygen levels and inadequate PEEP may cause worsening lung injury. Hypoxemia is a serious threat to the injured brain. Without appropriate treatment it can cause secondary injury with increased ICP. An SpO₂ of 90% is too low in an acutely brain injured patient.

Discuss the systemic (cvs,cns and resp) complications of mechanical ventilation?

5. You are asked to review a 45-year-old man in ICU with refractory hypoxia. He was admitted several days ago with acute pancreatitis and has subsequently developed severe acute respiratory distress syndrome. His PEEP and FiO₂ have been escalated over the course of the day. He is now saturating at 85% on FiO₂ 0.65 with PEEP at 15cm H₂O and plateau pressures of 29cm H₂O. There is little to remove on tracheal suction. He is sedated and paralyzed and the I: E ratio is currently 1:1.

- a) Describe the effects of inverse I: E ratio on a mechanically ventilated patient?(8mks)
- b) What are the advantages of commencing high-frequency oscillatory ventilation?(4mks)