



SOLOMON ISLANDS NATIONAL UNIVERSITY
School of Nursing and Allied Health Sciences
Bachelor of Nursing (Acute Nursing/PHC)

**BN 711 – APPLIED SCIENCE &
PHARMACOLOGY**

FINAL EXAMINATION

SEMESTER 1, 2017



**SOLOMON ISLANDS NATIONAL UNIVERSITY
SCHOOL OF NURSING & ALLIED HEALTH SCIENCES**

PAPER TITLE: Applied Science & Pharmacology **PAPER CODE:** BN 711

COURSE/MAJOR: Bachelor of Nursing (Acute & PHC) **2017/SEMESTER:** 1

Student Name:

ID:

TIME ALLOCATION: 3 hours

TOTAL MARKS: 90

LEARNING OUTCOMES:

1. Demonstrate an understanding of how pathophysiological processes affect the individual.
2. Apply pathophysiological knowledge to nursing assessment and interventions that restore, support, promote, and maintain the health status of the individual.

INSTRUCTIONS:

There are 4 scenarios.

It is Compulsory that you Answer All the Scenarios 1, 2, 3 and 4

1. First read through every question and ensure that you have 12 pages
2. Write your student name & ID number on the space provided above.
3. All answers MUST be written in ink to enable the marking process
4. All answers must relate to the outcomes of the paper and Pathophysiology knowledge.
5. Do NOT communicate with other students during this exam
6. Raise your hand to direct all queries to the exam supervisors/invigilator
7. Copies of your marked exam may be made for moderation purposes
8. Any student found using a cell-phone during the exam or any other form of dishonesty will not have their exam marked. They will be referred to the School Academic Board for scrutiny.

~ Best of luck ~

Scenario 1 – Pneumonia.

(20 Marks)

Mrs Bee (69 years) has been admitted to your ward with Pneumonia.

3 A. Discuss how the inflammatory response to bacteria causes the following symptoms for Mrs Bee.

Productive Cough.

(5 Marks)

Respiratory rate 28 breaths per minute.

(5 Marks)

Temperature 38.7° C.

(4 Marks)

Mrs .Bee requires regular respiratory assessment.

3 D. Prioritise three aspects of a respiratory assessment.

Identify and **explain** the pathophysiological rationale for each of these assessments.

a. _____ **(2 marks)**

b. _____ **(2 marks)**

c. _____ **(2 marks)**

Scenario 2 – Myocardial Infarction

(24 Marks)

Mr Tee has been admitted to your ward. Two days ago he was diagnosed with a Myocardial Infarction.

1.A. Explain the pathophysiology of a Myocardial Infarction. Include the development of Coronary Artery Disease. **(5 Marks)**

1 B. Explain the pathophysiological rationale for the following nursing assessments. **(LO 2)**

Regular monitoring of Mr Tee’s Blood Pressure. (3 Marks)

Administering Glyceryl Trinitrate (GTN) when Mr Tee has chest pain. (3 Marks)

Monitoring Mr Tee's SpO₂ (oxygen saturations) QQH (4 hourly). (3 Marks)

1 C. Mr Tee has Type 2Diabetes Mellitus. His blood sugar levels are monitored QID. He has managed his Diabetes Mellitus by altering his diet and increasing his exercise.

i) Explain how diet and exercise can control Mr Tee's blood sugar level at the preferred level of less than 8-10 mmol/L. **(5 Marks)**

ii) **Explain** to Mr Tee why insulin would not control his Type 2 Diabetes Mellitus. **(5 Marks)**

Scenario 3 – Bowel Obstruction

(28 Marks)

Mrs Ex aged 78 years is your patient. She has been admitted with abdominal pain, nausea and vomiting. She is scheduled to go to theatre for release of adhesions causing a small bowel obstruction. You are required to complete appropriate assessments of Mrs Ex's health status.

2 A. Identify and explain the assessments needed to monitor Mrs Ex's hydration status. **(8 Marks)**

Give a **detailed explanation** of how you will assess Mrs Ex's abdomen, include **rationale** for your assessments. **(4 Marks)**

Mrs Ex is at risk of developing post-operative complications.

2 B. Discuss the pathophysiology of the following possible complications from her laparotomy and release of adhesions.

Paralytic Ileus.

(4 Marks)

Deep Vein Thrombosis (DVT).

(4 Marks)

Mrs Ex returns from theatre. You are required to assess her every half hour.

2 C. Explain the pathophysiological rationale for the following assessments you completed to monitor Mrs Ex's progress.

Temperature

(2 Marks)

Respirations

(2 Marks)

Pulse

(2 Marks)

Pain

(2 Marks)

Scenario 4 – Road Traffic Accident

(38 Marks)

Mr Ell, 26 years old, is admitted following a road traffic accident (RTA). Your initial assessment findings include pulse 104, blood pressure 90/65 and respiration rate 28. He appears pale, cool and clammy.

Mr Ell has a ruptured spleen and he has hypovolemic shock.

1A Explain the pathophysiological reasons for Mr Ell's altered

Pulse rate

(3 Marks)

Blood pressure

(3 Marks)

Respiratory rate

(3 Marks)

1B. Discuss how chemicals and hormones support the body's ability to compensate for the effects of hypovolemic shock.

Renin- angiotensin aldosterone cascade

(8 Marks)

Mr Ell returns to the ward following the removal of his spleen (splenectomy) under a general anaesthetic. He requires regular assessment.

1C. Discuss the pathophysiological rationale for the following post-operative assessments.

Oxygen saturation

(3 Marks)

Depth of respiration

(3 Marks)

Urinary output

(3 Marks)

1D. Mr Ell has been prescribed a blood transfusion.

Explain the pathophysiological rationale for the following assessments.

Baseline recordings of pulse, blood pressure, respirations and temperature **prior to** commencing his blood transfusion **(4 Marks)**

You are required to stay with Mr Ell for the first 15 minutes of the transfusion.

Identify the possible signs and symptoms of a transfusion reaction **and explain** the pathophysiological reasons for each of them. **(8 Marks)**
