

Q1. (a) Asthma
Refer to 2019 Q 2

Q2. (a) Define MI

:- Myocardial Infarction (MI), commonly known as a **heart attack**, occurs when blood flow to a part of the heart muscle is blocked, usually due to a blood clot in a coronary artery. This blockage prevents oxygen-rich blood from reaching the heart tissue, leading to damage or death of heart muscle cells.

Causes

- **Coronary Artery Disease (CAD)** – Buildup of plaque (atherosclerosis) in the coronary arteries.
- **Blood Clots** – Can form when plaque ruptures, blocking blood flow.
- **Coronary Artery Spasm** – Temporary narrowing of the artery, reducing blood supply.

Symptoms

- Chest pain or discomfort (angina)
- Pain radiating to the arm, jaw, neck, or back
- Shortness of breath
- Sweating, nausea, or dizziness
- Fatigue or a sense of impending doom

Types of MI

1. **ST-Elevation Myocardial Infarction (STEMI)** – A complete blockage, leading to extensive heart damage.
2. **Non-ST-Elevation Myocardial Infarction (NSTEMI)** – A partial blockage, causing less severe but still significant damage.

Diagnosis

- **Electrocardiogram (ECG/EKG)** – Detects abnormal heart activity.
- **Blood Tests** (e.g., troponin levels) – Detect heart muscle damage.
- **Coronary Angiography** – Identifies blocked arteries.

Treatment

- **Medications:** Aspirin, blood thinners, beta-blockers, statins.
- **Procedures:** Angioplasty and stenting, coronary artery bypass grafting (CABG).
- **Lifestyle Changes:** Diet, exercise, quitting smoking, stress management.

(b) List Down the clinical manifestation and diagnostic test of MI.

:- Clinical Manifestations and Diagnostic Tests of Myocardial Infarction (MI)

1. Clinical Manifestations of MI (4 Marks)

Myocardial infarction presents with a variety of symptoms, which can vary in severity and duration.

A. Typical Symptoms:

1. **Chest Pain (Angina)** – Severe, crushing, or pressure-like pain in the center or left side of the chest, lasting more than 20 minutes.
2. **Radiating Pain** – Pain may spread to the left arm, jaw, neck, back, or shoulders.
3. **Shortness of Breath (Dyspnea)** – Due to reduced heart function and fluid buildup in the lungs.
4. **Profuse Sweating (Diaphoresis)** – Caused by activation of the sympathetic nervous system.
5. **Nausea and Vomiting** – More common in inferior wall MI due to vagal nerve stimulation.
6. **Palpitations or Arrhythmias** – Due to electrical instability in the heart.
7. **Fatigue and Weakness** – Common in elderly and women, sometimes without chest pain.

B. Atypical Symptoms (Silent MI)

- Common in diabetics, elderly, and women.
- Includes fatigue, dizziness, mild discomfort, or no symptoms at all.

2. Diagnostic Tests for MI (4 Marks)

Early and accurate diagnosis is crucial for treatment.

A. Electrocardiogram (ECG/EKG)

- **ST-Elevation Myocardial Infarction (STEMI)**: ST-segment elevation in two or more contiguous leads.
- **Non-ST-Elevation Myocardial Infarction (NSTEMI)**: ST-segment depression, T-wave inversion, or no clear ECG changes.
- **Arrhythmias or conduction abnormalities** may also be seen.

B. Cardiac Biomarkers (Blood Tests)

- **Troponin I and Troponin T** – Most specific and sensitive markers for myocardial damage. Levels rise within 3-6 hours and peak at 12-24 hours.
- **Creatine Kinase-MB (CK-MB)** – Rises within 4-6 hours, peaks at 24 hours, and normalizes in 48-72 hours.
- **Myoglobin** – Increases within 1-2 hours but is less specific.

C. Imaging Studies

1. **Echocardiography** – Assesses heart wall motion abnormalities and reduced ejection fraction.
2. **Coronary Angiography** – Identifies blocked arteries and helps guide treatment like stenting.
3. **Chest X-ray** – Rules out other causes of chest pain, like pneumonia or heart failure.

D. Other Tests

- **Stress Test** – Used after stabilization to assess residual ischemia.
- **Magnetic Resonance Imaging (MRI)** – Evaluates myocardial damage in detail.

Conclusion:

Early recognition of MI symptoms and prompt diagnostic testing is essential for effective treatment and preventing complications.

Q3. (a) Peptic Ulcer.

:- Refer 2019 Q1.(a)

(b) Write the etiology and clinical manifestation of peptic ulcer.

:- Etiology and Clinical Manifestations of Peptic Ulcer

1. Etiology (Causes) of Peptic Ulcer (3 Marks)

Peptic ulcers are sores that develop in the lining of the stomach, duodenum, or esophagus due to an imbalance between protective and damaging factors in the gastrointestinal tract.

A. Common Causes:

1. **Helicobacter pylori (H. pylori) Infection** – The most common cause; damages the mucosal lining.
2. **Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)** – Prolonged use of aspirin, ibuprofen, or naproxen can weaken the stomach lining.
3. **Excess Acid Production (Hyperacidity)** – Due to Zollinger-Ellison syndrome, stress, smoking, or alcohol.
4. **Smoking and Alcohol Consumption** – Increases acid production and delays healing.
5. **Stress** – Can worsen symptoms but is not a direct cause.
6. **Genetic Factors** – Family history of ulcers increases risk.

2. Clinical Manifestations of Peptic Ulcer (3 Marks)

Symptoms depend on the location and severity of the ulcer.

A. Common Symptoms:

1. **Burning Epigastric Pain** – A dull, aching, or burning sensation in the upper abdomen.
 - **Gastric ulcer:** Pain worsens with food.
 - **Duodenal ulcer:** Pain improves with food but returns 2-3 hours after eating.
2. **Nausea and Vomiting** – May occur due to irritation of the stomach lining.
3. **Bloating and Belching** – Due to excessive gas production.
4. **Loss of Appetite and Weight Loss** – More common in gastric ulcers.

B. Severe Symptoms (Complications):

1. **Hematemesis (Vomiting Blood)** – Indicates a bleeding ulcer.
2. **Melena (Black, Tarry Stools)** – Due to digested blood from a bleeding ulcer.
3. **Perforation Symptoms** – Sudden severe abdominal pain, rigid abdomen, and shock (a medical emergency).

Conclusion:

Peptic ulcers result from an imbalance between protective and harmful gastric factors. Recognizing symptoms early can help prevent complications like bleeding or perforation.

(c) Draw a nursing care plan for the patient with peptic ulcer.

:- Refer to 2019 Q1 (d)

Q4. (a) Define Chronic renal failure.

:- Definition of Chronic Renal Failure (Chronic Kidney Disease - CKD)

Chronic Renal Failure (CRF), now commonly referred to as **Chronic Kidney Disease (CKD)**, is a **progressive and irreversible decline in kidney function** over months or years. It results in the **gradual loss of the kidneys' ability to filter waste, excess fluids, and electrolytes from the blood**, leading to toxin buildup in the body.

Key Features:

- **Irreversible kidney damage** leading to decreased glomerular filtration rate (GFR).
- **GFR < 60 mL/min/1.73m² for more than 3 months** indicates CKD.
- Can progress to **end-stage renal disease (ESRD)**, requiring dialysis or kidney transplantation.

(b) Discuss pathophysiology and clinical manifestation of chronic Renal.

:- Pathophysiology and Clinical Manifestations of Chronic Renal Failure (Chronic Kidney Disease - CKD)

1. Pathophysiology of Chronic Renal Failure

Chronic Renal Failure (CRF), or Chronic Kidney Disease (CKD), is a **progressive and irreversible deterioration of kidney function**. It develops in stages, ultimately leading to **end-stage renal disease (ESRD)** where dialysis or kidney transplantation is required for survival.

A. Progressive Kidney Damage

- **Initial kidney injury** (due to diabetes, hypertension, glomerulonephritis, etc.) leads to nephron loss.
- **Compensatory Hyperfiltration**: Surviving nephrons increase filtration rate to compensate for the lost nephrons.
- Over time, hyperfiltration causes **glomerular sclerosis** (hardening of the glomeruli), further reducing kidney function.

B. Reduced Glomerular Filtration Rate (GFR)

- **GFR declines (< 60 mL/min/1.73m² for ≥ 3 months)**, causing impaired excretion of waste, fluids, and electrolytes.
- Retention of **urea, creatinine, potassium, and phosphorus** leads to metabolic imbalances.

C. Accumulation of Waste Products (Uremia)

- **Azotemia** (high blood urea nitrogen [BUN] and creatinine) leads to **uremia**, causing systemic toxic effects.
- **Metabolic Acidosis** develops due to decreased hydrogen ion excretion.

D. Fluid and Electrolyte Imbalance

- **Sodium and water retention** → Hypertension and edema.
- **Hyperkalemia** → Risk of life-threatening cardiac arrhythmias.
- **Hypocalcemia and Hyperphosphatemia** → Bone demineralization (renal osteodystrophy).

E. Hormonal and Hematologic Changes

- **Decreased erythropoietin production** → **Anemia** (fatigue, weakness).
- **Impaired Vitamin D activation** → **Osteomalacia (soft bones)** and fractures.

- **Increased parathyroid hormone (PTH) → Secondary hyperparathyroidism**, worsening bone disease.
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2. Clinical Manifestations of Chronic Renal Failure

A. General Symptoms

- Fatigue, weakness, and lethargy due to **anemia and uremia**.
- Loss of appetite, nausea, vomiting due to **uremia**.

B. Cardiovascular Symptoms

- **Hypertension** due to fluid retention and renin activation.
- **Edema** (swelling in legs, face) due to fluid overload.
- **Heart failure and pericarditis** due to volume overload and uremic toxins.

C. Respiratory Symptoms

- **Dyspnea (shortness of breath)** from fluid overload and pulmonary edema.
- **Kussmaul breathing** due to metabolic acidosis.

D. Neurological Symptoms

- **Headache, confusion, seizures** (due to uremic toxins).
- **Peripheral neuropathy** (tingling, numbness in limbs).
- **Restless legs syndrome** due to nerve damage.

E. Gastrointestinal Symptoms

- **Nausea, vomiting, metallic taste in mouth** due to uremia.
- **Gastrointestinal bleeding** due to platelet dysfunction.

F. Musculoskeletal Symptoms

- **Bone pain, fractures** due to renal osteodystrophy.
- **Muscle cramps, weakness** from electrolyte imbalances.

G. Dermatologic Symptoms

- **Pruritus (itching)** due to uremia and high phosphorus.
- **Pale or yellowish skin** due to anemia.
- **Uremic frost** (white powdery deposits on the skin in severe cases).

H. Endocrine & Metabolic Symptoms

- **Insulin resistance and glucose intolerance** (common in CKD patients).
 - **Menstrual irregularities, sexual dysfunction** due to hormonal imbalances.
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Conclusion

Chronic renal failure is a **progressive disease** that affects multiple body systems. Early detection and management (dietary changes, medications, dialysis, or kidney transplantation) can help slow progression and improve quality of life.

(c) Write the management of patient with chronic Renal failure.

:- Management of a Patient with Chronic Renal Failure (Chronic Kidney Disease - CKD)

The management of **Chronic Renal Failure (CRF)/Chronic Kidney Disease (CKD)** focuses on **slowing disease progression, managing symptoms, preventing complications, and preparing for renal replacement therapy (dialysis or kidney transplant).**

1. Lifestyle and Dietary Modifications (1 Mark)

- **Low-Sodium Diet:** To control **hypertension and fluid retention**.
- **Low-Protein Diet:** To reduce **uremia**, but adequate protein intake is maintained.
- **Potassium Restriction:** To prevent **hyperkalemia** (avoid bananas, oranges, potatoes).
- **Phosphorus Restriction:** To prevent **bone disease** (avoid dairy, nuts, soft drinks).
- **Fluid Restriction:** If the patient has **fluid overload or edema**.

2. Blood Pressure Control (1 Mark)

- **ACE Inhibitors (e.g., Enalapril) & ARBs (e.g., Losartan):** Protect kidneys by reducing **proteinuria** and controlling **hypertension**.
- **Diuretics (e.g., Furosemide):** Help manage **fluid overload** and **edema**.

3. Management of Electrolyte and Acid-Base Imbalance (1 Mark)

- **Sodium Bicarbonate:** To correct **metabolic acidosis**.
- **Calcium-based Phosphate Binders (e.g., Calcium Acetate):** To lower **phosphate levels** and prevent bone disease.
- **Vitamin D Supplements (Calcitriol):** To improve **calcium absorption** and reduce **secondary hyperparathyroidism**.

4. Anemia Management (1 Mark)

- **Erythropoietin (EPO) Injections:** Stimulates red blood cell production to correct **anemia**.
- **Iron Supplements:** If iron deficiency is present.
- **Blood Transfusions:** For severe anemia unresponsive to EPO therapy.

5. Management of Cardiovascular Risks (1 Mark)

- **Statins (e.g., Atorvastatin):** To control **dyslipidemia** and prevent cardiovascular disease.
 - **Aspirin (if needed):** To reduce the risk of heart attack and stroke.
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6. Dialysis (1 Mark)

Indicated in **end-stage renal disease (ESRD)** or severe symptoms.

- **Hemodialysis (HD):** Blood is filtered using a dialysis machine.
- **Peritoneal Dialysis (PD):** Fluid is introduced into the abdomen to remove waste.

7. Kidney Transplantation (1 Mark)

- The best long-term treatment for ESRD.
- Requires a **compatible donor** and lifelong **immunosuppressive therapy** to prevent rejection.

Conclusion:

Management of CKD involves **controlling underlying conditions, dietary modifications, medications, dialysis, and ultimately kidney transplantation** in severe cases. **Early intervention** can slow disease progression and improve quality of life.

Q5. Short Notes:-

- (a) Shock.

:- Short Note on Shock

Definition:

Shock is a **life-threatening condition** where there is **inadequate blood flow to organs and tissues**, leading to **oxygen deprivation, cellular damage, and organ failure** if not treated promptly.

Types of Shock:

1. **Hypovolemic Shock** – Due to **severe blood or fluid loss** (e.g., hemorrhage, dehydration, burns).
2. **Cardiogenic Shock** – Caused by **heart failure** (e.g., myocardial infarction, arrhythmias).
3. **Distributive Shock** – Due to **abnormal blood vessel dilation** (includes:
 - **Septic Shock** – Severe infection.
 - **Anaphylactic Shock** – Severe allergic reaction.
 - **Neurogenic Shock** – Spinal cord injury or nervous system damage.
4. **Obstructive Shock** – Caused by **blockage of blood flow** (e.g., pulmonary embolism, cardiac tamponade).

Clinical Manifestations:

- **Hypotension (low blood pressure)**

- **Tachycardia (rapid heart rate)**
 - **Cold, clammy skin (except in septic shock, where skin may be warm)**
 - **Weak or absent pulses**
 - **Altered mental status (confusion, restlessness, unconsciousness)**
 - **Decreased urine output**
 - **Shortness of breath (in cardiogenic or septic shock)**
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Management:

1. **Airway, Breathing, Circulation (ABC) support** – Ensure oxygen supply.
 2. **IV Fluids** – To restore blood volume (crystalloids, colloids).
 3. **Medications:**
 - **Vasopressors (e.g., norepinephrine, dopamine)** to maintain blood pressure.
 - **Antibiotics** for septic shock.
 - **Epinephrine** for anaphylactic shock.
 4. **Treat the underlying cause** – Surgery for bleeding, CPR for cardiac arrest, etc.
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Conclusion:

Shock is a medical emergency that requires **immediate intervention** to prevent **multi-organ failure and death**. Early recognition and prompt treatment improve survival rates.

(b) Role of circulatory nurse in OT

:- Role of Circulatory Nurse in the Operating Theatre (OT)

A **Circulating Nurse** (or Circulatory Nurse) is a **non-sterile member** of the surgical team responsible for **patient care, maintaining a sterile environment, and assisting the surgical team** during an operation.

Key Roles and Responsibilities:

1. **Preoperative Preparation:**
 - Verifies patient identity, surgical site, and consent.
 - Ensures proper positioning and safety of the patient.
 - Prepares the OT with necessary equipment and sterile supplies.
2. **Maintaining Asepsis and Sterility:**
 - Monitors the sterile field and ensures adherence to infection control protocols.
 - Assists in handling contaminated instruments safely.
3. **Providing Surgical Team Support:**
 - Assists scrub nurse by opening sterile packs and supplying additional instruments.
 - Coordinates with anesthetists, surgeons, and other team members.
4. **Monitoring Patient Safety:**
 - Observes vital signs and responds to any emergency situations.
 - Ensures proper documentation of intraoperative events.
5. **Postoperative Responsibilities:**
 - Assists in transferring the patient to the recovery room.
 - Ensures proper disposal of waste and decontamination of OT.

Conclusion:

The Circulating Nurse plays a crucial role in **enhancing patient safety, maintaining sterility, and providing support** to the surgical team, ensuring smooth operation workflow and patient well-being.

(C) Diabetes Mellitus (DM)

:- Short Note on Diabetes Mellitus (DM) – 5 Marks

Definition:

Diabetes Mellitus (DM) is a **chronic metabolic disorder** characterized by **high blood sugar levels (hyperglycemia)** due to **defective insulin secretion, insulin action, or both**. It can lead to **serious complications** if not well controlled.

Types of Diabetes Mellitus:

1. **Type 1 DM:**
 - Autoimmune destruction of **pancreatic beta cells**, leading to **absolute insulin deficiency**.
 - Requires **lifelong insulin therapy**.
 2. **Type 2 DM:**
 - Characterized by **insulin resistance** and **relative insulin deficiency**.
 - Common in adults, associated with **obesity and sedentary lifestyle**.
 3. **Gestational Diabetes Mellitus (GDM):**
 - Develops during **pregnancy** and increases the risk of Type 2 DM later.
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Clinical Manifestations:

- **Polyuria** (frequent urination)
 - **Polydipsia** (excessive thirst)
 - **Polyphagia** (increased hunger)
 - **Unexplained weight loss** (more common in Type 1 DM)
 - **Fatigue, blurry vision, slow wound healing**
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Complications:

- **Acute:** Diabetic ketoacidosis (DKA), Hyperosmolar Hyperglycemic State (HHS).
 - **Chronic:** Neuropathy, Nephropathy, Retinopathy, Cardiovascular diseases.
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Management:

- **Lifestyle Modification** – Diet control, exercise, weight management.
- **Medications:**
 - **Type 1 DM:** Insulin therapy.

- **Type 2 DM:** Oral antidiabetics (Metformin), insulin if needed.
 - **Regular Monitoring:** Blood glucose checks, HbA1c testing.
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Conclusion:

Diabetes Mellitus is a serious but manageable condition that requires lifelong care to prevent complications and improve quality of life.

(D) Fracture.

:- Short Note on Fracture – 5 Marks

Definition:

A **fracture** is a **break in the continuity of a bone**, caused by trauma, overuse, or pathological conditions like osteoporosis. It can vary in severity and type.

Types of Fractures:

1. **Closed (Simple) Fracture:** Bone breaks but does not pierce the skin.
 2. **Open (Compound) Fracture:** Bone breaks and protrudes through the skin, increasing infection risk.
 3. **Comminuted Fracture:** Bone shatters into multiple fragments.
 4. **Greenstick Fracture:** Incomplete break, common in children.
 5. **Stress Fracture:** Small cracks due to repetitive stress (common in athletes).
 6. **Pathological Fracture:** Occurs due to underlying disease (e.g., osteoporosis, cancer).
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Clinical Manifestations:

- **Pain and swelling** at the fracture site.
 - **Deformity or abnormal positioning** of the limb.
 - **Limited or loss of function** of the affected area.
 - **Bruising and tenderness** around the injury.
 - **Crepitus (grating sound)** on movement.
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Management:

- **Immobilization:** Using casts, splints, or traction.
 - **Pain management:** Analgesics and anti-inflammatory drugs.
 - **Reduction:** Aligning the fractured bone (Closed or Open reduction).
 - **Surgery:** Internal fixation (plates, screws) or external fixation if needed.
 - **Rehabilitation:** Physical therapy to restore function.
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Conclusion:

Fractures require **prompt medical attention** to ensure proper healing, prevent complications, and restore mobility. **Early diagnosis and appropriate treatment** help in better recovery.

(e) Amputation

:- Refer 2018 Q4

NURSING NOTE SOLUTION