Question Format Examples by Clinical Year

Pre-clinical Years (1-2)

```

A 68-year-old woman presents to her GP with a 3-month history of polyuria, polydipsia, and unexplained weight loss of 5kg. She has no significant past medical history.

On examination, she appears dehydrated. Her BMI is 24 kg/$m^2$.

Investigations:

Random plasma glucose: 14.2 mmol/L (3.5-7.8)

HbA1c: 68 mmol/mol (20-42)

Urinalysis: Glucose ++, Ketones negative

i) Explain the pathophysiological mechanism underlying this patient's symptoms. (1 mark)

ii) Describe the relationship between the patient's symptoms and her laboratory findings. (1 mark)

Essay answer: [600 characters maximum]
```

Early Clinical Years (3-4)

```
```

A 72-year-old man with a history of hypertension and type 2 diabetes presents to the Emergency Department with acute onset of slurred speech and right-sided weakness noted 45 minutes ago. His medications include metformin, lisinopril, and aspirin.

On examination:

BP 178/96 mmHg, HR 88 regular, RR 16, Temp 36.8°C, GCS 15/15

Neurological examination: Dysarthria, right facial droop, right arm weakness (power 2/5), right leg weakness (power 3/5)

CT head: No evidence of hemorrhage, early signs of left MCA territory ischemia

i) What is the most appropriate immediate management for this patient? (2 marks)

ii) State two absolute contraindications to thrombolysis in this patient. (2 marks)

Essay answer: [800 characters maximum]

```

### Final Years (5-6)

```

A 45-year-old woman is admitted to hospital with decompensated cirrhosis secondary to alcohol-related liver disease. She has a history of heavy alcohol use (80 units/week for 15 years) and has been previously hospitalized twice for alcohol withdrawal. She stopped drinking 3 days ago due to increasing abdominal distension and jaundice.

On examination:

Jaundiced, alert but disoriented to time

BP 110/65 mmHg, HR 105 regular, RR 18, Temp 36.9°C

Abdomen: Distended with shifting dullness, splenomegaly

Investigations:

Hb 98 g/L (115-165), Platelets 75 x 10^9/L (150-400)

Bilirubin 75 µmol/L (0-21), ALT 65 U/L (0-40), ALP 180 U/L (30-130)

Albumin 28 g/L (35-50), INR 1.8

Sodium 128 mmol/L (135-145), Creatinine 110 µmol/L (45-90)

i) Calculate this patient's Child-Pugh score and explain its significance. (2 marks)

ii) Outline your comprehensive management plan for this patient, including both immediate priorities and longer-term considerations. (3 marks)

Essay answer: [800 characters maximum]

```

## Specialty-Specific Question Templates

### Medicine Example - Respiratory

```

A 62-year-old smoker (40 pack-years) presents with a 6-month history of progressive exertional dyspnea, chronic productive cough, and two recent exacerbations requiring antibiotics and oral steroids. He has no history of atopy or cardiac disease.

On examination:

Barrel-shaped chest, use of accessory muscles, reduced chest expansion

Hyperresonant percussion note, reduced breath sounds bilaterally with scattered wheeze

SpO_2 92% on air, RR 22

Investigations:

Spirometry: FEV_1 45% predicted, FEV_1/FVC ratio 0.65

Chest X-ray: Hyperinflated lung fields, flattened diaphragms

Describe the key components of a comprehensive management plan for this patient, including non-pharmacological and pharmacological interventions. (3 marks)

Essay answer: [800 characters maximum]

```

### Surgery Example - Acute Abdomen

```

A 28-year-old woman presents to the Emergency Department with a 12-hour history of initially periumbilical pain that has now localized to the right iliac fossa. She reports anorexia and nausea. Her last menstrual period was 2 weeks ago.

On examination:

T 38.1°C, HR 98 regular, BP 124/78 mmHg

Abdominal examination: Tenderness in right iliac fossa with guarding

Rovsing's sign positive, rebound tenderness present

Investigations:

WBC 14.5 x 10^9/L (4.0-11.0), CRP 65 mg/L (<5)

Pregnancy test negative

Urinalysis: No abnormalities detected

i) List three additional physical examination findings you would specifically look for to support your suspected diagnosis. (1.5 marks)

ii) Describe your management approach, including any further investigations and definitive treatment. (2.5 marks)

Essay answer: [800 characters maximum]

```

### Pediatrics Example

```

A 4-year-old boy is brought to the Emergency Department with a 2-day history of fever (39°C), sore throat, and decreased oral intake. Today he developed a rash that began on his trunk.

Past medical history: Fully immunized, no known allergies

On examination:

Ill-appearing, T 39.2°C, HR 140, RR 26, CRT 2 seconds

Pharyngeal erythema with exudate

Blanching erythematous rash with sandpaper texture on trunk and extremities

Strawberry tongue, circumoral pallor

Bilateral tender cervical lymphadenopathy

i) What is the most likely diagnosis? (1 mark)

ii) What diagnostic criteria support this diagnosis? (2 marks)

iii) What is the appropriate management, and why is it important to treat promptly? (2 marks)

Essay answer: [800 characters maximum]

```

### Obstetrics & Gynecology Example

```

A 31-year-old primigravida at 34 weeks gestation presents with a 12-hour history of headache, epigastric pain, and visual disturbances. She has noticed reduced fetal movements over the past day.

Antenatal history: Booking BP 110/70 mmHg, BMI 32 kg/m^2

No significant past medical history

On examination:

BP 162/104 mmHg, HR 88 regular, RR 18, Temp 36.8°C

3+ proteinuria on dipstick

Hyperreflexia, 1+ ankle edema

Fundal height 32 cm, fetal heart rate 155 bpm

Investigations:

Platelets 95 x 10^9/L (150-400)

ALT 68 U/L (0-40)

Creatinine 92 µmol/L (45-90)

Urine protein:creatinine ratio 120 mg/mmol (<30)

i) What is the diagnosis and how severe is this condition? (1 mark)

ii) Outline your immediate management plan, including maternal and fetal considerations. (3 marks)

Essay answer: [800 characters maximum]

```# Comprehensive Medical Curriculum SAQ Generation Prompts

## Master Question Generation Prompt

```

Generate a realistic medical short answer question (SAQ) for undergraduate medical students based on the following parameters:

Clinical Year: [SELECT: Pre-clinical (Year 1-2), Early Clinical (Year 3-4), Final Year (Year 5-6)]

Domain: [SELECT FROM:

1. Basic Medical Sciences (anatomy, physiology, biochemistry, pharmacology, pathology)

2. Behavioral & Social Sciences (psychology, ethics, communication, public health)

3. Clinical Medicine - Medicine (cardiology, respiratory, gastroenterology, neurology, endocrinology, nephrology, hematology, oncology, dermatology, rheumatology, infectious diseases, geriatrics)

4. Clinical Medicine - Surgery (general surgery, orthopedics, ENT, ophthalmology, urology, vascular, neurosurgery, plastic surgery)

5. Clinical Medicine - Other Specialties (obstetrics, gynecology, pediatrics, psychiatry, emergency medicine, anesthesiology, radiology, family medicine)

6. Clinical Skills & Professional Practice (procedures, prescribing, patient safety, quality improvement)

]

Topic: [INSERT SPECIFIC TOPIC within chosen domain]

Question Type: [SELECT FROM:

1. Diagnostic Reasoning
2. Investigation Interpretation
3. Management Decision
4. Procedural Knowledge
5. Ethical Dilemma
6. Patient Safety/Adverse Event
7. Communication Scenario
8. Basic Science Application
9. Public Health/Prevention
10. Multi-disciplinary Care

]

Format: Create a brief patient vignette (100-150 words) that includes:

- Relevant demographic information (age, gender)
- Presenting complaint with timeline
- Key history elements (positive and negative findings)
- Physical examination findings
- Relevant test results (include reference ranges)
- Diagnosis or suspected diagnosis if appropriate

Follow the vignette with 1-3 specific questions that require short essay responses (limit: 600-800 characters).

The question should assess:

- Clinical reasoning
- Knowledge application rather than recall

- Evidence-based decision making
- Systems-based practice understanding
- Patient-centered care principles

Be specific about mark allocation (e.g., ½ mark or 1 mark per point) with total marks between 1-5.

```

## Comprehensive Marking Schema Prompt

```

Create a detailed marking schema for the following medical SAQ:

[INSERT QUESTION HERE]

The marking schema should include:

1. Expected answer components with specific point allocation:
   - Must-include core knowledge points
   - Clinical reasoning elements
   - Application of basic science concepts (where relevant)
   - Prioritization of management steps (where relevant)
   - Safety considerations (where relevant)

2. Alternative acceptable answers:
   - Regional/international variations in practice
   - Alternative evidence-based approaches
   - Emerging evidence considerations

3. Unacceptable answers that should not receive credit:
   - Outdated practices
   - Dangerous approaches
   - Fundamentally incorrect concepts
   - Off-topic responses

4. Rationale section that includes:
   - Core educational objectives being assessed
   - Key clinical competencies demonstrated
   - Integration of knowledge domains
   - Relevance to clinical practice
   - Connection to patient-centered care
   - Links to relevant guidelines or frameworks (without explicitly mentioning UKMLA)

Format the marking schema with bullet points for clarity, specifying exactly how marks are allocated (½ mark or 1 mark per point). Include differentiation between answers expected at different levels of training.

```

## Comprehensive Clinical Topics Template

### Basic Medical Sciences

1. **Anatomy & Physiology**
   - Regional anatomy application in clinical scenarios
   - Physiological mechanisms underlying disease presentations
   - Structure-function relationships in organ systems

2. **Pharmacology & Therapeutics**
```

- Drug mechanisms, interactions, and adverse effects
- Therapeutic drug monitoring and dosing principles
- Pharmacokinetic alterations in special populations

3. **Pathology & Microbiology**
- Pathophysiologic processes and disease manifestations
- Microbiological diagnosis and antimicrobial selection
- Laboratory result interpretation and correlation

Medicine

4. **Cardiovascular Medicine**
- Acute coronary syndromes and cardiac emergencies
- Chronic cardiac conditions and management
- ECG interpretation and cardiac investigations

5. **Respiratory Medicine**
- Acute respiratory failure and emergencies
- Chronic respiratory diseases and management
- Pulmonary function tests and imaging interpretation

6. **Gastroenterology & Hepatology**
- Acute GI emergencies and presentations
- Chronic GI and liver conditions
- Nutritional assessment and management

7. **Neurology**
- Acute neurological presentations and emergencies
- Chronic neurological conditions and management

- Neurological examination and localization

8. **Endocrinology & Metabolism**
   - Diabetes mellitus and complications
   - Thyroid, adrenal, and pituitary disorders
   - Metabolic emergencies and management

9. **Nephrology**
   - Acute kidney injury and chronic kidney disease
   - Electrolyte disorders and acid-base balance
   - Renal replacement therapies

10. **Hematology & Oncology**
    - Anemias and bleeding disorders
    - Thrombotic conditions and anticoagulation
    - Common malignancies and oncological emergencies

11. **Rheumatology & Immunology**
    - Inflammatory arthropathies and connective tissue diseases
    - Immunodeficiency and hypersensitivity reactions
    - Immunomodulatory therapies

12. **Infectious Diseases**
    - Common and serious infections
    - Antimicrobial stewardship and resistance
    - Infection prevention and control

13. **Dermatology**

- Common skin conditions and presentations
- Dermatological manifestations of systemic disease
- Skin cancer recognition and management

Surgery

14. **General Surgery**
    - Acute abdomen and surgical emergencies
    - Common elective surgical procedures
    - Pre/post-operative care and complications

15. **Orthopedics & Trauma**
    - Fracture management and musculoskeletal injuries
    - Joint diseases and degenerative conditions
    - Rehabilitation principles

16. **Specialty Surgery**
    - ENT conditions and emergencies
    - Ophthalmological presentations and management
    - Urological conditions and procedures

Women's and Children's Health

17. **Obstetrics**
    - Normal pregnancy and antenatal care
    - Obstetric complications and emergencies
    - Labor and delivery management

18. **Gynecology**
    - Common gynecological conditions

- Gynecological emergencies
- Women's reproductive health

19. **Pediatrics**
- Child development and growth
- Common pediatric conditions and emergencies
- Neonatal presentations and care

Mental Health

20. **Psychiatry**
- Common mental health conditions
- Psychiatric emergencies and risk assessment
- Psychotherapeutic approaches and medications

Primary and Community Care

21. **General Practice/Family Medicine**
- Chronic disease management in primary care
- Prevention and screening
- Multimorbidity and complex patients

22. **Geriatric Medicine**
- Comprehensive geriatric assessment
- Frailty and falls
- Polypharmacy and deprescribing

23. **Palliative & End of Life Care**
- Symptom management in advanced disease
- End of life decision-making

- Advanced care planning

Professional Skills

24. **Patient Safety & Quality Improvement**
    - Error recognition and reporting
    - Root cause analysis
    - Quality improvement methodologies

25. **Ethics & Law**
    - Consent and capacity
    - Confidentiality and information governance
    - Ethical frameworks for decision-making

26. **Communication & Consultation Skills**
    - Breaking bad news
    - Shared decision-making
    - Communication in challenging situations

27. **Public Health & Epidemiology**
    - Health promotion and disease prevention
    - Population health approaches
    - Screening and surveillance

28. **Evidence-Based Practice**
    - Critical appraisal of evidence
    - Application of guidelines
    - Diagnostic reasoning and clinical decision-making

29. **Leadership & Management**
   - Team dynamics and interprofessional working
   - Resource allocation and prioritization
   - Healthcare systems and organization

Comprehensive Question Structure Guidelines

Structure for Generated Questions

Each generated question should follow this structure:

1. **Case Vignette**:
   - Concise clinical scenario with relevant details
   - Appropriate complexity for the target year level
   - Realistic presentation reflecting common clinical patterns
   - Integration of biopsychosocial factors when appropriate

2. **Specific Question(s)**:
   - Clear instructions with precise verbs (describe, explain, list, etc.)
   - Focused on application rather than pure recall
   - Testing higher-order thinking where appropriate
   - Building from basic to more complex concepts in multi-part questions

3. **Answer Format Guidance**:
   - Specify the appropriate length for answers (character count)
   - Indicate if diagrams/drawings are expected
   - Clarify if answer structure should follow specific formats (e.g., SOAP notes)

4. **Mark Allocation**:
   - Clear indication of how marks are assigned
   - Proportionate weighting based on question complexity
   - Balanced distribution across different knowledge domains

Structure for Marking Schema

Each marking schema should include:

1. **Expected Answers**:
   - Core knowledge points listed by priority
   - Clinical reasoning steps clearly articulated
   - Integration of theoretical knowledge with practical application
   - Different levels of sophistication based on training stage

2. **Acceptable Alternatives**:
   - Valid alternative approaches or explanations
   - Regional variations in practice
   - Emerging evidence considerations
   - Different schools of thought when applicable

3. **DO NOT ACCEPT**:
   - Clearly incorrect information
   - Outdated practices or misconceptions
   - Dangerous or unethical approaches
   - Tangential or irrelevant information

4. **Rationale**:

- Educational objectives and core competencies assessed
- Clinical significance and relevance
- Integration across knowledge domains
- Connection to patient-centered care principles
- Alignment with current practice standards

Difficulty Calibration

Tailor difficulty level appropriately by year:

- **Pre-clinical (Years 1-2)**: Focus on basic sciences with clinical correlations, fundamental concepts, and normal function/structure
- **Early Clinical (Years 3-4)**: Integration of basic sciences with clinical presentations, common conditions, and standard management approaches
- **Final Years (Years 5-6)**: Complex scenarios, atypical presentations, management nuances, professional judgment, and systems-based practice

Focus on Core Elements

- Emphasize foundational knowledge and key clinical concepts
- Prioritize high-yield topics relevant to general medical practice
- Test application of knowledge rather than recall of obscure details
- Integrate basic sciences with clinical practice
- Include patient safety and professional practice elements where relevant