

1.2.3	State two metabolic dysfunctions that can be developed by this patient as a result of his present diet.	(10)
1.2.4	State another important lifestyle modification that this patient can follow to minimize the development of metabolic dysfunctions.	(05)
1.2.5	Explain the importance of the lifestyle modification mentioned in 1.2.4 to maintain the metabolic health in this patient	(20)

2. A 54-year-old postmenopausal woman presented with weight gain, constipation and cold intolerance for six months. On examination, the thyroid gland is diffusely enlarged, firm, and non-tender.

2.1	What is the most probable endocrinological abnormality present in this patient?	(05)
2.2	State the two causes for the development of the condition mentioned in 2.1.	(10)
2.3	Write two most appropriate investigations to diagnose the condition mentioned in 2.1.	(10)

2.8	State one cardiovascular complication that the patient might develop.	(05)
2.9	State the most frequently used pharmacological agent for the lipid abnormality mentioned in 2.6.	(05)
2.10	Briefly explain the mechanism of action of the pharmacological agent mentioned in 2.9.	(15)

3. A 66-year-old male, a chronic alcohol user who was diagnosed with cirrhosis admitted to the hospital with the complaints of jaundice, dark-coloured urine, abdominal distension and bilateral ankle swelling. While in the ward, the patient developed haematemesis. His urine showed positive results for Hay’s test. The results of his serum bilirubin report are given.

Analyte	Test results	Reference range
Serum total bilirubin (µmol/L)	56.0	5.0 - 21.0
Serum direct bilirubin (µmol/L)	28.0	00.0 - 5.1

3.1	State the type of hyperbilirubinaemia with justification. Type of hyperbilirubinaemia: Justification:	(10)
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3.5	Suggest the most appropriate liver function test (LFT) to identify the clotting disorder in the patient.	(05)
3.6	Write the expected finding and the biochemical basis of the LFT mentioned in 3.5.	(20)
3.7	Explain the biochemical basis for the positive Hay's test.	(15)

4.2

4.2.1 State the most widely used biochemical investigation to assess the kidney function.	(05)
4.2.2 State two reasons for the use of the investigation mentioned in 4.2.1 for assessing kidney function.	(10)
4.2.3 Briefly explain why a high-protein diet is not recommended to a patient with acute kidney injury.	(10)
4.3 A 52-year-old construction worker presented with progressive shortness of breath, chronic cough, and reduced exercise tolerance. He had no significant history of smoking. Laboratory investigations confirmed α_1 -antiproteinase (α_1 -antitrypsin) deficiency.	
4.3.1 State the major tissue/organ where α_1 -antiproteinase exerts its protective function.	(05)
4.3.2 State the primary biochemical function of α_1 -antiproteinase.	(05)

5.2 Patients with megaloblastic anaemia is treated with both vitamin B12 and folate in a resource limited setting.

5.2.1 Explain how megaloblastic anaemia develops due to folate deficiency.

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5.2.2 Explain the relationship between folate and vitamin B12 in the development of megaloblastic anaemia.

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5.2.3 Briefly explain the rationale for the statement given in 5.2.

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5.3 A 34-year-old mother of four children with a poor socioeconomic background presented with tiredness and lethargy and her haemoglobin level was 7.8 g/dL.

5.3.1 What is the most probable nutrient deficiency that causes anaemia in this patient?

(05)

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5.3.2 State two reasons for the development of nutrient deficiency mentioned in 5.3.1 in this patent.

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5.3.3 State the biochemical investigation which needs to confirm the nutrient deficiency mentioned in 5.3.1.

(05)

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5.3.4 Explain the reason/s for the use of investigation mentioned in 5.3.3 to confirm the nutrient deficiency mentioned in 5.3.1.

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