Asstt. Professor (Medical Edu.) Comp Exam-2024 चेतावनी
Exam Date 12/05/2025

पुस्तिका में पृष्ठों की संख्या : 32
Number of Pages in Booklet : 32

पुस्तिका में प्रश्नों की संख्या : 150
No. of Questions in Booklet : 150

Paper Code : 21

MPA-25

प्रश्न-पुस्तिका संख्या व बारकोड/
Question Booklet No. & Barcode

816369

इस प्रश्न-पुस्तिका को तब तक न खोलें जब तक कहा न जाए। Do not open this Question Booklet until you are asked to do so.

Sub : Endocrinology

समय : 02:30 घण्टे + 10 मिनट अतिरिक्त*
Time : 02:30 Hours + 10 Minutes Extra*

अधिकतम अंक : 150
Maximum Marks : 150

प्रश्न-पुस्तिका के पेपर की सील/पॉलिथीन बैग को खोलने पर प्रश्न-पत्र हल करने से पूर्व परीक्षार्थी यह सुनिश्चित कर लें कि :

- प्रश्न-पुस्तिका संख्या तथा ओ.एम.आर. उत्तर-पत्रक पर अंकित बारकोड संख्या समान हैं।
- प्रश्न-पुस्तिका एवं ओ.एम.आर. उत्तर-पत्रक के सभी पृष्ठ व सभी प्रश्न सही मुद्रित हैं। समस्त प्रश्न, जैसा कि ऊपर वर्णित है, उपलब्ध हैं तथा कोई भी पृष्ठ कम नहीं है/ मुद्रण त्रुटि नहीं है।

किसी भी प्रकार की विसंगति या दोषपूर्ण होने पर परीक्षार्थी वीक्षक से दूसरा प्रश्न-पत्र प्राप्त कर लें। यह सुनिश्चित करने की जिम्मेदारी अभ्यर्थी की होगी। परीक्षा प्रारम्भ होने के 5 मिनट पश्चात् ऐसे किसी दावे/आपत्ति पर कोई विचार नहीं किया जायेगा।

On opening the paper seal/polythene bag of the Question Booklet before attempting the question paper, the candidate should ensure that :

- **Question Booklet Number and Barcode Number of OMR Answer Sheet are same.**
- **All pages & Questions of Question Booklet and OMR Answer Sheet are properly printed. All questions as mentioned above are available and no page is missing/misprinted.**

If there is any discrepancy/defect, candidate must obtain another Question Booklet from Invigilator. Candidate himself shall be responsible for ensuring this. No claim/objection in this regard will be entertained after five minutes of start of examination.

परीक्षार्थियों के लिए निर्देश

1. **प्रत्येक प्रश्न के लिये एक विकल्प भरना अनिवार्य है।**
2. **सभी** प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का मात्र **एक** ही उत्तर दीजिए। एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
4. **OMR** उत्तर-पत्रक इस प्रश्न-पुस्तिका के अन्दर रखा है। जब आपको प्रश्न-पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्रक निकाल कर ध्यान से केवल **नीले बॉल पॉइंट पेन** से विवरण भरें।
5. कृपया अपना रोल नम्बर ओ.एम.आर. उत्तर-पत्रक पर सावधानीपूर्वक सही भरें। गलत रोल नम्बर भरने पर परीक्षार्थी स्वयं उत्तरदायी होगा।
6. **ओ.एम.आर. उत्तर-पत्रक में करेक्शन पेन/व्हाईटनर/सफेदा का उपयोग निषिद्ध है।**
7. **प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा।** गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है।
8. **प्रत्येक प्रश्न के पाँच विकल्प दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4, 5 अंकित किया गया है। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले (बबल) को उत्तर-पत्रक पर नीले बॉल पॉइंट पेन से गहरा करना है।**
9. **यदि आप प्रश्न का उत्तर नहीं देना चाहते हैं तो उत्तर-पत्रक में पाँचवें (5) विकल्प को गहरा करें। यदि पाँच में से कोई भी गोला गहरा नहीं किया जाता है, तो ऐसे प्रश्न के लिये प्रश्न अंक का 1/3 भाग काटा जायेगा।**
10. * **प्रश्न-पत्र हल करने के उपरांत अभ्यर्थी अनिवार्य रूप से ओ.एम.आर. उत्तर-पत्रक जाँच लें कि समस्त प्रश्नों के लिये एक विकल्प (गोला) भर दिया गया है। इसके लिये ही निर्धारित समय से 10 मिनट का अतिरिक्त समय दिया गया है।**
11. **यदि अभ्यर्थी 10% से अधिक प्रश्नों में पाँच विकल्पों में से कोई भी विकल्प अंकित नहीं करता है तो उसको अयोग्य माना जायेगा।**
12. **मोबाइल फोन अथवा अन्य किसी इलेक्ट्रोनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।**

चेतावनी : अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए और **राजस्थान सार्वजनिक परीक्षा (भर्ती में अनुचित साधनों की रोकथाम अध्युपाय) अधिनियम, 2022 तथा अन्य प्रभावी कानून एवं आयोग के नियमों-प्रावधानों** के तहत कार्यवाही की जाएगी। साथ ही आयोग ऐसे अभ्यर्थी को भविष्य में होने वाली आयोग की समस्त परीक्षाओं से विवर्जित कर सकता है।

INSTRUCTIONS FOR CANDIDATES

1. **It is mandatory to fill one option for each question.**
2. **All** questions carry equal marks.
3. Only **one** answer is to be given for each question. If more than one answers are marked, it would be treated as wrong answer.
4. The **OMR** Answer Sheet is inside this Question Booklet. When you are directed to open the Question Booklet, take out the Answer Sheet and fill in the particulars carefully with **Blue Ball Point Pen** only.
5. Please correctly fill your Roll Number in **OMR** Answer Sheet. Candidates will themselves be responsible for filling wrong Roll No.
6. **Use of Correction Pen/Whitener in the OMR Answer Sheet is stricly forbidden.**
7. **1/3 part of the mark(s) of each question will be deducted for each wrong answer.** A wrong answer means an incorrect answer or more than one answers for any question.
8. **Each question has five options marked as 1, 2, 3, 4, 5. You have to darken only one circle (bubble) indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.**
9. **If you are not attempting a question then you have to darken the circle '5'. If none of the five circles is darkened, one third (1/3) part of the marks of question shall be deducted.**
10. * **After solving question paper, candidate must ascertain that he/she has darkened one of the circles (bubbles) for each of the questions. Extra time of 10 minutes beyond scheduled time, is provided for this.**
11. **A candidate who has not darkened any of the five circles in more than 10% questions shall be disqualified.**
12. **Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt with as per rules.**

Warning : If a candidate is found copying or if any unauthorized material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would be liable to be prosecuted under **Rajasthan Public Examination (Measures for Prevention of Unfair means in Recruitment) Act, 2022 & any other laws applicable and Commission's Rules-Regulations.** Commission may also debar him/her permanently from all future examinations.

उत्तर-पत्रक में दो प्रतियाँ हैं – मूल प्रति और कार्बन प्रति। परीक्षा समाप्ति पर परीक्षा कक्ष छोड़ने से पूर्व परीक्षार्थी उत्तर-पत्रक की दोनों प्रतियाँ वीक्षक को सौंपेंगे, परीक्षार्थी स्वयं कार्बन प्रति अलग नहीं करें। वीक्षक उत्तर-पत्रक की मूल प्रति को अपने पास जमा कर, कार्बन प्रति को मूल प्रति से कट लाइन से मोड़ कर सावधानीपूर्वक अलग कर परीक्षार्थी को सौंपेंगे, जिसे परीक्षार्थी अपने साथ ले जायेंगे। परीक्षार्थी को उत्तर-पत्रक की कार्बन प्रति चयन प्रक्रिया पूर्ण होने तक सुरक्षित रखनी होगी एवं आयोग द्वारा माँगे जाने पर प्रस्तुत करनी होगी।

1. The most common tumour of pineal gland is
   (1) Meningioma
   (2) Germinoma
   (3) Astrocytoma
   (4) Pineoblastoma
   (5) Question not attempted

2. Papillary variant of craniopharingioma harbour
   (1) CTN NB1 (2) APC
   (3) CASR (4) BRAF
   (5) Question not attempted

3. Gutenberg screening used to diagnose
   (1) Lymphocytic hypophysitis
   (2) Nonfunctioning pituitary adenomas
   (3) Thyroid lymphoma
   (4) Multiple myeloma
   (5) Question not attempted

4. Which of the following best describes the role of $1,25(OH)_2D_3$ in bone metabolism ?
   (1) It inhibits osteoclast activity and suppresses bone resorption by reducing RANKL expression.
   (2) It promotes the differentiation of osteoclasts and enhances bone resorption by stimulating RANKL production.
   (3) It decreases the expression of phosphate transporters and reduces intestinal calcium absorption.
   (4) It functions primarily as an inhibitor of type I collagen synthesis in bone.
   (5) Question not attempted

5. A boy presents with precocious puberty and advanced bone age. LH levels are suppressed, and testosterone levels are elevated. Which condition is most likely responsible for these findings ?
   (1) Hypothalamic hamartoma
   (2) Testicular Leydig cell tumor
   (3) McCune-Albright syndrome
   (4) Idiopathic central precocious puberty
   (5) Question not attempted

6. Which imaging feature is most characteristic of a Rathke's cleft cyst on MRI ?
   (1) Stalk thickening
   (2) Hyperintensity on T2-weighted imaging with no enhancement after gadolinium
   (3) Calcification and keratin pearls within the lesion
   (4) Radiological evidence of apoplexy
   (5) Question not attempted

7. Growth Hormone Binding Protein (GHBP) levels are increased in which condition ?
   (1) Malnutrition
   (2) Obesity
   (3) Glucocorticoid treatment
   (4) Chronic infections
   (5) Question not attempted

8. GH signaling involves which intracellular process ?
   (1) Ion channel activation
   (2) Phosphorylation cascade
   (3) DNA replication
   (4) Mitochondrial division
   (5) Question not attempted

9. Which of the following statements is correct about lymphocytic hypophysitis ?
   (1) Seen exclusively among postpartum women
   (2) Resolves spontaneously after breastfeeding
   (3) Most common presentation is with features of hypoadrenalism/cortisolism
   (4) Presence of anti-pituitary antibodies confirms the diagnosis
   (5) Question not attempted

10. Which one of the following is not correct about Pegvisomant therapy in Acromegaly ?
   (1) It is the second line of medical therapy
   (2) The response to therapy is monitored by measuring serum GH rather than IGF-1
   (3) MRI is required during follow-up at six monthly intervals
   (4) Frequent monitoring of liver enzymes and bilirubin is required during therapy
   (5) Question not attempted

11. All of the following are causes of hyperprolactinemia, except :
   (1) Prolactinoma
   (2) Medications such as antipsychotics and antihypertensives.
   (3) Chronic kidney disease of hypothyroidism.
   (4) Excess dopamine production by the hypothalamus.
   (5) Question not attempted

12. Which of the following stimuli is the most potent trigger for vasopressin release from the posterior pituitary ?
   (1) Decreased plasma volume by 1%
   (2) Increased plasma osmolality by 1%
   (3) Hypoglycemia
   (4) Increased angiotensin II levels
   (5) Question not attempted

13. Which laboratory finding is most consistent with SIADH ?
   (1) Hypernatremia with low urine osmolality
   (2) Hyponatremia with high urine osmolality and low serum osmolality
   (3) Hyponatremia with high serum osmolality and low urine osmolality
   (4) Normonatremia with high serum osmolality
   (5) Question not attempted

14. X-linked recessive Nephrogenic diabetes insipidus disease cannot be transmitted
   (1) From Father to Son
   (2) From Mother to Son
   (3) From Father to Daughter
   (4) From Mother to Daughter
   (5) Question not attempted

15. Drugs known to cause SIADH are all EXCEPT
   (1) Aminoglycoside
   (2) Carbamazepine
   (3) Serotonin reuptake inhibitor
   (4) High dose oxytocin
   (5) Question not attempted

16. Replacement dose of thyroid hormone in 0-6 month of life is
(1) 1-2 microgram/kg body weight
(2) 10-15 microgram/kg body weight
(3) 6-8 microgram/kg body weight
(4) 3-5 microgram/kg body weight
(5) Question not attempted

17. A 10-year-old boy presents with short stature (height below the 3rd percentile), delayed bone age, and normal thyroid function tests. IGF-1 levels are low despite normal GH stimulation tests. MRI reveals a small anterior pituitary gland. Which of the following is the most likely cause ?
(1) GH insensitivity due to GHR mutation
(2) PROP1 mutation causing combined pituitary hormone deficiency
(3) Idiopathic short stature
(4) SHOX gene deletion
(5) Question not attempted

18. Which of the following is correct about congenital nephrogenic diabetes insipidus ?
(1) Most cases are due to mutations of Vasopressin V2 receptor
(2) Most cases are due to mutations of Vasopressin V1 receptor
(3) Most cases are due to mutations of Aquaporin 2
(4) Heterozygous female carriers with vasopressin receptor mutations usually have severe polyuria
(5) Question not attempted

19. Which one the following statements is not correct about growth hormone secretion ?
(1) Approximately two-thirds of the total daily GH secretion is produced at night
(2) Nadir growth hormone levels occur mainly during the daytime when levels are mostly undetectable.
(3) Malnutrition decreases GH secretion, whereas obesity has the opposite effect.
(4) GH secretion is greater in the young and greater in women than in men
(5) Question not attempted

20. A 7-year-old girl presents with short stature (-3 SD below the mean), delayed bone age, and normal thyroid function. GH stimulation tests show peak GH levels of 15 ng/mL (normal response). Serum IGF-1 and IGFBP-3 are normal. Genetic testing reveals a deletion in the SHOX gene. Which of the following findings is most characteristic of this condition ?
(1) Disproportionate short stature with shortened fore arms and lower legs
(2) Proportionate short stature with normal skeletal proportions
(3) Delayed puberty due to gonadal dysgenesis
(4) Severe growth retardation with recurrent hypoglycemia
(5) Question not attempted

21. 50 years old female presented to emergency with history recurrent hypoglycaemia also found to have hyponatremia. She had history of lactation failure most likely diagnosis
(1) Sheehan's syndrome
(2) Mitotan therapy
(3) Subarachnoid haemorrhage
(4) Traumatic brain therapy
(5) Question not attempted

22. A 35-year-old woman presents with fatigue, lactation failure, and secondary amenorrhea one year after a complicated delivery with severe postpartum hemorrhage. Laboratory tests reveal low cortisol, low TSH, and low prolactin levels. MRI shows an empty sella turcica. Which of the following mechanisms best explains the pathophysiology of this condition ?
(1) Prolactinoma
(2) Ischemic necrosis of the pituitary gland due to hypotension and vasospasm
(3) Compression of the pituitary gland by a postpartum hematoma
(4) Genetic predisposition due to mutations in PROP1
(5) Question not attempted

23. Which one among the following is commonest type of adenoma seen in clinical practice ?
(1) GH producing adenoma
(2) ACTH producing adenoma
(3) Nonfunctioning adenoma
(4) Nelson syndrome
(5) Question not attempted

24. Which one the following statements is not correct about Pituitary apoplexy ?
(1) Hyperprolactinemia is a common feature in almost all cases.
(2) Patients with visual field compromise require urgent transsphenoidal surgery
(3) Cranial nerve palsies often improve whether or not surgery is undertaken.
(4) Pituitary function does not commonly recover after resolution of the acute hemorrhage.
(5) Question not attempted

25. A 30-year-old postpartum woman presents with headaches, fatigue, and secondary amenorrhea. MRI reveals an enlarged pituitary gland with homogeneous enhancement and thickening of the pituitary stalk. Which of the following radiological findings is most suggestive of lymphocytic hypophysitis ?
(1) Symmetric pituitary enlargement with homogenous enhancement
(2) Heterogeneous contrast enhancement with suprasellar extension
(3) Cystic lesion in the sellar region with calcifications
(4) Presence of a well-circumscribed mass compressing the optic chiasm
(5) Question not attempted

26. Genetic abnormality associated with Papillary thyroid carcinoma is :
(1) MAP Kinase
(2) PI3AKTA
(3) RAS
(4) PI3 AKT
(5) Question not attempted

27. All genes are responsible for tumor formation EXCEPT :
(1) BRAF (2) TERT
(3) P53 (4) RAS
(5) Question not attempted

28. Which type of TSH receptor antibody is primarily responsible for hyperthyroidism in Graves disease ?
(1) Thyrotropin receptor autoantibodies
(2) Thyroid-blocking immunoglobulin (TBI)
(3) Anti-thyroglobulin antibody (AT1..
(4) Anti-thyroid peroxidase antibody (TPOAb)
(5) Question not attempted

29. Circumstances associated with increased binding of thyroxine by thyroxine-binding globulin (TBG) include all of the following EXCEPT :
(1) Pregnancy
(2) Chronic active hepatitis
(3) Androgens
(4) Oral contraceptives
(5) Question not attempted

30. Which one of the following do not arise from a single common ancestral gene ?
(1) Prolactin gene
(2) GH gene
(3) Placental lactogen-related proteins
(4) IGF-1 gene
(5) Question not attempted

31. A 50-year-old woman presents with a palpable thyroid nodule that she noticed 3 months ago. She denies pain but reports mild dysphagil

Physical Examination :
- Firm, non-tender, solitary thyroid nodule (2.5 cm) on the right lobe
- No cervical lymphadenopathy

Laboratory Tests :
- TSH : 3.1 mIU/L (normal)
- Free T4: Normal
- Thyroid peroxidase (TPO) antibody: Negative

Neck Ultrasound Findings :
- Solid, hypoechoic nodule with irregular margins and microcalcifications
- No vascular invasion or extrathyroidal extension

What is the most appropriate next step in management ?
(1) Perform fine-needle aspiration (FN1. biopsy
(2) Repeat ultrasound in 6 months
(3) Order thyroid scintigraphy
(4) Empiric levothyroxine therapy to shrink the nodule
(5) Question not attempted

32. All of the following are biochemical markers of Hyperthyroid status except :
(1) Increased osteocalcin
(2) Decreased low-density cholesterol
(3) Increased sex hormone-binding globulin (SHBG)
(4) Decreased ferritin
(5) Question not attempted

33. A 60-year-old man presents with a rapidly enlarging thyroid mass over the past 6 weeks, along with hoarseness, dysphagia, and unintentional weight loss (5 kg in 2 months).

Physical Examination :

Firm, fixed thyroid mass (4 cm) with irregular borders Cervical lymphadenopathy present Stridor present

Neck Ultrasound Findings :

Large, heterogeneous thyroid mass with invasion into adjacent tissues Multiple enlarged cervical lymph nodes

What is the most likely diagnosis ?

(1) Papillary thyroid carcinoma
(2) Anaplastic thyroid carcinoma
(3) Medullary thyroid carcinoma
(4) Lymphocytic thyroiditis
(5) Question not attempted

34. A 35-year-old woman presents with a newly discovered thyroid nodule during a routine checkup. She has no compressive symptoms but mentions a history of childhood radiation therapy for Hodgkin lymphoma.

Family History :

Mother had thyroid cancer at age 42

Father had colon cancer at age 55

Neck Ultrasound Findings :

1.8 cm solid nodule in the left thyroid lobe

Marked hypoechogenicity with increased central vascularity

What is the most significant risk factor for thyroid malignancy in this patient ?

(1) Female sex
(2) Family history of thyroid cancer
(3) History of childhood neck irradiation
(4) Ultrasound findings of hypoechogenicity
(5) Question not attempted

35. Which enzyme is responsible for the oxidation of iodide and its incorporation into tyrosine residues on thyroglobulin during thyroid hormone synthesis ?

(1) Thyroid peroxidase (TPO)
(2) Deiodinase type 2 (DIO2)
(3) Na+/I– symporter (NIS)
(4) Pendrin
(5) Question not attempted

36. A 45-year-old woman presents with a painless thyroid nodule detected during a routine checkup. Fine-needle aspiration (FN1. Biopsy reveals follicular cell-derived carcinoma with papillary architecture. There is no evidence of lymph node involvement or distant metastasis. Which of the following is the most likely diagnosis according to the WHO classification of thyroid neoplasms ?

(1) Follicular thyroid carcinoma
(2) Papillary thyroid carcinoma
(3) Anaplastic thyroid carcinoma
(4) Medullary thyroid carcinoma
(5) Question not attempted

37. A patient with subclinical hypothyroidism has elevated TSH levels but normal free T4 levels. Which of the following best explains this finding ?

(1) Early autoimmune thyroiditis with preserved thyroid function
(2) Central hypothyroidism due to pituitary dysfunction
(3) Resistance to thyroid hormone (RTH) syndrome
(4) Iodine-induced hyperthyroidism
(5) Question not attempted

38. Which one the following statements is not correct about antithyroid drug therapy (ATD) ?
(1) Agranulocytosis is a serious side effect, with an incidence of 0.28% in the first 3 months of therapy.
(2) Risk factors are older age and higher doses as ATD.
(3) When therapy with ATD has begun, the patient should be instructed for frequent measurement of white blood cell counts.
(4) If agranulocytosis occurs, the drug should be discontinued immediately and the patient treated with antibiotics as appropriate.
(5) Question not attempted

39. Which one the following statements is not correct about Graves' disease ?
(1) Smoking is a well-established risk factor for Graves' disease.
(2) The OR for Graves hyperthyroidism is 3.30 in current smokers when compared with never smokers.
(3) The risk disappears a few years after cessation of smoking.
(4) Moderate alcohol consumption is associated with a considerably higher risk of Graves hyperthyroidism.
(5) Question not attempted

40. Which one of the following statements is inappropriate about the management of hypothyroidism ?
(1) Thyroxin should be taken after meals to avoid drug-associated gastritis
(2) Tab calcium carbonate should not be given with thyroxin as it interferes with absorption of thyroxin
(3) Doses of thyroxin increases if patient is also taking enzyme inducer drugs
(4) Half-life of T4 in blood is about 7 days
(5) Question not attempted

41. A 59-year-old woman with a history of bipolar disorder on lithium therapy for 12 years presents with fatigue, polyuria, and mild confusion. On examination, she has dry mucous membranes and appears volume-deplete)
Investigations :
- Serum calcium: 11.4 mg/dL (Ref: 8.5-10.5 mg/dL)
- PTH: 87 pg/mL (Ref: 15-65 pg/mL)
- Serum phosphate: 2.3 mg/dL (Ref: 2.5-4.5 mg/dL)
- Creatinine clearance: 68 mL/min
- 25-hydroxyvitamin D:31 ng/mL Which of the following is the most likely explanation for her hypercalcemia ?

(1) Primary hyperparathyroidism due to single adenoma
(2) Lithium-induced hyperparathyroidism
(3) Tertiary hyperparathyroidism
(4) Familial hypocalciuric hypercalcemia (FHH)
(5) Question not attempted

42. Which one the following parameters is not used to assess "Clinical Activity Score [CAS]" ?
(1) Diplopia
(2) Spontaneous retrobulbar pain
(3) Pain on up gaze, side gaze, or down gaze
(4) Redness of the eyelids
(5) Question not attempted

43. A 47-year-old woman presents with recurrent kidney stones and reports memory difficulties and frequent headaches over the past 6 months. Labs show:

- Serum calcium: 10.8 mg/dL (Ref: 8.5-10.5 mg/dL)
- PTH: 105 pg/mL (Ref: 15-65 pg/mL)
- Serum phosphate: 2.4 mg/dL (Ref: 2.5-4.5 mg/dL)
- Creatinine clearance: 55 mL/min
- 24-hour urinary calcium: 190 mg/day

A neck ultrasound reveals a 1.5 cm hypoechoic lesion near the right inferior thyroid pole. What is the most likely diagnosis ?

(1) Familial hypocalciuric hypercalcemia (FHH)
(2) Parathyroid carcinoma
(3) Primary hyperparathyroidism (PHPT) due to a parathyroid adenoma
(4) Tertiary hyperparathyroidism
(5) Question not attempted

44. A 72-year-old man with a history of chronic kidney disease (CK4.stage 4 secondary to diabetes presents with pruritus, bone pain, and lethargy. He has not been compliant with phosphate binders. Investigations :

- Serum calcium: 12.0 mg/dL
- PTH: 950 pg/mL (Ref: 15-65 pg/mL)
- Serum phosphate: 6.1 mg/dL
- Vitamin D (25-OH): 18 ng/mL (Ref: >30 ng/mL)

Which of the following is the most likely cause of his hypercalcemia ?

(1) Secondary hyperparathyroidism due to Vitamin D deficiency
(2) Tertiary hyperparathyroidism due to CKD
(3) Hypercalcemia of malignancy due to PTHrP production
(4) Primary hyperparathyroidism in a CKD patient
(5) Question not attempted

45. A 68-year-old man with multiple myeloma presents with severe back pain and confusion. He denies recent infections or medication changes. On examination, he has spinal tenderness over L3-L5. Investigations :

- Serum calcium: 13.8 mg/dL
- PTH: 12 pg/mL (Ref: 15-65 pg/mL)
- Serum phosphate: 4.1 mg/dL
- PTHrP:Normal
- Serum $1,25(OH)_2D$: Low
- Skeletal survey:Multiple osteolytic lesions in the spine

What is the most likely mechanism of his hypercalcemia ?

(1) PTHrP-mediated humoral hypercalcemia
(2) Increased 1, 25 dihydroxyvitamin D production by tumor cells
(3) Osteolytic hypercalcemia due to bone marrow infiltration
(4) Primary hyperparathyroidism with underlying malignancy
(5) Question not attempted

46. A 54-year-old man with hypertension and osteoporosis presents with polyuria and muscle weakness. Labs show:

- Serum calcium: 12.1 mg/dL (Ref: 8.5-10.5 mg/dL)
- PTH: 15 pg/mL (Ref: 15-65 pg/mL)
- 25-hydroxyvitamin D:32 ng/mL (Ref: >30 ng/mL)
- Serum phosphate: 4.3 mg/dL (Ref: 2.5-4.5 mg/dL)

What is the most likely cause of this patient's hypercalcemia ?

(1) Primary hyperparathyroidism (PHPT)
(2) Malignancy-associated hypercalcemia
(3) Familial hypocalciuric hypercalcemia (FHH)
(4) Vitamin D intoxication
(5) Question not attempted

47. A 66-year-old man with weight loss and fatigue presents with new-onset constipation and muscle weakness. He is a former smoker with a 50 pack-year history. On examination, he has cachexia and decreased deep tendon reflexes.

Investigations :

- Serum calcium: 14.2 mg/dL
- PTH: 8 pg/mL (Ref: 15-65 pg/mL)
- Serum phosphate: 4.5 mg/dL (Ref: 2.5-4.5 mg/dL)
- PTHrP (Parathyroid hormone-related peptide):Elevated
- Serum 25-hydroxyvitamin D: Normal

Which of the following is the most likely malignancy associated with this presentation ?

(1) Multiple myeloma

(2) Squamous cell carcinoma of the lung

(3) Renal cell carcinoma

(4) Breast cancer with bone metastases

(5) Question not attempted

48. A 62-year-old postmenopausal woman presents with fatigue, mild depression, and diffuse bone pain. She has a history of nephrolithiasis and was recently found to have osteoporosis on a DXA scan (T-score: -2.7 at the lumbar spine). Blood tests reveal :

- Serum calcium: 11.2 mg/dL (Ref: 8.5-10.5 mg/dL)
- PTH: 85 pg/mL (Ref: 15-65 pg/mL)
- Creatinine clearance: 75 mL/min
- 25-hydroxyvitamin D:28 ng/mL (Ref: >30 ng/mL)
- 24-hour urinary calcium excretion: 280 mg/day

Which of the following is the most appropriate next step in management ?

(1) Start bisphosphonate therapy

(2) Begin cinacalcet and monitor calcium levels

(3) Proceed with parathyroidectomy

(4) Replete Vitamin D and reassess PTH in 3 months

(5) Question not attempted

49. Which one of the following is not a characteristic feature of Pseudopseudohypoparathyroidsim ?

(1) Decreased response of C-AMP to PTH

(2) G s alpha subunit deficiency

(3) Features of Albright's hereditary osteodystrophy (AHO)

(4) Normal serum PTH levels

(5) Question not attempted

50. Which of the following statement best describes the distribution of calcium in the body ?

(1) Intracellular calcium levels are equal to extracellular calcium levels

(2) 99% of total body calcium is stored in bones as hydroxyapatite

(3) Ionized calcium is bound to albumin and does not participate in cellular signaling

(4) Extracellular calcium concentrations are maintained at 13 mg/dL

(5) Question not attempted

51. Type 5 phosphodiesterase (PDE5) inhibitor contra indicated in all EXCEPT :

(1) Unstable angina

(2) Retinitis pigmentosa

(3) Patient taking nitrates

(4) Psychogenic erectile dysfunction

(5) Question not attempted

52. All of the following are correct except :

(1) Parathyroid hormone related protein is responsible for hypercalcemia in cancer patients.

(2) The non-ionized fraction of blood calcium is an important determinant of PTH secretion.

(3) Magnesium influences PTH secretion in the same direction as calcium, but is a less potent secretagogue.

(4) Extracellular calcium level controls PTH secretion by interaction with a calcium sensor G protein-linked receptor present in the parathyroid gland

(5) Question not attempted

53. Which of the following is not a correct statement about clomiphene citrate ?

(1) It is a nonsteroidal ovulation-inducing agent with mixed agonistic-antagonistic properties.

(2) Clomiphene citrate acts by increasing estrogen levels in the hypothalamus.

(3) It increases the release of pituitary FSH and LH by altering GnRH pulsatility.

(4) The medication can lead to follicular recruitment, selection, and ovulation.

(5) Question not attempted

54. All are correct statements about complete androgen insensitivity syndrome

(CAIS) EXCEPT

(1) Called hairless females

(2) Risk of malignancy is low in intra abdominal testis

(3) Spermatogenesis takes place in inguinal testis

(4) AMH levels are in male range

(5) Question not attempted

55. Which of the following statements regarding hypothalamic anovulation is incorrect ?

(1) Hypothalamic anovulation is characterized by a reduction in GnRH pulse frequency, leading to lower levels of LH and FSH secretion.

(2) The resulting gonadotropin deficiency fails to stimulate ovarian follicles, leading to reduced estradiol production and prolonged amenorrhe

(3) Hypothalamic anovulation can occur due to excessive exercise, psychological stress, or disordered eating, which suppress hypothalamic function.

(4) The condition is irreversible and cannot be managed through lifestyle modifications such as reducing stress or increasing caloric intake.

(5) Question not attempted

56. Which statement about hormonal changes during perimenopause is incorrect ?

(1) Serum estradiol levels begin to decline significantly 5 years before menopause.

(2) Average circulating estradiol levels in perimenopausal women can be higher than in younger women.

(3) The decline in inhibin production allows for a rise in FSH levels in later reproductive years.

(4) Ovarian follicular output of inhibin begins to decrease after 30 years of age.

(5) Question not attempted

57. Which of the following statements regarding steroidogenic genes and their functions in the ovary is incorrect ?

(1) StAR (Steroidogenic Acute Regulatory Protein) is responsible for transporting cholesterol into mitochondria, initiating steroid hormone synthesis.

(2) CYP19A1 (aromatase) converts testosterone directly into progesterone in granulosa cells.

(3) CYP11Al (P450 side-chain cleavage) is the enzyme that converts cholesterol into pregnenolone, the first step in steroidogenesis.

(4) 17βHSD1 (17β-hydroxysteroid dehydrogenase type 1) converts estrone into estradiol, which is the most biologically active estrogen.

(5) Question not attempted

58. Which of the following statement about inhibin, activin, and follistatin is incorrect ?

(1) Inhibin is primarily produced by ovarian granulosa cells and functions to suppress FSH production in the pituitary through negative feedback.

(2) Activin and inhibin are members of the TGFβ family, and their production is limited exclusively to the ovary.

(3) Two isoforms of inhibin exist: inhibin-A and inhibin-B, which share an identical α-subunit but differ in their β-subunits (βA and βB).

(4) Follistatin binds activin with high affinity, antagonizing its effects and modulating ovarian functions such as follicular growth and oocyte maturation.

(5) Question not attempted

59. A 17-year-old girl presented to the endocrine OPD for complaints of primary amenorrhea and lack of development of breast. Her endocrine profile showed normal thyroid function tests with undetectable levels of serum estradiol. Serum LH & FSH reports are still awaited. Which one of the following diagnosis will be very unlikely in this girl ?

(1) Kallmann syndrome

(2) Hypothalamic amenorrhea

(3) Complete androgen insensitivity

(4) Idiopathic hypogonadotropic hypogonadism

(5) Question not attempted

60. Disorders of sexual development (DSD) require hormonal studies to make an etiological diagnosis. Following is the hormonal profile of a 15-year-old patient with DSD. What diagnosis will you make ?

Hormone profile - Serum LH - 22 IU/L, FSH 31.5 IU/L, Serum Testosterone 8 ng/mL with

Testosterone to Dihydrotestosterone ratio of 12.

(1) 5 alpha reductase deficiency

(2) Turner syndrome

(3) Androgen insensitivity syndrome

(4) 17:20 Lyase deficiency

(5) Question not attempted

61. Which SGLT 2 inhibitor is found to be best protective to heart and Kidney in T2DM patients ?

(1) Empagliflozin
(2) Dapagliflozin
(3) Canagliflozin
(4) All are same
(5) Question not attempted

62. Critical ankle brochial Index is :

(1) <0.9 (2) 1.2
(3) 1.3 (4) <0.1
(5) Question not attempted

63. Semmes Weinstein monofilament exert

(1) 10 gm (2) 5 gm
(3) 20 gm (4) 30 gm
(5) Question not attempted

64. Which of the following is the most reliable predictive biomarker for Type 1 Diabetes (T1D) ?

(1) C-peptide levels
(2) Seroconversion to anti-islet antibody positivity
(3) Gut microbiome diversity
(4) Insulin resistance
(5) Question not attempted

65. Which one of the following acts only on the urogenital ridge, not on the bipotential gonad during testes development ?

(1) WT-1 (2) SF-1
(3) DAX-1 (4) SOX-9
(5) Question not attempted

66. What is one of the primary complication associated with long-term uncontrolled diabetes ?

(1) Improved immune function
(2) Increased muscle mass
(3) Cardiovascular disease and organ damage
(4) Enhanced athletic performance
(5) Question not attempted

67. Which of the following is NOT a characteristic feature of distal symmetric polyneuropathy (DSPN) in diabetes ?

(1) It can affect small fibers, leading to pain and autonomic dysfunction.
(2) It may affect large fibers, leading to loss of vibration and proprioception.
(3) It commonly presents as a rapidly progressive condition with acute nerve inflammation.
(4) It can involve mixed small and large fiber neuropathy, which is the most common presentation.
(5) Question not attempted

68. What is one of the major risk factors contributing to the increasing prevalence of diabetes worldwide ?

(1) Excessive protein intake
(2) Sedentary lifestyle and obesity
(3) High water consumption
(4) Increased sleep duration
(5) Question not attempted

69. Which of the following best explains the unexpected higher risk of hospitalization for heart failure observed with saxagliptin in the SAVOR-TIMI 53 trial ?

(1) Saxagliptin directly increase myocardial oxygen demand, leading to heart failure exacerbation.

(2) The mechanism remains incompletely understood

(3) Saxagliptin promotes sodium retention, leading to volume overload and heat failure.

(4) The increased heart failure risk is due to the drug's effect on insulin resistance and lipid metabolism.

(5) Question not attempted

70. Which of the following factors is most strongly associated with the risk of lower limb amputation in diabetic patients with DSPN ?

(1) High HbA1c levels at diagnosis

(2) Duration of diabetes exceeding 10 years

(3) Presence of foot ulcers

(4) History of insulin therapy

(5) Question not attempted

71. Which of the following statement correctly summarizes the recommendation of the National Institute for Health and Care Excellence (NICE) in the United Kingdom regarding SGLT2 inhibitors ?

(1) NICE recommends starting an SGLT2is based on a cardiovascular risk score rather than requiring the presence of diagnosed cardiovascular disease.

(2) NICE suggests that SGLT2is should only be used in patients with diagnosed ASCVD, CKD, or heart failure.

(3) NICE does not support the use of SGLT2is for cardiovascular risk reduction due to a lack of conclusive evidence.

(4) NICE only recommends SGLT2is as a secondary treatment option after metformin and sulfonylureas fail.

(5) Question not attempted

72. Which of the following statements best describes the mechanism of action of Glucagon-Like Peptide-1 Receptor Agonists (GLP-lRAs) in diabetes treatment ?

(1) They stimulate insulin release by directly acting on pancreatic beta-cells without affecting gastric emptying.

(2) They bind to the GLP-1 receptor, enhancing glucose-dependent insulin secretion and inhibiting glucagon release.

(3) They primarily work by increasing the absorption of glucose in the intestines, reducing postprandial hyperglycemia.

(4) They function similarly to SGLT2 inhibitors by promoting glucose excretion through the kidneys.

(5) Question not attempted

73. Why is hypoglycemia a particularly dangerous condition for the brain under physiologic conditions ?

(1) The brain lacks insulin receptors required for glucose uptake.

(2) The brain cannot synthesize or store significant amounts of glucose.

(3) The brain has a high metabolic rate and relies on fatty acids for energy during hypoglycemia

(4) The brain utilizes ketone bodies exclusively in the absence of glucose.

(5) Question not attempted

74. Which of the following best explains why SGLT2 inhibitors are prioritized in patients with heart failure of CKD ?

(1) They improve left ventricular ejection fraction in all patients with heart failure.

(2) They reduce heart failure hospitalizations and slow CKD progression by decreasing glomerular hyperfiltration.

(3) They function primarily as weight-loss agents, which reduces cardiovascular strain.

(4) They increase sodium retention, which improves cardiovascular outcomes.

(5) Question not attempted

75. Which of the following statements about glucose-lowering medications and cardiovascular risk reduction is incorrect ?

(1) GLP-1RAs reduce the risk of atherosclerotic cardiovascular events.

(2) SGLT2is reduce the risk of heart failure hospitalization.

(3) Metformin has no cardiovascular benefits and should only be used for glycemic control.

(4) Both GLP-1RAs and SGLT2is have shown cardiovascular benefits independent of glycemic control.

(5) Question not attempted

76. Who was the co-recipient of Nobel Prize for the discovery of insulin along with Frederick Banting in the year 1922 ?

(1) John Macleod

(2) James Collip

(3) Charles Best

(4) George Clowes

(5) Question not attempted

77. Which of the following factors is NOT considered a risk factor for ulceration in diabetic patients ?

(1) Peripheral neuropathy

(2) Peripheral vascular disease

(3) Hyperinsulinemia

(4) Foot deformity

(5) Question not attempted

78. Which one of the following is not a risk factor for type 2 diabetes ?

(1) S. HDL <35 mg%

(2) S. TG > 250 mg%

(3) S. LDL > 160 mg%

(4) Blood pressure > 140/90 mm of Hg

(5) Question not attempted

79. What is the most common cause of nonhealing neuropathic foot ulcers in diabetic patients ?

(1) Poor glycemic control

(2) Failure to remove pressure from the wound and surrounding area

(3) Vitamin D deficiency

(4) Excessive wound debridement

(5) Question not attempted

80. Which one of the following is not correct regarding development of fetal pancreas ?

(1) Beta cells are more numerous than alpha cells during early half of pregnancy

(2) No. of beta cells increases throughout the pregnancy

(3) The ratio of beta to alpha cells at birth is 1 : 1

(4) Beta cells are functional by 14 to 24 weeks of pregnancy

(5) Question not attempted

81. Which trial provided evidence supporting the cardiovascular benefits of GLP-1RAs when added to metformin compared to sulfonylureas, basal insulin, or DPP-4 inhibitors ?

(1) EMPA-REG OUTCOME

(2) CANVAS

(3) LEADER

(4) GRADE

(5) Question not attempted

82. Which of the following is a recommended strategy for improving self-management of diabetes and achieving treatment goals ?

(1) Relying solely on pharmacologic interventions without lifestyle modifications.

(2) Using Diabetes Self-Management Education and Support (DSMES) to reinforce behavioral changes.

(3) Avoiding social determinants of health (SDOH) in diabetes treatment discussions.

(4) Prioritizing glucose-lowering medications over lifestyle interventions in all cases.

(5) Question not attempted

83. Which of the following is a key difference between the recommendations for GLP-1 receptor agonists (GLP-1 RAs) and sodium-glucose cotransporter-2 inhibitors (SGLT2is) in cardiovascular risk management for patients with type 2 diabetes ?

(1) GLP-1 RAs are primarily recommended for patients with a history of myocardial infarction or stroke, while SGLT2is are prioritized for those with heart failure or chronic kidney disease (CKD).

(2) SGLT2is are preferred over GLP-1 RAs in patients with atherosclerotic cardiovascular disease (ASCV4.without heart failure or CK4)

(3) GLP-lRAs and SGLT2is are interchangeable in all patients with type 2 diabetes, irrespective of comorbidities.

(4) The ADA/EASD guidelines prioritize GLP-lRAs in patients with heart failure, whereas SGLT2is are preferred for ASCVD management.

(5) Question not attempted

84. Which of the following is a key finding from the meta-analysis of GLP-1RA cardiovascular outcome trials ?

(1) GLP-lRAs reduced major adverse cardiovascular events (MACE) by 5%, primarily due to their effects on blood pressure.

(2) GLP-lRAs showed significant reductions in cardiovascular death, nonfatal myocardial infarction, and nonfatal stroke.

(3) The cardiovascular benefits of GLP-lRAs were only observed in patients with pre-existing cardiovascular disease.

(4) Short-acting GLP-lRAs, such as lixisenatide, demonstrated the greatest cardiovascular benefits among all GLP-lRAs.

(5) Question not attempted

85. Regarding GLP-1RA cardiovascular benefits, which of the following statements is true ?

(1) The cardiovascular benefits of GLP-lRAs were consistent regardless of whether patients were also on SGLT2 inhibitors.

(2) The benefits of GLP-lRAs were only observed in patients with established atherosclerotic cardiovascular disease.

(3) GLP-lRAs related benefits are totally independent of weight loss.

(4) Cardiovascular benefits of GLP-lRAs were only seen with oral formulations, not injectable ones.

(5) Question not attempted

86. Select the correct statement.
(1) PCSK9 is resident protein present in mitochondria
(2) PCSK9 is monoclonal antibody given intramuscular
(3) PCSK9 is monoclonal antibody given subcutaneously
(4) PCSK9 is monoclonal antibody is given once in six months because stored in adipose tissue
(5) Question not attempted

87. What distinguishes the cardiovascular benefits of SGLT2 inhibitors (SGLT2is) in patients with type 2 diabetes (T2D) ?
(1) The benefits are primarily seen in individuals with baseline high blood pressure, making them ineffective in normotensive patients.
(2) SGLT2is improve cardiovascular outcomes independent of their glucose-lowering effects, suggesting additional mechanisms at play.
(3) These predispose the patient at significant risk of hypoglycemia .
(4) SGLT2is provide cardiovascular benefits only in patients with prior atherosclerotic cardiovascular disease (ASCV4.and not in those without.
(5) Question not attempted

88. In patients with Cholesterol Ester Transport Protein (CETP) deficiency (Homozygous mutations in the CETP gene resulting in complete loss of enzyme activity), which one of the following lipid parameters will be elevated ?
(1) HDL
(2) LDL
(3) Triglyceride
(4) Total cholesterol and LDL, both
(5) Question not attempted

89. Which one of the following statements is not correct regarding use of fibrates in dyslipidemia ?
(1) Fibrates are contra indicated in patients with liver or gallbladder diseases
(2) Liver transaminases may increase, particularly with fenofibrate, but significant hepatotoxicity is very rare
(3) Fenofibrate increases creatinine by about 15% on average, but this was completely reversible even after several years of treatment
(4) Warfarin doses need not to be adjusted when fibrate therapy is started.
(5) Question not attempted

90. Drug of choice for increased Lp (a) is
(1) Fibrates
(2) Niacin
(3) Ezetimibe
(4) All are equally effective
(5) Question not attempted

91. Pancreatic peptic known to reduce food intake EXCEPT

(1) Peptide YY 36

(2) GLP-1

(3) Ghrelin

(4) Pancreatic polypeptide

(5) Question not attempted

92. Which one of the following statement is not correct regarding use of Bempedoic Acid in dyslipidemia ?

(1) It as a selective antagonist of ATP-citrate lyase, catalyzes the ATP-dependent conversion of citrate and coenzyme A (CoA) to oxaloacetate and acetyl-CoA, which is a crucial precursor for the biosynthesis of cholesterol.

(2) Bempedoic acid inhibits triglyceride synthesis, and reduces plasma triglceride levels.

(3) In various patient populations, it reduces LDL-C by 18% to 30%, either alone or in combination with other LDL-lowering agents.

(4) Bempedoic acid may lead to a decrease in hemoglobin; increases in blood urea nitrogen, creatinine, and uric acid; and an increase in gout.

(5) Question not attempted

93. All are correct about Leptin EXCEPT

(1) 167 amino acid protein

(2) Circulating levels of leptin has good relation with fat mass

(3) Leptin receptor is a member of class I cytokine receptor family

(4) Leptin levels acutely change with meal size

(5) Question not attempted

94. Overweight and obesity increase the risk of certain cancers. Which one of the following cancers have not shown increased risk with overweight obesity ?

(1) Pancreatic cancer

(2) Stomach cancer

(3) Multiple myeloma

(4) Meningioma

(5) Question not attempted

95. WHO proposed BMI cut point to define obesity in South Asian adult is

(1) ≥ 25 kg/m^2 (2) 30 kg/m^2

(3) ≥ 28 kg/m^2 (4) 35 kg/m^2

(5) Question not attempted

96. Hypoglycemia can occur as a long-term complication of weight loss procedures. Which one of the following procedures is associated with maximum chances of hypoglycemia ?

(1) Roux-en-Y gastrojejunostomy

(2) Gastric banding

(3) Sleeve gastrectomy,

(4) Biliopancreatic diversion

(5) Question not attempted

97. As a result of the increasing prevalence of obesity, metabolic-associated liver disease, previously known as nonalcoholic fatty liver disease (NAFLD) is now the most common cause of chronic liver disease in both developed and developing countries. Which one of the following statements is not correct about metabolic-associated liver disease ?

(1) Hepatosteatosis is diagnosed when 25% of all cells contain lipid droplets by histology or when MRI reveals more than 25% fat in the liver.

(2) Diagnosis of NAFLD requires the exclusion of other causes of liver pathology.

(3) Metabolic associated liver disease can progress unpredictably to hepatocellular carcinoma.

(4) It is not possible to identify individuals who will progress from NAFLD to nonalcoholic steatohepatitis and hepatocellular carcinoma.

(5) Question not attempted

98. There is a linear relationship between hypertension and obesity. Which one of the following statements is not correct about hypertension and obesity ?

(1) Prevalence rates are more than twice as high in obese men and women compared with lean men and women

(2) Approximately 70% of hypertension in adults is attributable to excess adiposity, especially visceral adiposity.

(3) Obesity-related hypertension has same genetic determinants compared with hypertension in the absence of obesity.

(4) Physiologic mechanisms of obesity related hypertension include insulin resistance, sodium retention, increased sympathetic nervous system activity, activation of renin angiotensin aldosterone, and altered vascular function.

(5) Question not attempted

99. Which of the following statements best describes the role of FTO (Fat mass and obesity-associated gene) in obesity ?

(1) FTO primarily regulates energy expenditure by increasing the basal metabolic rate in obese individuals.

(2) The association of FTO with obesity is clear and predominantly attributed to increased physical activity.

(3) FTO encodes a 2-oxoglutarate-dependent nucleic acid demethylase, influencing fat mass and dietary habits.

(4) FTO polymorphisms are significant only in individuals younger than 7 years of age.

(5) Question not attempted

100. Which of the following statements about ketogenic diets is correct ?

(1) A ketogenic diet must always contain less than 10% of energy from fat.

(2) Ketogenic diets are consistently superior to low-fat diets for long-term weight loss beyond 2 years.

(3) Ketogenic diets can range from 90% of energy derived from fat to modified versions with 60% of energy from fat.

(4) Most individuals on ketogenic diets are able to medically sustain an intake of fewer than 50 grams of carbohydrates per day.

(5) Question not attempted

101. Gastrointestinal stromal tumours (GIST) arise from

(1) K cells (2) L cells

(3) Cajal cells (4) M cells

(5) Question not attempted

102. Which of the following statements best explains the concept of body weight set-point ?

(1) Body weight set-point theory suggests that weight regulation is entirely under conscious control.

(2) The set-point mechanism promotes weight loss by permanently reducing resting energy expenditure.

(3) A decrease in food intake leads to a proportional reduction in energy expenditure to restore body weight.

(4) The effectiveness of the set-point theory is universally accepted, as most individuals maintain the same weight throughout life.

(5) Question not attempted

103. Which one of the following statement is not true about Noninsulinoma pancreatogepous hypoglycemia syndrome (NIPHS) ?

(1) NIPHS is characterized by hypoglycaemia caused by endogenous hyperinsulinemic hypoglycaemia.

(2) Anatomic tumor imaging studies are uniformly negative.

(3) Hypoglcemia typically occurs in postprandial stage

(4) The management requires complete pancreatectomy

(5) Question not attempted

104. Which one of the following is not a cause of raised fasting serum gastrin levels ?

(1) Achlorhydria

(2) Antral G-cell hyperplasia

(3) Hypercalcemia

(4) Sleeve gastrectomy

(5) Question not attempted

105. Which one of the following statements is not true about Gastrinoma ?

(1) Sporadic gastrinomas frequently occur as small (<5 mm in diameter), multiple nodular lesions deep within the duodenal mucosa.

(2) Hepatic metastases are rare in MEN1

(3) Poor prognostic indicators are markedly elevated gastrin levels (e.g., >20× the upper limit of normal), co-occurrence of pancreatic tumors >2 cm, and age >40 years.

(4) Gastrinoma in patients with MEN1 appears to occur rarely in the absence of PHPT

(5) Question not attempted

106. Which one of the following statement is not true about likely diagnosis of insulinoma ?

(1) A patient with documented Whipple triad

(2) Inappropriately high levels of insulin, C-peptide, and proinsulin

(3) Suppressed (β-hydroxybutyrate levels

(4) High circulating insulin antibody titres

(5) Question not attempted

107. Protease inhibitor RITONAVIR is associated with

(1) Rise in Triglyceride

(2) Rise in HDL

(3) Rise in LDL

(4) Rise in fasting blood glucose

(5) Question not attempted

108. A 40-year-old HIV-positive male with a history of steroid use presents with hip pain and difficulty walking. Imaging confirms avascular necrosis (AVN). Which of the following is NOT a known risk factor for AVN in HIV ?

(1) Systemic corticosteroid use

(2) Hypercholesterolemia

(3) Low immunoglobulin G (IgG) levels

(4) High bone mineral density

(5) Question not attempted

109. LOPINAVIR has drug interaction with statins and results in

(1) Increased level of statins

(2) Decreased level of statin

(3) It has no effect on statin

(4) Intial decrease than rise in statin level

(5) Question not attempted

110. Which one of the following statements is not correct regarding 'Autosomal Dominant Disorders' ?

(1) Mutations in a single allele are sufficient to cause the disease.

(2) Individuals are affected in successive generations

(3) The disease does not occur in the offspring of unaffected individuals.

(4) Males and females are not affected with equal frequency.

(5) Question not attempted

111. Most common pancreatic NET in MEN -1 is

(1) Insulinoma

(2) Glucagonoma

(3) Non-functional

(4) Vipona

(5) Question not attempted

112. What is the most common cause of adrenal insufficiency in advanced HIV/AIDS patients ?

(1) Autoimmune

(2) Cytomegalovirus (CMV) adrenalitis

(3) Cryptococcus infection

(4) Medication-induced adrenal suppression

(5) Question not attempted

113. Which of the following statements is NOT correct ?

(1) Mutated proto-oncogenes are associated with cancer

(2) Gene translocation can transform proto-oncogenes

(3) Viral insertion can disrupt normal proto-oncogenes

(4) Ras oncogenes are not associated with human tumours

(5) Question not attempted

114. Which one of the following statements is not correct regarding RET proto-oncogene abnormalities ?

(1) Abnormalities of RET proto-oncogene are located in pericentromeric region of chromosome 10

(2) These abnormalities cause constitutive activation of the receptor tyrosine kinase

(3) RET mutations are located in the extracellular domain of MEN2B and intracellular portion of the receptor in families with MEN2A syndrome

(4) Pheochromocytoma in MEN2 are multicentric and bilateral but not extra-adrenal

(5) Question not attempted

115. Size of non functional pancreatic NET where surgery is indicated

(1) More than 4 cm

(2) More than 1 cm

(3) More than 2 cm

(4) Irrespective of size

(5) Question not attempted

116. All statement are correct with relation to APS1 EXCEPT

(1) No female preponderance in APS1

(2) It is not associated with HLA

(3) Genetic locus responsible for APS1 is located on chromosome 6

(4) APS1 is an Autosomal recessive disorder

(5) Question not attempted

117. An individual with MEN 1 for its first degree relative at what age serum calcium screening should be initiated ?

(1) 8 year (2) 20 year

(3) 30 year (4) 5 year

(5) Question not attempted

118. As part of a research trial, a healthy individual is detected to have islet cell, GAD and anti-IA-2 antibodies in his blood. What is the probability of developing type 1 DM in next 10 years on incidental detection of these three antibodies in the blood ?

(1) 25-50%

(2) 50-60%

(3) 60-80%

(4) 80-90%

(5) Question not attempted

119. APS-2 is characterized by all EXCEPT

(1) It has female preponderance

(2) Age of onset is between 20-40 years

(3) It has Autosomal recessive inheritance

(4) It is polygenic disorder

(5) Question not attempted

120. Orphan receptors are known as 'Orphan' because

(1) Their exact chemical structure is not known

(2) Their putative ligands are not known

(3) Their exact function is not known

(4) Their location inside cell is not fix

(5) Question not attempted

121. Which one of the following statements is not correct about POEMS Syndrome (plasma cell dyscrasia with polyneuropathy, organomegaly, endocrinopathy, monoclonal plasma cell disorder, and skin changes) ?

(1) Patients usually present with severe progressive sensorimotor polyneuropathy, hepatosplenomegaly, lymphadenopathy, and hyperpigmentation.

(2) On evaluation, they are found to have plasma cell dyscrasia and sclerotic bone lesions.

(3) Most of the patients present in infancy to the first decade of life.

(4) There is evidence implicating cytokines such as IL1A, IL6, and TNFα in addition to the M protein in the pathogenesis of this disorder.

(5) Question not attempted

122. Message transmission through gap junction is defined as
(1) Directly from cell to cell
(2) A cross synaptic cleft
(3) By diffusion in interstitial fluid
(4) By circulating fluids
(5) Question not attempted

123. Sometimes a very high level of one hormone mimics the action of another hormone by binding to its receptor with a low affinity. What is the name of this unique phenomenon ?
(1) Cross-reactivity phenomenon
(2) Specificity spillover phenomenon
(3) Functional specificity phenomenon
(4) Competitive agonist phenomenon
(5) Question not attempted

124. All of the following statements regarding the human Y chromosome are correct except :
(1) The length of the human Y chromosome varies as much as threefold in normal man
(2) The length and morphology of the human Y chromosome are variable in first-degree relatives
(3) The variation in length of the human Y chromosome is due to variation in length of its long arm
(4) A large segment of the long arm of the human Y chromosome is not engaged in gene transcription
(5) Question not attempted

125. Which of the following statements is FALSE about membrane receptors for hormones ?
(1) They are often glycoproteins
(2) They are important for steroid hormone action
(3) Those for insulin exhibit an intrinsic protein kinase activity
(4) They have domains spanning the cell membrane
(5) Question not attempted

126. Length of the human genome sequence (basepairs) is
(1) 1 billion (2) 3 billion
(3) 5 billion (4) 6 billion
(5) Question not attempted

127. Which one of the following is the origin of primordial germ cells ?
(1) Endoderm
(2) Ectoderm
(3) Mesoderm
(4) Mesodermal sinus
(5) Question not attempted

128. Which of the following statements is incorrect regarding normal menstrual cycle ?
(1) The major variability in cycle length is due to variation in the luteal phase
(2) Cycle length is counted from the first day of menses to the first day of the subsequent menses
(3) There is a gradual shortening of cycle length with age
(4) Follicular phase begins on the first day of menses
(5) Question not attempted

129. Which one of the following statements is incorrect about 'alternate splicing' ?
(1) It is a regulated process during gene expression that results in a single gene coding for multiple proteins
(2) The proteins translated from alternatively spliced mRNAs will contain the same amino acid sequence.
(3) It is a normal phenomenon in eukaryotes, and it increases the biodiversity of proteins
(4) Exon skipping is the most common mode of alternate splicing
(5) Question not attempted

130. Which one of the following endocrine glands is first to form during mammalian embryogenesis ?
(1) Pituitary (2) Thyroid
(3) Parathyroid (4) Pineal gland
(5) Question not attempted

131. Compound "F" is

(1) ACTH (2) Cortisol

(3) DHEAS (4) Aldosterone

(5) Question not attempted

132. Which antihypertensive drug is not effective in hypertension of pheo ?

(1) Diazoxide (2) Telmisartan

(3) Amlodipine (4) Prazosin

(5) Question not attempted

133. Long duration nitroprusside infusion can cause all EXCEPT

(1) Cyanide toxicity

(2) Alklosis

(3) Acidosis

(4) Increase venous oxygen saturation

(5) Question not attempted

134. Drugs known to precipitate pheo crisis are all EXCEPT

(1) atropine

(2) glucocorticoids

(3) Urapidil

(4) Metoclopramide

(5) Question not attempted

135. What is the primary requirement for the antigen in a sandwich ELISA assay ?

(1) It must have a single antigenic site.

(2) It must allow two antibodies to bind concurrently on different epitopes.

(3) It must be conjugated to an enzyme

(4) It must be purified before analysis.

(5) Question not attempted

136. A 52-year-old patient with resistant hypertension and hypokalemia is undergoing adrenal venous sampling (A VS) to confirm the laterality of aldosterone hypersecretion. The following results are obtained :

- Cortisol in the right adrenal vein: 150 µg/dL
- Cortisol in the left adrenal vein: 140 µg/dL
- Cortisol in the inferior vena cava (IVC): 10 µg/dL
- Aldosterone in the right adrenal vein: 600 ng/dL
- Aldosterone in the left adrenal vein: 50 ng/dL

Cosyntropin stimulation was used during the procedure. Based on these results, which of the following interpretations is most accurate ?

(1) The selectivity index (SI) for both adrenal veins confirms successful cannulation, and the lateralization ratio (LR) indicates unilateral aldosterone hypersecretion from the right adrenal gland, consistent with an aldosterone-producing adenoma (AP1..

(2) The selectivity index (SI) for both adrenal veins does not meet the required threshold for successful cannulation, making the AVS results unreliable, and repeat sampling is necessary.

(3) The lateralization ratio (LR) suggests bilateral aldosterone hypersecretion, consistent with bilateral adrenal hyperplasia (BAH), as aldosterone secretion is not significantly higher on one side.

(4) The aldosterone-to-cortisol ratio (ACR) demonstrates contralateral suppression of aldosterone secretion, confirming unilateral aldosterone hypersecretion from the left adrenal gland, requiring surgical intervention.

(5) Question not attempted

137. Which of the following features distinguishes Liddle syndrome from primary hyperaldosteronism ?
(1) Hypertension
(2) Hypokalaemia and metabolic alkalosis
(3) Suppressed plasma renin activity
(4) Sodium retention due to gain of-function mutations in epithelial sodium channels (ENaC)
(5) Question not attempted

138. A patient suspected of having Cushing syndrome undergoes a CRH stimulation test. After administration of CRH, ACTH levels increase by 120% and cortisol levels rise by 55%. What does this result suggest ?
(1) Ectopic ACTH syndrome
(2) Pituitary-dependent Cushing disease
(3) Adrenal adenoma
(4) Pseudo-Cushing syndrome
(5) Question not attempted

139. Which of the following is NOT a characteristic feature of Apparent Mineralocorticoid Excess (AME) syndrome ?
(1) Elevated cortisol to cortisone ratio in urine
(2) Mutations in the HSD11B2 gene causing loss of 11β-HSD2 activity
(3) Increased plasma renin activity and aldosterone levels
(4) Hypertension, hypokalemia, and metabolic alkalosis
(5) Question not attempted

140. A 42 year old male presents with resistant hypertension, hypokalemia, and metabolic alkalosis. Laboratory evaluation reveals suppressed plasma renin activity and elevated aldosterone to renin ratio (ARR). Imaging identifies a unilateral adrenal mass. Which of the following best explains the pathophysiological mechanisms and differential diagnosis in this case ?
(1) Autonomous aldosterone secretion due to a somatic mutation in the KCNJ5 potassium channel gene within the adrenal zona glomerulosa results in hyperaldosteronism, sodium retention, and potassium wasting, consistent with aldosterone producing adenoma (AP1..
(2) Aberrant adrenal expression of 11β-hydroxysteroid dehydrogenase type 2 (11β-HSD2) leads to cortisol-mediated activation of mineralocorticoid receptors, mimicking aldosterone effects, as seen in apparent mineralocorticoid excess (AME).
(3) Overexpression of CYP11B1 (11β-hydroxylase) in the adrenal cortex leads to excessive cortisol production and hypertension via glucocorticoid receptor activation, characteristic of ACTH-independent Cushing's syndrome.
(4) A germline mutation in the CACNA1H calcium channel gene causes bilateral adrenal hyperplasia with increased aldosterone production, explaining familial hyperaldosteronism type II (FH-II) as the cause of hypertension.
(5) Question not attempted

141. A 48-year-old patient with resistant hypertension and hypokalemia is evaluated for primary aldosteronism. Laboratory results show a plasma aldosterone concentration (PA3. of 25 ng/dL, plasma renin activity (PR 1. of 0.1 ng/mL/h, and an aldosterone-to-renin ratio (ARR) of 250. A saline infusion test is performed, and PAC remains elevated at 14 ng/dL post-infusion. Adrenal CT reveals a 1.5 cm adrenal nodule on the left side. Which of the following is the most appropriate next step in confirming the subtype of primary aldosteronism and guiding treatment ?

(1) Perform adrenal venous sampling (AVS) to assess lateralization of aldosterone secretion, as CT imaging alone cannot reliably differentiate between unilateral aldosterone-producing adenoma (AP1.. and bilateral adrenal hyperplasia (BAH), particularly in patients with incidentalomas.

(2) Utilize captopril challenge testing to confirm autonomous aldosterone secretion by assessing suppression of PAC, as this test is more specific than saline infusion for confirming primary aldosteronism.

(3) Proceed directly with unilateral adrenalectomy based on CT findings of a left adrenal nodule, as imaging strongly suggests an aldosterone-producing adenoma (AP1..

(4) Initiate medical therapy with a mineralocorticoid receptor antagonist(e.g., spironolactone or eplerenone) without further testing, as the combination of elevated ARR and PAC with suppressed PRA confirms primary aldosteronism.

(5) Question not attempted

142. FGF-23 is produced by

(1) Osteoblast (2) Osteocyte

(3) Osteoclast (4) Adipocyte

(5) Question not attempted

143. What is the primary mechanism by which estrogen deficiency during menopause contributes to osteoporosis ?

(1) Increased osteoblast activity and reduced bone formation

(2) Increased osteoclast-mediated bone resorption

(3) Reduced intestinal calcium absorption due to decreased calcitriol synthesis

(4) Increased calcitonin secretion leading to reduced serum calcium levels

(5) Question not attempted

144. Which metabolic bone disorder is characterized by dense but brittle bones due to defective osteoclast function ?

(1) Osteogenesis imperfecta

(2) Osteopetrosis

(3) Paget's disease of bone

(4) Osteomalacia

(5) Question not attempted

145. SELECT the malignancy caused by rhPTH therapy is

(1) Fibrosarcoma

(2) Ewing sarcoma

(3) Osteosarcoma

(4) Osteoblastoma

(5) Question not attempted

146. Which one of the following statements is correct about calcium supplementation ?
(1) Calcium carbonate can be given at any point of time during the day, irrespective of the meal
(2) Calcium citrate-maleate requires acidic pH for effective absorption
(3) Calcium citrate maleate has better bioavailability than carbonate
(4) The bioavailability of calcium supplementation is better when it is given in divided dose in a day than single dose
(5) Question not attempted

147. Which one of the following statements is not correct about calcium metabolism during pregnancy ?
(1) Intestinal calcium absorption doubles from as early as the 12th week of pregnancy.
(2) 24-hour urine calcium excretion increases during pregnancy
(3) The human fetus accretes maximum amount of calcium during the third trimester.
(4) Total calcitriol levels doubles during the first trimester and are maintained until delivery which is PTH dependent.
(5) Question not attempted

148. Which of the following is the primary mechanism by which calcitonin affects bone metabolism ?
(1) Inhibition of osteoclast-mediated bone resorption
(2) Stimulation of osteoblast-mediated bone formation
(3) Increased secretion of parathyroid hormone (PTH)
(4) Enhancement of 1, 25-dihydroxy vitamin D (Calcitriol) synthesis
(5) Question not attempted

149. A 55-year-old woman presents with a neck mass, diarrhea, and flushing. She has a family history of thyroid cancer. On examination, there is a firm nodule in the thyroid and mild cervical lymphadenopathy. Investigations:
- Serum calcium: 9.4 mg/dL (Normal)
- Plasma calcitonin:2200 pg/mL (Ref: <10 pg/mL)
- CEA (Carcinoembryonic antigen): Elevated
- Genetic testing:RET proto-oncogene mutation detected

What is the most likely diagnosis ?
(1) Sporadic Medullary Thyroid Carcinoma (MTC)
(2) Multiple Endocrine Neoplasia type 2A (MEN21.
(3) Papillary thyroid carcinoma
(4) Primary hyperparathyroidism
(5) Question not attempted

150. A patient presents with bowing of the legs and delayed growth. Laboratory studies reveal normal serum calcium, low serum phosphate, elevated alkaline phosphatase, and normal parathyroid hormone (PTH) levels. Genetic testing identifies a mutation in the PHEX gene. Which of the following mechanisms best explains the pathophysiology of this condition ?
(1) Vitamin D deficiency
(2) Excessive renal phosphate wasting due to dysregulation of fibroblast growth factor 23 (FGF23)
(3) Reduced intestinal absorption of calcium due to Vitamin D deficiency
(4) Increased bone resorption secondary to elevated parathyroid hormone activity
(5) Question not attempted

रफ कार्य के लिए स्थान / SPACE FOR ROUGH WORK