Examination test of Clinical biochemistry for students of General medicine *(EN-přehled)*

Name: ..... date: .....

1. The probability that a test result falls within the reference interval in the absence of disease is called the test's

- ☐ efficiency
- ☐ negative predictive value
- ☐ specificity
- ☐ sensitivity

2. Causes of a prolonged thrombin time include all of the following **except**

- ☐ D.I.C.
- ☐ afibrinogenemia
- ☐ decreased factor X
- ☐ heparin
- ☐ hypofibrinogenemia

3. Which of the following **is not** a cause of hyperuricemia?

- ☐ Lesch-Nyhan syndrome
- ☐ renal retention
- ☐ organic acidemia
- ☐ defects in pyrimidine metabolism
- ☐ primary gout

4. Which of the following should not be included in the differential diagnosis of hypercalcemia?

- ☐ vitamin D intoxication
- ☐ vitamin D-dependent rickets
- ☐ excess absorption secondary to the "milk alkali syndrome"
- ☐ primary hyperparathyroidism
- ☐ multiple myeloma

5. D.I.C. associated with infection is most frequently caused by

- ☐ cytomegalovirus
- ☐ HIV
- ☐ gram-negative organisms
- ☐ hepatitis B
- ☐ infectious mononucleosis

6. Which of the following proteins is most useful in detecting rejection of transplanted kidneys?

- ☐ β_2-microglobulin
- ☐ α_2-macroglobulin
- ☐ lysozyme
- ☐ C-reactive protein

7. Postate-specific antigen (PSA) is an example of which type of marker

- ☐ steroid
- ☐ enzyme
- ☐ oncofetal antigen
- ☐ hormone

8. Type 1 diabetes is what percentage of all diabetes mellitus?

- ☐ >20%
- ☐ 5-10%
- ☐ 16-20%
- ☐ 11-15%

9. An important renal response to acidemia is

- ☐ increased potassium excretion
- ☐ decreased excretion of $H_2PO_4^-$
- ☐ increased production of ammonia
- ☐ increased production of HPO_4^{2-}

10. All of the following statements are true of IgM **except**

- ☐ is found in extravascular space
- ☐ is synthesized by the neonate
- ☐ is a pentamer
- ☐ contains “J“ chains

11. Effects of sodium fluoride as a stabilizing agent for glucose include all of the following **except**

- ☐ binds calcium
- ☐ inhibits glycolysis
- ☐ alters the first hour glucose decline
- ☐ promotes faster clotting
- ☐ inhibits urease

12. Urinary excretion of Bence Jones proteins are generally associated with

- ☐ heavy chain gammopathy
- ☐ cryoglobulinemia
- ☐ multiple myeloma
- ☐ cytomegalic viral disease
- ☐ the dehydrated state

13. Increased urinary 5-hydroxyindoleacetic acid (5-HIAA) is a biochemical marker of

- ☐ neuroblastoma
- ☐ carcinoid tumors
- ☐ depression
- ☐ hepatoma
- ☐ malabsorption

14. Proinsulin

1. is 40% physiologically active
2. yields equimolar amounts of insulin and C-peptide in the plasma
3. circulates in significant quantities in the plasma
4. is contained in a beta granule

- ☐ 2 and 4
- ☐ 1, 2, and 3
- ☐ 4 only
- ☐ all of the above
- ☐ 1 and 3

15. A positive serum anion gap is

1. expected in lactate acidosis
2. an abnormality usually associated with renal disease
3. observed in hypercalcemia
4. normal

- ☐ 4 only
- ☐ all of the above
- ☐ 1 and 3
- ☐ 1, 2 and 3
- ☐ 2 and 4

16. Serum ceruloplasmin concentration is generally lowest in

- ☐ nephrotic syndrome
- ☐ hepatitis
- ☐ Hodgkin's disease
- ☐ Wilson's disease

17. Which of the following serologic markers can help distinguish hepatitis D coinfection from superinfection?

- ☐ HBcAb-IgM
- ☐ HBsAg
- ☐ HDVAb-IgM
- ☐ HBsAb

18. Of the metabolic sequences below, which one represents the correct formation of heme from porphobilinogen (PBG)?

- ☐ coproporphyrinogen to uroporphyrinogen to protoporphyrinogen IX to protoporphyrin IX to heme
- ☐ protoporphyrin IX to uroporphyrin to coproporphyrin to heme
- ☐ uroporphyrinogen to coproporphyrinogen to protoporphyrinogen IX to protoporphyrin IX to heme
- ☐ uroporphyrin to coproporphyrin to protoporphyrin IX to heme

19. What is the best explanation for the following set of results?

1. Myoglobin 13,190 ng/mL (normal 0-60)
2. CK-MB 68.1 ng/mL (normal 0-5.0)
3. cTnT 0.02 ng/mL (normal 0-0.1)

- ☐ AMI within 6 hours after onset
- ☐ chronic renal failure
- ☐ AMI 96 hours after onset
- ☐ acute rhabdomyolysis
- ☐ acute renal failure

20. Which of the following is characterized by high urinary ketones with a normal urine glucose?

1. diabetic ketoacidosis
2. starvation
3. renal tubular acidosis
4. alcoholic ketosis

- ☐ 1 and 3
- ☐ 4 only
- ☐ all of the above
- ☐ 1, 2, and 3
- ☐ 2 and 4

21. Hyperamylasemia is commonly caused by administration of

- ☐ antibiotics
- ☐ diuretics
- ☐ opiates
- ☐ anticonvulsants
- ☐ tricyclic antidepressants

22. A hypertensive, hypokalemic patient with urinary sodium excretion of 50 mmoles per day and plasma renin activity below the analytical sensitivity limit of the assay has

1. pheochromocytoma
2. renal artery stenosis
3. benign hypertension
4. primary aldosteronism

☐ 2 and 4
☐ all of the above
☐ 1 and 3
☐ 4 only
☐ 1, 2, and 3

23. Of the following, which is the first acute-phase protein to increase in the serum?

☐ haptoglobin
☐ α_1-antichymotrypsin
☐ α_1-acid glycoprotein
☐ C3

24. High concentrations of homocysteine are associated with increased risk for

1. myocardial infarction
2. peripheral vascular disease
3. stroke
4. pulmonary emboli

☐ 1, 2, and 3
☐ all of the above
☐ 1 nad 3
☐ 2 and 4
☐ 4 only

25. Menopause is associated with continual elevation of

☐ serum FSH and LH
☐ serum estradiol
☐ serum hCG
☐ serum testosterone
☐ serum prolactin

26. Which of the following tumors is incorrectly listed with the marker?

☐ HCG: embryonal carcinoma
☐ AFP: hepatic carcinoma
☐ catecholamine metabolites: neuroblastoma
☐ PSA: cervical carcinoma
☐ CEA: colonic carcinoma

27. Elevation in total CSF protein may be seen in all the following states **except**

- ☐ epilepsy
- ☐ brain tumor
- ☐ CNS trauma
- ☐ stroke
- ☐ bacterial meningitis

28. Which of the following **is not** a cause of hypoglycemia?

- ☐ sepsis
- ☐ acute liver failure
- ☐ chronic renal failure
- ☐ insulinoma
- ☐ Tay-Sachs disease

29. β_2-Microglobulin levels are **least** useful in patients with

- ☐ cadmium poisoning
- ☐ skeletal muscle disease
- ☐ rejected kidney transplant
- ☐ acute leukemia
- ☐ multiple myeloma

30. Pseudohypoparathyroidism is characterized by target tissues that are unresponsive to normal circulating levels of parathyroid hormone (PTH). Which of the following are expected laboratory findings?

- ☐ decreased calcium, elevated phosphorus, and elevated PTH
- ☐ decreased calcium, elevated phosphorus, and decreased PTH
- ☐ elevated calcium, decreased phosphorus, and elevated PTH
- ☐ elevated calcium, decreased phosphorus, and decreased PTH
- ☐ normal calcium, phosphorus, and PTH

31. In diabetes mellitus, glucagon levels are

- ☐ elevated due to high insulin
- ☐ lowered due to high conversion to glucose
- ☐ lowered due to low insulin
- ☐ elevated and not suppressed by carbohydrate loading

32. Regarding serum hCG concentrations, which of the following is not typically observed in women who have an ectopic pregnancy?

1. doubling time of hCG exceeding 2 days
2. concentrations below 50mIU/mL
3. low hCG concentrations relative to expected based on gestational age
4. equimolar production of α- and β-subunits

☐ 1, 2, and 3
☐ 4 only
☐ all of the above
☐ 1 and 3
☐ 2 and 4

33. In the diabetic patient, residual insulin secretion can be monitored by

☐ glucose tolerance test
☐ C-peptide levels
☐ pancreatic polypeptide levels
☐ insulin levels

34. Which of the following proteins is the best indicator of hemolysis?

☐ ceruloplasmin
☐ hemosiderin
☐ transferrin
☐ haptoglobin
☐ ferritin

35. Hemoglobin Alc represents

1. 100% of HbA1
2. 50% of HbA1
3. the major serum hemoglobin
4. the most common aberrant hemoglobin

☐ 4 only
☐ 1, 2, and 3
☐ none of the above
☐ 1 and 3
☐ 2 and 4

36. Which of the following congenital disorders is characterized by high indirect bilirubin?

1. Gilbert's syndrome
2. Dubin-Johnson syndrome
3. Crigler-Najjar syndrome
4. Rotor's syndrome

☐ 2 and 4
☐ all of the above
☐ 4 only
☐ 1, 2, and 3
☐ 1 and 3

37. The protein electrophoresis pattern of a plasma sample reveals a fibrinogen peak in the region containing

☐ α_2-globulins
☐ albumin
☐ β-globulins
☐ γ-globulins
☐ α_1-globulins

38. Which of the following most accurately describes release of pancreatic enzymes following acute pancreatitis?

☐ enzymes are released within 2-12 hours and return to normal after 7 days
☐ peak lipase concentrations are higher than peak amylase concentrations
☐ amylase and lipase are increased 2- to 4-fold over normal
☐ enzymes are released within 2-12 hours and return to normal after 3-4 days
☐ peak amylase concentrations are higher than peak lipase concentrations

39. β_2-Microglobulin is

☐ found on the cell surfaces of all nucleated cells
☐ found in high concentrations in platelets
☐ a low-molecular-weight immunoglobulin
☐ absent in urine
☐ freely filterable by the glomerulus and secreted by the tubules

40. The presence of goiter with evidence of autonomous thyroid function, normal-to-low T_4, normal TBG-binding capacity, low TSH, and increased serum T_3 are indicative of

☐ cretinism
☐ pituitary carcinoma
☐ iodine deficiency
☐ T_3 toxicosis
☐ Hashimoto's thyroiditis

41. A male with elevated LH and FSH and low testosterone in serum may likely have

- ☐ partial androgen resistance
- ☐ primary germ cell failure
- ☐ primary hypogonadism
- ☐ secondary hypogonadism

42. The probability that disease is present when a test result falls outside the reference interval is called the test's

- ☐ specificity
- ☐ sensitivity
- ☐ positive predictive value
- ☐ efficiency

43. Which of the following can cause urine to have a purple color?

- ☐ homogentisic acid
- ☐ bilirubin
- ☐ hemoglobin
- ☐ myoglobin
- ☐ porphyrins

44. CEA reference intervals are

- ☐ not available for normal populations
- ☐ the same for both sexes
- ☐ lower for nonsmokers
- ☐ age and sex adjusted

45. Very-low-density lipoproteins are

1. derived from metabolism of IDL cholesterol
2. catabolized to IDL which accumulates in plasma
3. secreted by the liver and are rich in triglycerides and apo A-I
4. rich in apoprotein C that is transferred to HDL

- ☐ 1 and 3
- ☐ 2 and 4
- ☐ all of the above
- ☐ 4 only
- ☐ 1, 2, and 3

46. All of the following statements are true regarding protein S deficiency **except**

- ☐ therapy for protein S deficiency is similar to that for protein C deficiency
- ☐ the disorder is inherited as an autosomal dominant trait
- ☐ C4b protein is the principal binding protein for protein S
- ☐ only the free form of protein S is active
- ☐ inflammation causes an increase in free protein S levels

47. Microalbuminuria is

- ☐ excretion of albumin metabolites
- ☐ albumin concentrations that are slightly above normal
- ☐ urine albumin concentrations below the reference intervals
- ☐ high serum albumin, low urine albumin
- ☐ normal serum albumin, high urine albumin

48. Which of the following will increase myoglobin concentrations in blood?

1. acute myocardial infarction 12 hours after onset
2. acute renal failure
3. skeletal muscle trauma
4. hemolysis

- ☐ 1 and 3
- ☐ 4 only
- ☐ all of the above
- ☐ 1, 2, and 3
- ☐ 2 and 4

49. Patients with porphyria cutanea tarda have a deficiency of

- ☐ protoporphyrinogen oxidase
- ☐ uroporphyrinogen decarboxylase
- ☐ coproporphyrinogen oxidase
- ☐ ferrochelatase
- ☐ uroporphyrinogen I synthase

50. In which of the following metabolic disorders would one **not expect** to find an increase in blood ammonia?

- ☐ hepatic encephalopathy
- ☐ cirrhosis, terminal stage
- ☐ urea cycle disorders
- ☐ diabetic coma
- ☐ Reye's syndrome

51. The protein dipstick is most sensitive to

- ☐ albumin
- ☐ all globulins equally
- ☐ Bence Jones proteins
- ☐ Tamm Horsfall mucoprotein
- ☐ all proteins equally

52. Adrenogenital syndrome can be caused by all of the following corticosteroid aberrations **except**

- ☐ cholesterol side chain cleavage deficiency
- ☐ 3-β-hydroxysteroid dehydrogenase and isomerase deficiency
- ☐ 17-keto-reductase deficiency
- ☐ 21-hydroxylation deficiency
- ☐ 11-hydroxylation deficiency

53. An Lp(a) concentration exceeding 300 mg/l indicates

- ☐ high genetic risk for coronary heart disease
- ☐ high acquired risk for coronary heart disease
- ☐ high risk when present in the elderly
- ☐ normal value
- ☐ successful administration of lipid lowering drugs

54. Which is the correct order of cast degeneration?

- ☐ cellular → granular → waxy
- ☐ red cell → broad → narrow
- ☐ granular → waxy → fatty
- ☐ hyaline → cellular → broad
- ☐ epithelial → waxy → broad

55. Which of the following is characterized by the presence of red blood cells in the urine, high urinary urobilinogen, but no urine bilirubin?

- ☐ sickle cell disease
- ☐ gallstones
- ☐ hepatitis
- ☐ Gilbert's syndrome
- ☐ biliary cirrhosis

56. Which of the following does not cause prerenal azotemia?

1. congestive heart failure
2. sodium depletion
3. hypovolemia
4. malignant hypertension

- ☐ 1, 2, and 3
- ☐ all of the above
- ☐ 1 and 3
- ☐ 2 and 4
- ☐ 4 only

57. The presence of which cast has the least clinical significance?

- ☐ red cell
- ☐ epithelial
- ☐ waxy
- ☐ granular
- ☐ hyaline

58. Which of these is characterized by increased blood viscosity, Bence Jones proteins, and enlarged lymph nodes and spleen?

- ☐ hepatoma
- ☐ multiple myeloma
- ☐ Wilson's disease
- ☐ Waldenstrom's macroglobulinemia

59. Which of the following is true concerning the biochemistry of human chorionic gonadotropin?

- ☐ the α-subunit is unique to other hormones such as TSH, FSH, and LH
- ☐ hCG is not a glycoprotein
- ☐ the α-subunit is biologically active
- ☐ the α-subunit is cleared more slowly than then intact hormone or the β-subunit
- ☐ leukocyte elastase nicks hCG, inactivating the hormone

60. The normal function of PSA is

- ☐ totally unknown
- ☐ liquefaction of seminal fluid
- ☐ protection of the prostate by binding to bacterial receptors
- ☐ an undefined function in reproduction

61. Possible causes of hypokalemia are

1. diarrhea
2. adrenal failure
3. diuretic drugs
4. hemolysis

- ☐ 1, 2 and 3
- ☐ 1 and 3
- ☐ 2 and 4
- ☐ all of the above
- ☐ 4 only

62. Aldosteronism can be seen in all of the following conditions **except**

- ☐ nephrotic syndrome
- ☐ obesity
- ☐ cirrhosis of the liver
- ☐ adrenal hyperplasia
- ☐ congestive cardiac failure

63. Hemoglobinuria occurs

1. following vigorous exercise
2. when hematuria occurs in isotonic urine
3. after saturation of haptoglobin binding following hemolysis
4. with accumulation of hemosiderin granules in tubular cells

☐ 1 and 3
☐ 1, 2, and 3
☐ 2 and 4
☐ all of the above
☐ 4 only

64. In which metabolic bone disease are serum values of calcium, phosphorus, and alkaline phosphatase generally all normal?

☐ osteoporosis
☐ osteomalacia
☐ hypoparathyroidism
☐ Paget's disease
☐ osteitis fibrosa

65. Which of the following are major causes of interindividual variations in creatinine excretion?

1. significant diurnal variation
2. age
3. dietary fluctuations (creatinine is found in leafy vegetables)
4. differences in lean body mass

☐ 1, 2, and 3
☐ 4 only
☐ 1 and 3
☐ 2 and 4
☐ all of the above

66. α_1-Acid glycoprotein is also known as

☐ Alc
☐ none of these names
☐ orosomucoid
☐ glycosylated protein

67. All of the following conditions represent acquired causes of low protein C levels **except**

☐ D.I.C.
☐ sepsis
☐ liver disease
☐ heparin therapy
☐ oral anticoagulant therapy

68. The hepatitis serology results listed below are most consistent with

1. HBsAg: negative
2. HBcAb-IgM: positive
3. HBsAb: negative
4. HAVAb-IgM: negative

☐ past infection with hepatitis B
☐ acute infection with hepatitis B
☐ chronic infection with hepatitis B
☐ acute infection with hepatitis A

69. If measured osmolality is 340 mOsm/kg and calculated osmolality is 295 mOsm/kg, one should rule out

☐ all of these diagnoses
☐ ethanol poisoning
☐ hyperglycemia
☐ dehydration

70. Physiologically important buffers maintaining body pH include all of the following **except**

☐ bicarbonate
☐ lactate
☐ phosphate
☐ hemoglobin
☐ protein

71. Antithyroglobulin antibodies can be detected in the serum of patients having which of the following?

☐ thyroid adenomas
☐ multinodular goiter
☐ thyroid carcinomas
☐ Hashimoto's thyroiditis

72. What is the fate of creatine produced in the kidneys, liver, and pancreas?

1. converted to phosphocreatine by creatine kinase
2. excreted into urine
3. spontaneously cyclized to creatinine
4. bound to proteins and metabolized in the liver

☐ 1 and 3
☐ 4 only
☐ 2 and 4
☐ 1, 2, and 3
☐ all of the above

73. Cardiac troponin is useful for detection of minor myocardial injury because

1. troponin assays can be made highly sensitive
2. the normal concentration of troponin in blood is very low
3. troponin assays are highly specific for cardiac injury
4. of the high tissue content of troponin relative to other cardiac markers

☐ 1 and 3
☐ all of the above
☐ 2 and 4
☐ 1, 2, and 3
☐ 4 only

74. Which of the following is **false** concerning chylomicrons?

☐ derived predominately from the alimentary tract from exogenously absorbed fats
☐ their apo B-100 and apo E components are transferred to LDL
☐ are converted to a chylomicron remnant through lipolysis
☐ their apoproteins A-I, A-II, and C components are transferred to HDL
☐ they have a density that is less than that of water

75. Which of the following findings speaks against one of the erythropoietic porphyrias?

☐ increased fecal coproporphyrin
☐ increased urine coproporphyrin or uroporphyrin
☐ increased erythrocyte coproporphyrin or uroporphyrin
☐ increased erythrocyte protoporphyrin
☐ increased urine ALA or PBG

76. Coproporphyrin excretion in urine is increased in all the following states **except**

☐ lead poisoning
☐ cirrhosis
☐ chronic alcoholism
☐ glomerulonephritis

77. What is the fate of amylase and lipase enzymes after release into the blood?

☐ both are cleared by filtration, lipase is reabsorbed, and amylase is excreted
☐ both are cleared by filtration, amylase is reabsorbed, and lipase is excreted
☐ both are cleared by glomerular filtration and appear in urine
☐ both are cleared by the reticuloendothelial system
☐ both are cleared by filtration and reabsorbed (neither appear in urine)

78. A positive urine for bilirubin can be caused by the presence of

☐ unconjugated bilirubin
☐ any of these compounds
☐ conjugated bilirubin
☐ delta bilirubin
☐ urobilinogen

79. The principal immunoglobulin that crosses the placental barrier is

- ☐ IgA
- ☐ IgE
- ☐ IgG1
- ☐ IgM

80. Which of the following is true concerning urine proteins?

- ☐ tubular proteinuria is characterized by high-molecular-weight proteins
- ☐ the concentration of urine protein is an accurate indicator of the severity of renal disease
- ☐ the Tamm-Horsfall protein is a normal constituent of urine and serum
- ☐ a negative dipstick for proteins indicates the absence of Bence Jones proteins
- ☐ increased levels of urine proteins are observed following strenuous exercise

81. Disorders producing insulin antagonists, and therefore a secondary diabetes, include all of the following **except**

- ☐ acromegaly
- ☐ pheochromocytoma
- ☐ Cushing's syndrome
- ☐ glucagonoma
- ☐ hypothyroidism

82. Pseudohyponatremia can result from

1. hyperglycemia
2. hyperlipidemia
3. hyperproteinemia
4. hyperchloridemia

- ☐ 1, 2, and 3
- ☐ all of the above
- ☐ 1 and 3
- ☐ 4 only
- ☐ 2 and 4

83. Which of the hepatic porphyrias presents with acute abdominal pain, no skin photosensitization, large amount of ALA and PBG in urine, and symptoms exacerbated by steroids and several other drugs?

- ☐ porphyria cutanea tarda
- ☐ acute intermittent porphyria
- ☐ porphyria variegata
- ☐ congenital cutaneous hepatic porphyria

84. What is a possible interpretation of a patient with an elevated ionized calcium with a normal total calcium level?

- ☐ multiple myeloma and primary hyperparathyroidism
- ☐ primary hyperparathyroidism and nephrotic syndrome
- ☐ metastatic bone disease and hypoparathyroidism
- ☐ secondary hyperparathyroidism and dehydration
- ☐ vitamin D-dependent rickets and liver disease

85. All of the folowing substances are usually increased in lead poisoning **except**

- ☐ urine ALA
- ☐ urine PBG
- ☐ urine porphyrins
- ☐ erythrocyte protoporphyrin

86. With which parameter does creatinine excretion correlate best?

- ☐ muscle mass
- ☐ age
- ☐ diet
- ☐ body weight
- ☐ surface area

87. Decreased cholesterol and LDL with normal triglycerides suggest

- ☐ Lp(a)disease
- ☐ a-β-lipoproteinemia
- ☐ Tangier disease
- ☐ hypo-β-lipoproteinemia
- ☐ hyperlipoproteinemia

88. Which of the following are causes of homocysteinuria?

1. dietary deficiency of folate, vitamins B6 and B12
2. dietary deficincy of riboflavin
3. deficincy in cystathione β-synthetase
4. deficiency in cystine reductase

- ☐ 4 only
- ☐ 2 and 4
- ☐ 1, 2 and 3
- ☐ 1 and 3
- ☐ all of the above

89. Normal daily protein excretion in adult urine (nonexercising, nonpregnant) **should not** exceed

- ☐ 100 mg
- ☐ 10 g
- ☐ 10 mg
- ☐ 1 g
- ☐ 1 mg

90. Which condition can produce a calcium oxalate stone?

- ☐ gout
- ☐ urinary tract infection
- ☐ high purine diet
- ☐ renal tubular acidosis
- ☐ hyperparathyroidism

91. In a patient with extensive skeletal muscle disease, which of the following most likely indicates high risk for renal failure?

- ☐ presence of a metabolic acidosis
- ☐ urine myoglobin 30,000 ng/mL (normal: negative), serum myoglobin 150 ng/mL (normal < 80)
- ☐ urine myoglobin 10,000 ng/mL, serum myoglobin 45,000 ng/mL
- ☐ urea 9 mmol/l, creatinine 75 μmol/l
- ☐ total CK > 50,000 U/L (normal: <200 U/L)

92. Plasma progesterone concentration in a nonpregnant female

- ☐ increases to maximum a few days postovulation, remains there for a few days, then decreases to an initial low just before menstruation
- ☐ remains fairly steady throughout the menstrual cycle
- ☐ increases to a maximum during the menstrual follicular phase and decreases during the luteal phase
- ☐ increases to a maximum just before menstruation, remains steady during luteal phase, and decreases during the follicular phase postovulation

93. Inappropriate ADH secretion can be associated with

1. hypernatremia
2. water intoxication
3. diabetes insipidus
4. some carcinomas

- ☐ 2 and 4
- ☐ 4 only
- ☐ all of the above
- ☐ 1, 2, and 3
- ☐ 1 and 3

94. 1,25-Dihydroxyvitamin D is

1. produced in the liver
2. active in the intestine
3. a metabolite of 24,25-dihydroxyvitamin D
4. effective in increasing serum calcium concentration

☐ 1 and 3
☐ 2 and 4
☐ 4 only
☐ all of the above
☐ 1, 2, and 3

95. All of the following are true of haptoglobin **except**

☐ binds two molecules of hemoglobin
☐ functions to conserve iron
☐ has several sites of synthesis outside the liver
☐ binds the α chain of hemoglobin A, C, F, or S
☐ can bind methemoglobin and heme

96. Absence or a large decrease in the α_1-globulin peak in a serum electrophoretic pattern suggests

☐ nephrotic syndrome
☐ transferrin deficiency
☐ α_1-antitrypsin deficiency
☐ chronic inflammation

97. Paraproteins will be evident in what percentage of multiple myeloma?

☐ 20-40
☐ greater than 90
☐ about 50
☐ about 70
☐ 10-20

98. Serum calcium levels are

☐ high in both primary and secondary hyperparathyroidism
☐ low in both primary and secondary hyperparathyroidism
☐ high in primary and low in secondary hyperparathyroidism
☐ high in secondary and low in primary hyperparathyroidism

99. Increased thyroid-stimulating hormone (TSH), decreased T_3, and decreased T_4 indicate

☐ nonspecific hypothyroidism
☐ secondary hypothyroidism
☐ primary hypothyroidism
☐ tertiary hypothyroidism
☐ pseudohypothyroidism

100. Which of the following **are not** acute-phase reactants?

1. ceruloplasmin
2. haptoglobin
3. α_1-acid glycoprotein
4. α-fetoprotein (AFP)

☐ 2 and 4
☐ 1, 2, and 3
☐ all of the above
☐ 1 and 3
☐ 4 only

101. The probability that a test result falls outside the reference interval in the presence of disease is called the test's

☐ efficiency
☐ specificity
☐ positive predictive value
☐ sensitivity

102. Of the gestational diabetics, what percentage will go on to type 2 later?

☐ 40%
☐ 20%
☐ 60%
☐ 10%

103. Which cast most indicates renal failure?

☐ fatty
☐ fine granular
☐ hyaline
☐ bilirubin casts
☐ broad

104. Ketoacidosis is

☐ associated with both type 1 and type 2 diabetes
☐ not related to diabetes at all
☐ associated with type 2 diabetes
☐ associated with type 1 diabetes

105. Which of the following are the most common causes of acute pancreatitis?

☐ gallstones or obstructing tumor
☐ chronic alcohol use and biliary tract disease
☐ hypertriglyceridemia
☐ abdominal trauma
☐ acute alcohol ingestion or drug use

106. Hypoproteinemia is seen in

1. diarrhea
2. diabetic acidosis
3. vomiting
4. salt-retention syndromes

- ☐ 1, 2, and 3
- ☐ 1 nad 3
- ☐ all of the above
- ☐ 2 and 4
- ☐ 4 only