

PROGRESS TEST September 2020

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The incidence of hepatitis A in developing countries is age-related. Which of the following age groups has the highest incidence?

1. A. children (1-12 years)
B. adolescents (13-18 years)
C. adults (> 19 years)

The blood tests in the first trimester of pregnancy, known as 'Prenatal Screening for Infectious Diseases and Erythrocyte Immunization' (PSIE), include Hb, blood group and rhesus factor. For which of the following infectious agents should every pregnant woman be tested as standard practice?

2. A. chlamydia
B. cytomegalovirus
C. hepatitis B virus
D. herpes simplex virus

Which of the following symptoms is most consistent with diabetic polyneuropathy?

3. A. night blindness
B. orthostatic hypotension
C. urge incontinence
D. sweaty feet

A 'Cimino fistula' is performed on a 54-year-old man with final stage renal failure. An incision is made in the fistula to connect the dialysis machine. The Cimino fistula is an arteriovenous fistula between:

4. A. a forearm vein and artery
B. a shoulder vein and artery
C. a thigh vein and artery
D. a mesenteric vein and artery

An 84-year-old man is diagnosed with loss of visual field due to a cerebral infarction. Which type of hemianopia is this patient most likely to have?

5. A. binasal hemianopia
B. bitemporal hemianopia
C. homonymous hemianopia

The hormone insulin plays a role in regulating blood glucose levels. What effect does insulin have on the enzyme glycogen synthase?

6. A. it stimulates it
B. it inhibits it

A 13-year-old girl's blood pressure is 120/80 mmHg and she has protein in her urine. She has been tiring more easily in recent months. Her plasma creatinine level is highly elevated, her urea concentration is moderately elevated, her potassium level is slightly elevated and her cholesterol level is highly elevated. What is the most likely type of renal failure in this case?

7. A. prerenal
- B. renal
- C. postrenal

A GP would like to examine the primary nodes of a 43-year-old man with anal cancer. In which part of the anus are the primary lymph nodes of the skin located?

8. A. iliac
- B. inguinal
- C. presacral

Which of the following findings from an examination of the lower extremities makes a central paresis most likely?

9. A. hypertonia and normal plantar reflex
- B. hypertonia and abnormal plantar reflex
- C. hypotonia and normal plantar reflex
- D. hypotonia and abnormal plantar reflex

The 'rule of nines' is used to determine the body surface area affected by burns when assessing their severity. How much is the area of a leg as a percentage of an adult's total body surface area under the rule of nines?

10. A. 9%
- B. 18%
- C. 27%
- D. 36%

A four-year-old child has a weeping, crusting skin infection around the mouth. This is most consistent with:

11. A. acne vulgaris
- B. herpes simplex
- C. impetigo vulgaris

A 75-year-old man's blood pressure is repeatedly found to be around 170/95 mmHg with a heart rate of 70 bpm. He has no symptoms apart from slight dyspnoea on exertion. His ECG shows a normal sinus rhythm, no conduction disorders, normal R wave progression, no pathological Q waves and no ST abnormalities. Treatment with thiazide diuretics or beta-blockers could be considered for this patient in order to prevent cardiovascular disease. What is the best choice for this patient?

12. A. beta-blockers
- B. thiazide diuretics

In extremely cold or hot conditions, people sometimes experience a combination of cold, heat and pain. What is the relationship between these various sensations and skin receptors?

13. A. there is a receptor for each of these three sensations
- B. there is one receptor for the temperature sensations and one for the pain sensation
- C. there is one receptor that is responsible for all of the three sensations

Arterial blood gas analysis provides information on the acid-base balance, among other things. The following results:

- pH 7.30 (7.38 - 7.43)
- pCO₂ 7.8 kPa (4.5-6.0)
- bicarbonate 25 mmol/L (22-26 mmol/L)
- base excess -1.5 meq

are most consistent with:

14. A. combined metabolic and respiratory acidosis
- B. respiratory acidosis with partial metabolic compensation
- C. respiratory acidosis without compensation

The concept of liberal autonomy is sometimes referred to as a negative notion of freedom. Why is it referred to as 'negative'?

15. A. freedom here relates to ability to live one's own life
- B. because people who are ill are not in fact autonomous
- C. because autonomy should not be the most important moral value in healthcare
- D. freedom here relates to freedom of choice and non-interference

A 67-year-old man presents at the GP surgery because he is worried about his left elbow. Two days ago he was busy pruning and digging in the garden. A day ago he developed a growing, soft, fluctuating swelling approximately 5 cm in diameter on his left elbow. The skin is not red or hot, but the swelling is slightly tender. What is the most likely diagnosis?

16. A. osteoarthritis of the elbow
- B. olecranon bursitis
- C. lateral epicondylitis
- D. radial tunnel syndrome

A newborn baby is found to have a bilateral nasal obstruction when suctioning the respiratory tract. What is the most likely cause?

17. A. choanal atresia
- B. cyst of the dorsum of the nose
- C. septum deviation

A physician is trying to exert a positive influence on a patient's health behaviour. He can select from various communication techniques. If this physician says to the patient, 'I don't know any more, you tell me what to do', that is an example of:

18. A. metacommunication
- B. paradoxical communication

A 73-year-old man has a history of hypertension, for which he has been prescribed lisinopril (an ACE inhibitor) in addition to hydrochlorothiazide. Now, more than a month after starting to take the lisinopril, he presents to the GP complaining of a cough. He never used to have this problem, he does not have a cold, he is not ill, but the cough is very troublesome and he would like to be prescribed something for it. What is the most likely cause of this man's cough?

19. A. side effect of the ACE inhibitor
- B. heart failure
- C. interaction between the ACE inhibitor and the hydrochlorothiazide

Malignant hyperthermia is a dreaded complication of administering inhaled anaesthetics such as sevoflurane. The disorder starts with the anomalous intracellular transport of which ion?

20. A. calcium
- B. potassium
- C. sodium

There are infections that are virtually asymptomatic before puberty but symptomatic in later life. Which of the following infections is an example?

21. A. *Campylobacter jejuni*
- B. Epstein-Barr virus
- C. *Mycoplasma pneumoniae*

In a breech presentation, the legs may be extended with the feet beside the head or the knees bent. If the legs are extended with the feet beside the head, the breech presentation is:

22. A. incomplete
- B. complete

Sunlight plays a role in the causation of some skin cancers. The most common type of skin cancer in light-skinned people is:

23. A. basal cell carcinoma
- B. Merkel cell carcinoma
- C. squamous cell carcinoma

A 42-year-old policeman tells his psychiatrist that a few weeks ago he was standing on guard at an open front door while a fellow officer entered the house. At the back of the hallway, he saw a fireball coming towards him 'slowly', while the other officer was thrown through the sitting room window right in front of him. In reality, this was a gas explosion that took place at lightning speed. The policeman said that he felt 'rooted to the spot' and that the situation was happening to someone else, not him. Which of the following psychopathological phenomena is most clearly present in the above account?

24. A. depersonalization
B. derealization
C. dissociative amnesia
D. hallucination

A physician is treating her Prinzmetal's angina patients with a calcium antagonist as usual. As part of a scientific study she asks the patients to keep daily records of the number of bouts of pain. What type of study is this?

25. A. experimental study
B. observational study

When hyperthyroidism is treated with thioamides, it takes a few weeks for the thyroid hormone level to go down. Why is this?

26. A. the large stores of thyroid hormone in the thyroid gland are released first
B. it takes a long time for the plasma concentration of thioamides to reach a steady state
C. thioamides need to accumulate in the thyroid gland first
D. thioamides are prodrugs and need to be converted into active metabolites first

Portal hypertension can cause bleeding from oesophageal varices. Which of the following is the prophylactic treatment of choice to prevent a first episode of variceal bleeding?

27. A. insertion of a transjugular intrahepatic portosystemic shunt
B. diuretics (spironolactone and furosemide)
C. endoscopic sclerotherapy
D. non-selective beta blockade

H⁺ is secreted in the renal tubules inter alia by a membrane protein that causes an exchange between H⁺ and another ion. Which other ion?

28. A. Ca²⁺
B. K⁺
C. Mg²⁺
D. Na⁺

Shingles occurs mainly in older people and people with an immune disorder. The disease is due to the reactivation of a latent viral infection. The virus migrates to the skin from the:

29. A. posterior funiculus
- B. nerve root
- C. dorsal ganglion

A 24-year-old woman suffers from frequent urge to urinate and a burning pain when urinating. She does not feel unwell otherwise. Her urine test is positive for leukocyte-esterase and nitrate, on the basis of which her GP diagnoses a urinary tract infection. What is the most appropriate drug to treat her, based on efficacy, safety, suitability and cost?

30. A. amoxicillin
- B. amoxicillin/clavulanic acid
- C. erythromycin
- D. gentamicin
- E. nitrofurantoin

The transfer of sound vibrations from the air to the inner ear fluid is highly inefficient. What anatomical aspect in particular in humans improves the transfer of sound to the inner ear? The:

31. A. auditory ossicles
- B. outer ear
- C. structure of the eardrum
- D. shape of the auditory canal

A 35-year-old woman suffers from attacks of vertigo and nausea with tinnitus. She also has a history of headache around her periods since the age of 15. At these times, she also feels nauseous and has to lie down in bed. An examination when she is not suffering an attack reveals sensorineural hearing loss in one ear. There are no other ENT or neurological abnormalities. What is the most likely diagnosis?

32. A. benign paroxysmal positional vertigo (BPPV)
- B. vestibular neuronitis
- C. vestibular migraine
- D. Ménière's disease

A 78-year-old woman has a history of hypertension that is difficult to regulate, for which she takes hydrochlorothiazide 12.5 mg 1 x day, enalapril 5 mg 1 x day, metoprolol 100 mg 1 x day and nifedipine 30 mg 1 x day. She now presents at the GP surgery with all the signs of heart failure: she is short of breath on the slightest exertion, retains fluid and has put on 6 kilograms in weight. Her blood pressure is 150/80 mmHg and heart rate 56 bpm (irregular and uneven). Her creatinine clearance is 25 ml/min. (in line with old values). The ECG shows atrial fibrillation with a ventricular response rate of 58 bpm. There are Q waves in I, II and aVL. Her GP would like to make a substantial change to her medication. Which of the

following drugs has a positive influence on cardiac contractility and certainly should not be discontinued?

- 33. A. enalapril
- B. hydrochlorothiazide
- C. metoprolol
- D. nifedipine

Patients are sometimes diagnosed with a serious illness. When is 'denial' (sometimes referred to as 'denial coping' or 'avoidance coping') an adaptive coping strategy?

- 34. A. only in the short term
- B. in both the short and long term
- C. hardly ever

A 79-year-old woman has had a fall at home. Her daughter says that her mother has been more prone to falling for the past few months and complains that walking is more difficult. She does not go out of the house as a result. The daughter considers that her mother has also been panicky and somewhat forgetful since then; on top of this, her mother sometimes fails to recognize her and frequently sees people who are not there. On physical examination, the physician finds that the patient has little facial expression, hypokinesia and rigid extremities. With which type of dementia are these signs most consistent?

- 35. A. Alzheimer's disease
- B. frontotemporal dementia
- C. Lewy body dementia
- D. vascular dementia

Factor V Leiden is characterized by a single amino acid change (Arg506Gln) in coagulation factor V. What is the effect of this change in factor V?

- 36. A. it is less readily activated by thrombin
- B. it is no longer able to act as a cofactor to factor Xa
- C. it is less readily cleaved by activated protein C

Systemic lupus erythematosus (SLE) is a disease that involves immune complexes. It is characterized by the formation of antibodies to:

- 37. A. acetylcholine
- B. DNA
- C. IgA

A diffuse large B cell lymphoma generally has a relatively good prognosis. What does the treatment usually consist of?

- 38. A. allogeneic stem cell transplant
- B. chemotherapy
- C. chemotherapy and radiotherapy
- D. watchful waiting

An 85-year-old woman has been having bouts of cramping abdominal pain with vomiting for three hours. The abdomen is distended with high-pitched peristalsis and stomach rumbling. A tense swelling which is tender and smooth is palpable in the right groin. The swelling is medial to the femoral pulse and caudal to the ilioinguinal ligament (Poupart's ligament). What is the correct clinical diagnosis of this swelling?

39. A. incarcerated femoral hernia
B. incarcerated inguinal hernia

There are a variety of doctor-patient relationship models. A doctor says to his patient, 'As your mother and sister died of breast cancer, I think you should be tested for the BRCA 1 or 2 gene. It's for your own good.' This statement is most consistent with which of the following doctor-patient relationship models?

40. A. informative model
B. interpretative model
C. paternalistic model

A 48-year-old woman's twin brother has been diagnosed with rheumatoid arthritis (RA). She would now like to be tested for RA too, as she often has joint problems and she has heard that it can be detected in the blood. In what percentage of patients with rheumatoid arthritis is the rheumatoid factor detectable in the blood?

The percentage is closest to:

41. A. 99%
B. 65%
C. 30%
D. 10%

The insulin receptor is a receptor tyrosine kinase that is expressed in muscle, liver and fat cells. Where in the cell is it located? In the:

42. A. nuclear membrane
B. plasma membrane
C. mitochondria
D. cytosol

Pulmonary fibrosis can be caused by exposure to toxic substances in the course of a person's work. This is true of occupational exposure to:

43. A. aromatic amines in paint and rubber
B. insecticides in agriculture
C. heavy metals such as cadmium, nickel and chromium

Which of the following brain areas is most involved in disorders of arousal? The:

44. A. hippocampus
B. reticular formation
C. substantia nigra
D. thalamus

Behaviourists adopt the principle that the development of behaviour is a result of:

45. A. the influence of external circumstances
B. genetic factors
C. maturation processes
D. sexual impulses and death drive

What happens to the majority of bile acids following secretion in the bile? They are:

46. A. excreted in the faeces
B. absorbed in the small intestine and taken into the enterohepatic circulation
C. deconjugated by bacteria in the small intestine
D. absorbed in conjugated form in the colon and taken into the enterohepatic circulation
E. used by bacteria in the colon for their metabolism

The mechanism of action of neurotransmitters is based on changing the membrane potential of a nerve cell. In the case of inhibitory neurotransmitters this causes:

47. A. depolarization
B. hyperpolarization

Following ovulation, the wall of the remaining empty follicle is transformed into the corpus luteum. The corpus luteum is responsible for the production of various hormones needed to maintain pregnancy. Which of the following hormones is necessary to maintain the corpus luteum at the start of a pregnancy?

48. A. beta-hCG
B. oestradiol
C. progestagen

A 54-year-old woman has been feeling tired for a few weeks. She has a sore throat and her neck feels swollen. On examination, the physician finds a slightly swollen thyroid gland that is painful to palpation. Blood tests show elevated CRP and a slightly elevated TSH level. The free T4 level is normal. What is the most likely diagnosis in this woman's case?

49. A. euthyroid goitre
B. subacute thyroiditis
C. Graves' disease
D. Hashimoto's thyroiditis

A 25-year-old woman goes to her GP complaining of abdominal pain in the right lower abdomen that started a few hours ago. She has vomited once and is not feverish. She is not using contraception as she wishes to have a baby. Her last period was two weeks ago and there was little bleeding. Which of the following diagnostic tests should be carried out first?

50. A. serum hCG
B. serum CRP
C. urinary sediment
D. pregnancy test

A 50-year-old man presents at the GP surgery complaining of problems with his left hip. Apart from hip dysplasia he has a clean medical history. Based on physical examination and an X-ray, he is diagnosed with secondary osteoarthritis with severe functional impairment. What is the best surgical treatment for these incapacitating hip problems?

51. A. arthrodesis
B. head-neck prosthesis
C. osteotomy
D. total hip replacement

Blood pressure regulation takes place to a large extent in the kidneys. Which of the following processes falls into the category of 'autoregulation' in the kidneys?

52. A. increase in glomerular pressure when the blood pressure rises
B. vasoconstriction of the afferent arterioles when the blood pressure rises
C. vasoconstriction of the afferent arterioles when sodium delivery from the distal tubules rises
D. salt retention when the effective circulatory volume is reduced

A major disadvantage of various study designs is the effect of distorting influences, known as 'bias', that can affect the results of a study. Which type of bias is particularly a risk in case control studies?

53. A. confounding bias
B. information bias
C. observer bias
D. recall bias

Trichotillomania is neurotic compulsive hair pulling. From what can it be recognized clinically?

54. A. broken hairs along with follicles with no hairs
B. round bald patches
C. exclamation mark hairs
D. scarring of the hair follicles

When treating an acetylsalicylic acid intoxication, the principle of ion trapping is applied to promote the elimination of the drug. This requires urinary pH to be:

55. A. increased
B. reduced

A 39-year-old man has a history of ankylosing spondylitis. For the past few days, he has been suffering from blurred vision, pain and photophobia in the right eye. On inspection, the right eye is seen to be red. What is the most likely cause of the red eye in this case?

56. A. cataract
B. glaucoma
C. keratitis
D. uveitis

A twelve-year-old girl presents at the GP surgery complaining of long menstrual periods. She had her menarche at the age of eleven and a half. What is the most likely cause of her symptoms?

57. A. anovulatory cycles
B. endometriosis
C. myomatous uterus

A physician examines a five-year-old boy's eardrum. In order to gain the best view of the eardrum when using an otoscope, it is important to pull the outer ear. The best way is to do what with the outer ear?

58. A. pull it away from the head horizontally
B. pull it in the dorsal and cranial direction
C. pull it in the dorsal and caudal direction
D. pull it in the caudal direction

A 57-year-old man is diagnosed with T2N1 colon cancer. A tumour marker test is indicated, among other things to monitor his response to the treatment. Which tumour marker is involved in this case?

59. A. alpha-fetoprotein
B. CA-125
C. CEA

A 68-year-old man with severe chronic renal failure is diagnosed with anaemia. The anaemia is most likely due to:

60. A. haemolysis as a result of uraemia
B. renal bleeding
C. erythropoietin deficiency

A 26-year-old man fell as a result of a tackle in a football game four weeks ago. The knee then became swollen and painful. That has now largely cleared up, but he has the feeling that he needs to be careful not to let his knee give way when negotiating even small irregularities in the ground. The range of motion in the knee, varus and valgus stability and the posterior drawer test are all normal. The anterior drawer test is clearly positive. These findings are most consistent with an injury to the:

61. A. medial meniscus
B. anterior cruciate ligament
C. medial collateral ligament

Primary haemostatic plug formation is caused by platelet aggregation, which is facilitated by local exposure and activation of a receptor on the endothelial cell.

Which of the following coagulation factors activates this receptor?

62. A. fibrin
B. FXIII
C. tissue factor (TF)
D. thrombin

Excitation-contraction coupling when a muscle cell contracts is accompanied by a rise in the cytoplasmic concentration of a particular cation. Which one?

63. A. Mg^{2+}
B. Ca^{2+}
C. K^{+}
D. H^{+}

If we want to analyse the discriminatory power of a diagnostic test such as the Mini Mental State Examination (MMSE), we can do an ROC analysis. The results are shown in graph form, with the sensitivity on the y-axis and $(100\% - \text{specificity})$ on the x-axis. Which of the following best describes the discriminatory test?

64. A. a curved line running from the bottom left-hand corner to the top right-hand corner
B. a straight line running from the bottom left-hand corner to the top right-hand corner
C. a curved line running from the top left-hand corner to the bottom right-hand corner
D. a straight line running from the top left-hand corner to the bottom right-hand corner

Electroconvulsive therapy is used only when strictly indicated on patients suffering from particular psychiatric disorders who no longer respond to other psychiatric treatments. The indications include the treatment of:

65. A. borderline personality disorder
- B. depression in the narrow sense
- C. negative symptoms of schizophrenia
- D. panic disorder
- E. positive psychotic symptoms

A 40-year-old woman has recently been suffering from stomach ache, especially after meals. Which of the following drug groups is most appropriate for her initial drug treatment?

66. A. antacids
- B. H₂ receptor antagonists
- C. proton pump inhibitors
- D. propulsives

A 50-year-old man with a long history of severe tobacco addiction presents at the GP surgery with shortness of breath without orthopnoea. He has a productive cough. When asked, he says he has no fever. He had several respiratory tract infections in the spring. He has no history of allergy. On physical examination, the physician finds bilateral wheezing and prolonged expiration on auscultation and normal heart sounds, with bilateral hyperresonant percussion. Which of following diagnoses is most likely?

67. A. asthma
- B. COPD
- C. heart failure
- D. pneumonia

Which of the following cell types is involved in the cytotoxicity of infected and/or damaged cells?

68. A. CD4+ cells
- B. CD8+ cells
- C. NK cells
- D. gamma delta cells

A humeral shaft fracture most commonly causes nerve damage to one of the following nerves. Which one?

69. A. median nerve
- B. radial nerve
- C. ulnar nerve

A 78-year-old woman has been admitted to the orthopaedic ward, for a replacement of a head-neck prosthesis of the left hip. The night after the operation she was very agitated and tried to get out of bed. She pulled out her intravenous line. While her history is being taken, her attention can be gained but not retained. With great difficulty, she says that it is Sunday the 6th of July 1975. She is constantly fidgeting with the sheets and says there are bugs in the bed. Which psychiatric disorder is this most likely to be?

70. A. delirium
B. manic psychosis
C. schizophrenia
D. Alzheimer's disease

A 26-year-old man has been on a ventilator in Intensive Care for some time following a motorcycle accident. At the end of the afternoon, his endotracheal tube is replaced with a ventilation cannula inserted via a tracheostomy stoma made at that time. In the early evening, he has hypovolemic shock and his neck is severely swollen. What structure is most likely to have been damaged? The:

71. A. oesophagus
B. thyroid gland
C. thymus
D. jugular vein

A 33-year-old woman presents at the GP surgery complaining of painful, fluctuating discolourations of her fingers and toes. The discolourations and the pain occur mainly during cold spells. She has just arrived on her bicycle and is suffering at the moment. She does not smoke and is not on any medication. Inspection of the hands reveals a circumscribed pallor on two fingers and a bluish discolouration of three other fingers. After the woman has been indoors for a little while, her fingers turn red. There is no oedema. With which of the following is this pattern most consistent?

72. A. palmar erythema
B. Raynaud's phenomenon
C. pernio (chilblains on the hands and feet)

A 20-year-old woman with a clean medical history has been taking the combined oral contraceptive pill (Microgynon 30) faithfully for the past six months. She goes to her GP because she has been suffering from irregular bleeding between periods. What is the most likely cause of this patient's irregular bleeding between periods?

73. A. Candida infection
B. Chlamydia trachomatis infection
C. low progesterone level
D. low oestrogen levels

Dislocation of thoracic and lumbar vertebrae is not a common occurrence. Repeated hyperextension (bending backwards), for example in gymnastic exercises, can however cause spondylolysis. In which part of the vertebra is the fracture located?

74. A. vertebral body
B. vertebral lamina
C. pars interarticularis
D. vertebral pedicle

After using an antibiotic, a patient may develop diarrhoea due to overgrowth of a bacterium that is not sensitive to the antibiotic in question. This bacterium produces a toxin that damages the intestinal wall. In severe cases, this is referred to as 'pseudomembranous enterocolitis'. Which of the following bacteria causes this condition?

75. A. *Campylobacter jejuni*
B. *Clostridium difficile*
C. *Escherichia coli*
D. *Salmonella enterica*

A 45-year-old man develops motor agitation two days after being admitted to hospital. He is perspiring heavily and his speech is confused. It turns out that he was drinking eight units of beer daily prior to admission. Which of the following drugs is indicated to treat his alcohol withdrawal symptoms?

76. A. haloperidol
B. oxazepam
C. thiamine

In which organ does a blood clot escaping from the renal vein become lodged?

77. A. heart
B. brain
C. liver
D. lungs

A high level of anti-TPO antibodies is found during pregnancy in a woman with Hashimoto's disease. She is well regulated on her current medication and her thyroid values have remained within normal limits during the pregnancy. She gives birth without problems to a son at 39 weeks of amenorrhoea. Tests on the child show elevated TSH and reduced free T4. What is the best strategy to deal with the child's thyroid function?

78. A. watchful waiting
B. short-term levothyroxine treatment
C. lifelong levothyroxine treatment

A radiologist at Accident & Emergency is examining an X-ray of a patient who has fallen onto his right forearm. There is a clear extra-articular fracture line running through the distal radius. There is volar angulation of the distal part of the radius in relation to the proximal part. What type of fracture is this?

79. A. forearm
B. Barton's
C. Colles'
D. Smith's

Which of the following conditions associated with generalized lymphadenopathy is caused by a parasite?

80. A. cat-scratch disease
B. syphilis
C. toxoplasmosis
D. tuberculosis

Where does spermatogenesis take place? In the:

81. A. epididymis
B. seminiferous tubules
C. vas deferens
D. seminal vesicles

A 43-year-old woman is complaining of abdominal pain and nausea. On physical examination, she is found to have an enlarged liver and signs of ascites. Following further tests the physician diagnoses Budd–Chiari syndrome. This syndrome is due to thrombosis of the:

82. A. hepatic artery
B. coeliac trunk
C. hepatic veins
D. portal vein

The Dix–Hallpike test is used to diagnose benign paroxysmal positional vertigo. What instruction should the patient be given regarding the eyes?

83. A. keep the eyes open
B. keep the eyes closed

A patient is heard to have a systolic murmur over the fourth left intercostal space. The murmur becomes louder on inspiration. What is the most likely cause?

84. A. mitral valve insufficiency
B. mitral valve stenosis
C. tricuspid valve insufficiency
D. tricuspid valve stenosis

A 28-year-old woman presents to the GP complaining of diplopia. She says she sees horizontal double images when looking to the left. The left image disappears when the left eye is covered. This is explained by loss of function in which cranial nerve?

85. A. left abducent nerve
B. right abducent nerve
C. left oculomotor nerve
D. right oculomotor nerve
E. right trochlear nerve

A drug is administered to a patient intravenously by pump. The infusion rate is 0.2 mg per minute. Once a constant plasma level has been achieved it is found to be 5 mg per litre. The clearance of this drug in ml/min. is:

86. A. 12
B. 24
C. 40
D. 60

In a study of the value of the urine dipstick test in diagnosing urinary tract infections, the urine nitrite level of 3,000 people suspected of having a urinary tract infection is tested using a dipstick. The results of the study are as follows: of the 600 people who have an infection, 400 test positive for nitrite; the remaining 200 do not. Of the 2,400 people who do not have an infection, 300 test positive for nitrite and the remaining 2,100 do not. Which kind of study is being described here?

87. A. causal experimental cross-sectional study
B. cross-sectional predictive observational study
C. observational causal transverse study
D. predictive longitudinal follow-up study

A 42-year-old psychiatric patient is admitted to hospital acutely with a hypertensive crisis. A few days previously he started taking tramadol, an opioid painkiller, for a shoulder injury. The physician checks the medication that he is using and suspects serotonergic syndrome. Interaction between tramadol and which other drug could have caused this patient's serotonergic syndrome?

88. A. an atypical antipsychotic
B. a benzodiazepine
C. lithium
D. a monoamine oxidase inhibitor

Placental infections are a common occurrence. What is the principal route by which an infection develops in the placenta? The:

89. A. bloodstream
B. birth canal
C. lymph channels

An eleven-year-old Dutch girl's breast development has just begun, but not her menarche. How should this girl's pubertal development be described?

90. A. her breast development is normal and it is normal that her menarche has not begun yet
B. her breast development is normal but her menarche is late
C. her breast development is early and it is normal that her menarche has not begun yet
D. her breast development is early but her menarche is late

Lab tests are carried out on a patient with jaundice. The following serum levels are found (reference levels in brackets): total bilirubin 270 $\mu\text{mol/L}$ ($\leq 17 \mu\text{mol/L}$), conjugated bilirubin 217 $\mu\text{mol/L}$ ($\leq 4 \mu\text{mol/L}$), ASAT 1,200 u/L (5-40 u/L), ALAT 1,087 u/L (5-45u/L), alkaline phosphatase 150 u/L (40-120 u/L), gamma GT 115 u/L (5-50 u/L), LDH 500 u/L (200-450 u/L). Which type of jaundice is most likely, based on these blood results?

91. A. intrahepatic
B. pre-hepatic
C. post-hepatic

Elevated blood pressure in the pulmonary arteries (pulmonary arterial hypertension) causes hypertrophy and/or dilation of the right ventricular wall. Pulmonary arterial hypertension with chronic mitral valve stenosis is due mainly to:

92. A. chronic hypoxia
B. interstitial pulmonary fibrosis
C. recurrent pulmonary embolisms
D. elevated pulmonary venous pressure

An 18-year-old man has had pain in his right knee for the past two months. The X-ray shows an uncircumscribed mass in the metaphysis of the distal right femur. The biopsy shows large hyperchromatic pleomorphic spindle cells in an osteoid matrix. Which of following diagnoses is most likely?

93. A. chondrosarcoma
B. Ewing's sarcoma
C. fibrous dysplasia
D. osteosarcoma

A 39-year-old man goes to his GP complaining of a 'rash' on his head, eyebrows and nose. On examination, the GP finds red erythematous lesions with slightly yellowish scaling on the forehead, above both eyebrows and in both nasolabial folds. They do not itch. What is the most likely diagnosis of this skin disorder?

94. A. Candida dermatitis
B. constitutional eczema
C. psoriasis
D. seborrhoeic eczema

Luteinizing hormone (LH) synthesis takes place in cell bodies in the:

95. A. pituitary gland
B. hypothalamus
C. ovaries

What does hormone treatment for an asymptomatic patient with metastatic prostate cancer ideally consist of? The administration of:

96. A. GnRH analogues
B. progestagens
C. tamoxifen
D. testosterone

During the regular check-up of a 35-year-old pilot, a stone of at least 1 cm in size is found in the renal pelvis. What treatment should this patient be given?

97. A. advice to learn to live with it
B. extracorporeal shockwave lithotripsy (ESWL)
C. symptomatic pain relief
D. pyelolithotomy

If the airway to an alveolus becomes blocked, a positive pressure develops in that alveolus that expels the air again. What mechanism primarily ensures that the alveolar pressure increases in the event of a blockage?

98. A. the surface tension present
B. CO₂ diffusion
C. parasympathetic nervous system stimulation
D. increase in pleural pressure

Almost all bone marrow is red at birth. The colour changes to yellow in most bones. This colour change reflects a decrease in:

99. A. perfusion
B. erythropoiesis
C. iron deposition

A 56-year-old woman with fatigue is found to have anaemia. As blood tests show a highly elevated reticulocyte count, the physician suspects that she has haemolytic anaemia. Which of the following blood tests is most useful to confirm this suspicion?

100. A. D-dimer
B. folic acid
C. haptoglobin

What is the most common cause of orthoergic eczema of the hands?

101. A. allergic reaction to a product applied locally
B. genetic predisposition
C. effect of an irritant
D. stress

What is the main physiological function of the great arteries? They:

102. A. act as variable blood storage capacity
B. distribute/redistribute the blood to active organs
C. regulate peripheral resistance
D. transmit and attenuate the blood pressure curves

A ten-year-old boy with ADHD is about to start taking medication for it. Which of the following is the drug group of choice for treating his ADHD?

103. A. antiepileptics
B. anxiolytics
C. sedatives
D. stimulants

A 52-year-old man is at the surgical outpatient clinic with a pigmented skin abnormality on his leg. A diagnostic excision is performed. A histopathology examination leads to a diagnosis of melanoma. What is the treatment of choice?

104. A. cryotherapy
B. laser evaporation
C. radiotherapy
D. therapeutic re-excision

What structures are vascularized by the superior mesenteric artery?

105. A. ascending colon, transverse colon, descending colon and part of the sigmoid colon
B. jejunum, ileum, ascending colon and part of the transverse colon
C. liver, duodenum, jejunum, ileum and part of the ascending colon
D. stomach, liver, duodenum, jejunum and part of the ileum

Of which cranial nerve is the chorda tympani a lateral branch?

106. A. VII (facial)
B. IX (glossopharyngeal)
C. XI (accessory)
D. XII (hypoglossal)

An 88-year-old woman has low Hb with a low vitamin B12 level, normal transferrin, vitamin B1 and folic acid levels. What is the best explanation for this combination of abnormalities?

107. A. atrophic gastritis
B. chronic disease
C. gastrointestinal bleeding
D. malnutrition
E. pernicious anaemia

A 32-year-old man has suffered severe burns in a car accident. He has second and third-degree burns covering 20% of his body. He is given virtual reality goggles to wear while his dressings are being changed. The goggles, which are similar to ski goggles, are connected to a laptop. While wearing the goggles the patient is completely 'sucked in' to a virtual world. With which theoretical model is this type of psychological pain relief consistent?

108. A. classical conditioning
B. stress-coping model
C. symptom perception
D. 5Rs model

A 44-year-old man has radiating pain in his left leg in dermatome L4, which is aggravated by coughing and straining. The physician suspects lumbosacral radicular syndrome at level L4 and carries out further physical examination. What finding would support the provisional diagnosis?

109. A. left-sided Babinski reflex
B. impaired left Achilles tendon reflex
C. impaired left patellar reflex

A 50-year-old woman is attending an internal medicine outpatient clinic. She has been suffering from nausea and diarrhoea six or seven times a day for the past five weeks. She feels tired all the time, has less appetite and has lost a few kilos in weight. Physical examination reveals, in addition to low blood pressure, that she is remarkably brown, with hyperpigmentation over the metacarpophalangeal joints and of the hand lines and buccal mucosa. A scar on her left arm is also highly pigmented. What is the most likely clinical diagnosis?

110. A. haemochromatosis
B. porphyria
C. Peutz-Jeghers syndrome
D. Addison's disease

A 56-year-old man is given carbamazepine as prophylaxis for epilepsy. As a result of deep vein thrombosis, it is decided to prescribe him acenocoumarol. What potential interaction is most clinically relevant?

111. A. carbamazepine intensifies the effect of acenocoumarol
B. carbamazepine reduces the effect of acenocoumarol
C. acenocoumarol intensifies the effect of carbamazepine
D. acenocoumarol reduces the effect of carbamazepine

A 68-year-old man falls ill rather suddenly with high fever, shivering, shortness of breath and right anterior chest pain. The GP, who pays him a house call, suspects bacterial pneumonia. In which group of bacteria is the pathogen most likely to be found?

- 112. A. Enterococcus
- B. Haemophilus
- C. Staphylococcus
- D. Streptococcus

A 74-year-old trauma patient has the following clinical signs: heart rate 130 bpm, blood pressure 80/45 mmHg, breath sounds virtually absent on the left side and right deviation of the trachea. Which type of shock is this most likely to be?

- 113. A. cardiogenic shock
- B. distributive shock
- C. hypovolaemic shock
- D. obstructive shock

A 21-year-old footballer has been hit full on the ankle during a match, resulting in a substantial bruise. The ankle swelled up immediately and felt hot to the touch. As he is in a lot of pain, despite taking paracetamol, he goes to the out-of-hours GP surgery. What is the next step as regards pain relief? Prescribe:

- 114. A. an NSAID
- B. morphine
- C. tramadol

A 30-year-old man goes to his GP with a wound to his right eyebrow, which occurred an hour earlier while he was boxing. The GP inspects the wound and decides to suture it with non-absorbable sutures. After how many days is it best to remove the sutures?

- 115. A. 6
- B. 10
- C. 14

What property must a patient have in order to give informed consent?

- 116. A. a command of spoken and written Dutch
- B. education at a minimum of senior secondary vocational (MBO) level
- C. age of majority
- D. legal capacity

A ten-year-old boy's blood pressure is 160/100 mmHg. On physical examination, the inguinal pulse is found to be weaker than the pulse in the right arm. Normal first and second heart sounds are audible on auscultation of the heart. Also audible are a systolic ejection click, a systolic ejection murmur in the second intercostal space to the right of the sternum and a murmur high up the back on the left side. What is the most likely source of the ejection click and the murmur in the second right intercostal space? An abnormal:

117. A. aortic valve
B. mitral valve
C. pulmonary valve

A three-year-old daughter of refugees from Somalia is examined in connection with malnutrition. The black girl has dry, cracked lips, atrophy of the lingual papillae and striking yellowish-white hair. What nutritional deficiency is the most likely cause of this clinical picture? Lack of:

118. A. calories
B. protein
C. folic acid
D. vitamin B6

A 20-year-old woman has had severe pain in her right ear for the past three days. She had a piercing done in the helix of her right ear two weeks ago. On inspection, the helix and scapha are found to be hot, red and swollen and there is pus formation. It is very painful on palpation. Interestingly, the ear lobe is not affected. What is the most likely diagnosis?

119. A. chondrodermatitis nodularis helicis
B. furuncle
C. necrotizing external otitis
D. perichondritis

A 55-year-old woman goes to her GP to have a mole on her abdomen assessed, as it seems to be growing. She had an atypical naevus removed a few years ago. On physical examination the GP finds a 4 mm asymmetrical dark brown papule with two hairs in the centre. What feature of the case description, apart from the growing size, is a red flag for melanoma? The:

120. A. asymmetry
B. prior history of atypical naevus
C. 4 mm size
D. hairs on the lesion

A 42-year-old woman has been battling with bipolar disorder for many years. She has periods when she is virtually symptom-free, but in spite of her good compliance she also regularly has hypomanic spells when she overestimates herself. At those times she ignores the fact that she will cycle up into a manic episode just like before. Now that she is symptom-free, she agrees to be admitted to hospital and treated during a future bad spell. But when the symptoms actually occur, she resists, and she does not always meet the criteria for compulsory admission. Under what procedure can she be admitted despite this?

121. A. emergency compulsory admission (Dutch: Inbewaringstelling [IBS])
- B. admission order at the patient's request (Dutch: Rechterlijke machtiging op eigen verzoek)
- C. conditional authorization (Dutch: voorwaardelijke machtiging)
- D. declaration of prior consent (Dutch: zelfbinding)

A 28-year-old woman goes to her GP complaining of pain in the upper abdomen and persistent diarrhoea. Her stools have been thin for more than a month and the frequency has increased from once to four times a day. There is no blood or mucus in the stools. She is not feverish. She has not travelled abroad recently. No-one else in her social network has symptoms of this kind. Given the long duration of the symptoms, the GP thinks it could be a parasitic infection. Which of the following pathogens is most likely?

122. A. *Cryptosporidium* spp.
- B. *Cyclospora* spp.
- C. *Entamoeba histolytica*
- D. *Giardia lamblia*

An acutely ill three-year-old girl has a 40.5°C fever and vomiting. She cries vehemently when her nappy is changed. Non-blanching bruises the size of a pinhead are scattered over her skin. The GP considers the possibility of bacterial meningitis. What is the most likely bacterial pathogen?

123. A. *Haemophilus influenzae*
- B. *Neisseria meningitidis*
- C. *Staphylococcus aureus*
- D. *Streptococcus pneumoniae*

The information from the RIVM (National Institute for Public Health and the Environment) on the bowel cancer screening programme contains the following passage: 'The expected likelihood of the stool test correctly indicating that no blood has been found is 92%. The expected likelihood of the test correctly indicating that blood has been found when the person takes part in the screening programme for the first time is 65%.' What are the sensitivity and specificity of this test?

124. A. the sensitivity is 92% and the specificity is 65%
- B. the specificity is 92% and the sensitivity is 65%

A 37-year-old woman goes to her GP complaining of increasing shortness of breath for the past two days. She is taking a contraceptive pill. The GP does not find any abnormalities on examining the heart and lungs. He considers the possibility of pulmonary embolism. Which of the following tests would help most to gauge the risk of pulmonary embolism?

125. A. ankle brachial index test
B. saturation test
C. central venous pressure test
D. palpation of the calves

A five-year-old boy is referred to a paediatrician with red patches on his legs and buttocks that developed a day ago. He has not been going to school for the past several days because he has earache, is listless and vomits regularly. On physical examination his temperature is found to be 38.2°C. The patches are elevated and non-blanching. He can put his chin on his chest without pain or reflex bending of the knees. He is admitted to hospital for observation. In the ensuing days he develops severe bouts of abdominal pain and a swollen, painful right knee. What is the most likely diagnosis?

126. A. acute rheumatism
B. Henoch-Schönlein purpura
C. meningococcal septicaemia
D. systemic lupus erythematosus

A man complains of pain when urinating and a painful swelling in the right half of the scrotum that developed gradually. The pain radiates slightly into the groin. He has never had a swelling of this kind before. The right scrotum is red and somewhat swollen, but with no abnormalities in the scrotal content. Leukocytes and bacteria are found in the urinary sediment. Which of following diagnoses is most likely?

127. A. epididymitis
B. hydrocele
C. orchitis due to mumps
D. testicular torsion

Following clinical examination of a patient in Accident & Emergency, the A&E doctor suspects left-sided pneumothorax. What finding on a standard posterior-anterior chest X-ray would be most consistent with this clinical diagnosis?

128. A. a thin white line parallel to the chest wall
B. elevated left diaphragm
C. Kerley B lines in the unaffected lung
D. increased volume of the right half of the thorax

A 28-year-old man is brought into A&E with a spinal cord injury due to a cervical spinal column fracture. The CT scan shows bilateral elevated diaphragm. Which nerve that innervates the diaphragm is probably no longer functioning as a result of the damage to the spinal cord?

129. A. phrenic nerve
B. subcostal nerve
C. vagus nerve
D. sympathetic trunk

In which stage of meiosis does a reduction take place in the number of chromosomes from 46 to 23?

130. A. meiosis I
B. meiosis II

In patients suffering from thalassaemia, less oxygen is released from the blood into the tissues. What is the main cause of this in these patients?

131. A. abnormal haemoglobin in the blood
B. elevated CO₂ in the blood
C. reduced blood 2,3-diphosphoglycerate concentration
D. reduced erythrocyte count

A 56-year-old man cycled to work as usual this morning. At eleven o'clock at work, he suddenly developed chest pain when coughing and breathing deeply. He was expectorating rusty mucus. He felt ill and shivery and was taken home by his work colleagues. At home he was found to have a 39.5°C fever. Based on this data, what is the most likely diagnosis?

132. A. myocardial infarction
B. pulmonary embolism
C. pneumococcal pneumonia
D. staphylococcal pneumonia

A five-year-old girl's right hemithorax is dull to percussion and her breath sounds are reduced there. The chest X-ray shows a right mediastinal shift. What is this most likely to be?

133. A. right-sided pleural effusion
B. right-sided atelectasis
C. interstitial pneumonia
D. left-sided pneumothorax

A 20-year-old man was admitted to a psychiatric hospital a week ago with psychosis. He is placed on haloperidol. A few days after starting to take the haloperidol, he complains that he cannot sit still: he keeps feeling the urge to stand up and walk around for a while. When he sits down again, he keeps fidgeting with his feet. He finds it a restless, unpleasant feeling. This is most likely a case of:

134. A. akathisia
B. dystonia
C. tardive dyskinesia

A clinical trial is investigating whether maternal use of a particular dietary supplement influences the risk of having a child with a neural tube defect (NTD). The risk of having a child with an NTD among users of the supplement is found to be 0.1%, as against 0.5% in the control group. The relative risk of having a child with an NTD for users of the supplement compared with the control group is:

135. A. 0.2
B. 0.4
C. 0.6
D. 5

A mother brings her four-year-old boy to the GP with painful stools. He has been complaining of abdominal cramps for the past month and he has to push hard on the toilet. He used to have stools at least three times a week, but it is now once a week at most. The stools are hard and lumpy. He has just started nursery school. The GP diagnoses constipation. What is the first step in the strategy for this patient?

136. A. referral to a paediatrician with suspected Hirschsprung's disease
B. watchful waiting
C. physiotherapy to learn how to push
D. education and toilet training

Patients experiencing an Addisonian crisis can have symptoms consistent with hypoglycaemia and fever, due to a very low cortisol level. Another symptom is haemodynamic instability. This, as well as the low cortisol level, is also due to reduced levels of another hormone. Which one?

137. A. adrenaline
B. aldosterone
C. renin
D. vasopressin

A structural ultrasound scan finds various congenital abnormalities in a healthy patient's foetus that do not seem to have a common cause. This finding is an indication for:

138. A. an AFP (alpha-foetoprotein) test of the maternal blood
B. karyotyping of the foetus
C. MRI (magnetic resonance imaging) of the foetus
D. a triple test of the maternal blood

A 35-year-old woman goes to her GP because since this morning she has been unable to close her left eye and the left side of her mouth is drooping. She is scared of a stroke. Which of following diagnoses is most likely?

139. A. cerebral infarction
B. peripheral facial palsy
C. Horner's syndrome
D. a tumour along the course of the facial nerve

In thyroidectomy, the superior thyroid artery is ligated. A complication can develop if the nerve that runs alongside it is also ligated. Which of the following symptoms is this nerve damage most likely to produce?

140. A. respiratory problems
B. hoarseness
C. positional deformity of the extended tongue
D. dilated pupil

A patient develops tingling and muscle spasms following thyroid surgery. What is a suitable blood test to determine the most likely cause?

141. A. calcium
B. cortisol
C. thyroid-stimulating hormone
D. 25-hydroxyvitamin D

Immunological responses are classified into types I, II, III and IV. One of these types is characterized immunologically by IgE-mediated mast cell degranulation. Which type?

142. A. type I (immediate type)
B. type II (cytotoxic type)
C. type III (immune complex type)
D. type IV (delayed type)

A 40-year-old woman goes to her GP complaining of fatigue that started a few weeks ago. Questioning reveals that she also has anorexia and weight loss, a long-standing fever and night sweats. She has had a few nose bleeds during the past week. On physical examination the GP finds a pale woman in whom abdominal examination reveals splenomegaly and hepatomegaly. The lymph nodes in the neck are also enlarged. Lab tests show normocytic anaemia with a low reticulocyte count, thrombocytopenia and leukocytosis, with myeloblasts containing Auer rods. Which diagnosis is this clinical picture most consistent with?

143. A. acute myeloid leukaemia
B. chronic myeloid leukaemia
C. chronic primary myelofibrosis
D. infectious mononucleosis

A 45-year-old physician resigned from the organization where he was working and became self-employed without staff a few years ago. He gives medical advice and has enough work to provide him with a good income. He would like to insure himself against incapacity. Who decides whether he can be accepted for this insurance?

The:

144. A. occupational physician at the Health and Safety Service (Dutch: ARBO-dienst)
B. medical adviser of the Inspectie voor de Gezondheidszorg (Health Care Inspectorate)
C. medical adviser of a private health insurer
D. insurance physician of the UWV (Employee Insurance Agency)

An MRI scan of a 47-year-old woman shows a tumour in the anterior pituitary gland. Over-production of which hormone can be observed due to an anterior pituitary tumour?

145. A. ADH
B. oxytocin
C. prolactin

An 82-year-old widower has been living in a care home for the past two years. He goes to his GP with his daughter complaining of increasing fatigue and insomnia. He worries a lot during the daytime and at night. In the past year he has been participating less and less in the social activities at the care home because he is scared that the other old people will laugh at his physical impairments and he is afraid of falling. His daughter finds that her father is more nervous than he used to be and gets irritated easily. His prior history includes a depressive episode at the age of 40. What is the most likely diagnosis?

146. A. depression
B. generalized anxiety disorder
C. panic disorder
D. social phobia

A 60-year-old woman with a prior history of polymyalgia rheumatica, for which she is not currently taking medication, presents at the internal medicine ward with severe headache. She has been immediately referred to the ophthalmologist, who has seen her for acutely impaired visual acuity in the right eye. Further tests show that she has an elevated ESR. The physician decides to start her on prednisone. What is the best dosage?

147. A. a constant low dose (15 mg/day)
B. a low initial dose (15 mg/day) gradually rising to a high dose (60 mg/day)
C. a constant high dose (60 mg/day)

The ECG of an 80-year-old man shows that the PQ interval increases with each heart beat. Group formation of a 5:4 block is visible, which means that the fifth P wave is not followed by a QRS complex. What is this most likely to be?

148. A. first-degree AV block
B. second-degree AV block (Wenckebach type)
C. second-degree AV block (Mobitz II type)
D. third-degree AV block

A 62-year-old woman goes to her GP complaining of vomiting and diarrhoea that started two days ago. She has watery diarrhoea several times a day, vomits several times a day and has difficulty drinking enough fluids. Tests show a heart rate of 110 bpm, BP of 100/50 mmHg and a temperature of 39.2°C. She has a history of type 2 diabetes, for which she takes metformin and insulin. What change should the GP make, at least temporarily, in the drug treatment for her diabetes?

149. A. only discontinue the insulin
B. only discontinue the metformin
C. discontinue both the metformin and the insulin

A nine-month-old baby is examined by a paediatrician for excessive crying. Exploratory neurological tests are carried out, among other things. What primitive reflex will this baby still have?

150. A. Moro reflex
B. stepping and walking reflex
C. palmar grasp reflex
D. plantar grasp reflex

A physician at the ophthalmology outpatient clinic sees a 30-year-old patient who has noticed impaired visual acuity in her right eye since yesterday. The results of the ophthalmic examination are as follows: right visual acuity 1/60, left normal. The Amsler grid shows a right-sided central scotoma. Movements of the right eye are slightly painful. Ophthalmoscopy does not reveal any abnormalities. What is the most likely diagnosis?

151. A. anterior ischaemic optic neuropathy (due to temporal arteritis)
B. hyperthyroidism (Graves' disease)
C. pituitary tumour
D. neuritis optica

Congenital adrenal hyperplasia is usually caused by 21-hydroxylase deficiency (OMIM 201910). The classic condition typically presents ten to fourteen days after birth with the following signs:

152. A. hyperkalaemia, metabolic acidosis, hypernatraemia and hypertension
B. hyperkalaemia, metabolic acidosis, hyponatraemia and hypotension
C. hypokalaemia, metabolic acidosis, hyponatraemia and hypotension
D. hypokalaemia, metabolic alkalosis, hypernatraemia and hypertension
E. hypokalaemia, metabolic alkalosis, hyponatraemia and hypotension

For the past year a five-year-old boy has been having severe headaches two or three times a week, especially after a busy day at school. He usually feels better after lying down on the sofa for a few hours. He is referred to a paediatrician, who finds that the boy has hypertension. What is the most likely source of hypertension in children older than one year?

- 153. A. cardiovascular
- B. endocrine
- C. neurological
- D. renal

The Health Council has formulated four criteria for the restriction of liberty to protect the community against infectious diseases. Which of these criteria is most important ethically?

- 154. A. legitimacy
- B. reasonableness
- C. procedural safeguards
- D. the damage principle

Old people often experience a dip in their functioning that can be evaluated by taking a case history. It can be useful to draw up a timeline to identify a geriatric syndrome. What do we call a situation where a new symptom is put down to an old illness whereas it is in fact related to a new illness?

- 155. A. attribution
- B. causal chain
- C. unmasking incident
- D. synergistic morbidity

Patients over the age of 50 who have a vertebral fracture are at five times increased risk of a subsequent vertebral fracture. How many times is the risk of another fracture increased in these patients compared with people over the age of 50 who do not have a vertebral fracture? The risk of other fractures is:

- 156. A. not increased
- B. increased by a factor of approximately 2
- C. increased by a factor of approximately 5
- D. increased by a factor of approximately 10

A 46-year-old woman has a saccular aneurysm of the middle cerebral artery. She develops bleeding due to rupture of the aneurysm. This is most likely a(n):

- 157. A. epidural haemorrhage
- B. subarachnoid haemorrhage
- C. subdural haemorrhage

A 50-year-old man goes to the internal medicine outpatient clinic complaining of a lymph node in the neck that is growing in size. A lymph node biopsy is taken to diagnose the problem. Laboratory analysis of the lymph node biopsy finds binuclear cells with prominent nucleoli, known as 'owl eyes'. Based on the cells found in the lymph node biopsy, the internist thinks this could be Hodgkin's lymphoma. Which cells does this refer to?

158. A. Kupffer cells
B. micromegakaryocytes
C. plasma cells
D. Reed-Sternberg cells

Epithelial cells in the renal tubules have what are known as 'aquaporins' in their cell membranes. These are proteins that speed up water transport across membranes when there is an osmotic imbalance. Water can also diffuse across cell membranes spontaneously, however. What physicochemical property of H₂O is this due to?

159. A. electrical charge
B. hydrophobic nature
C. low molecular weight
D. polar nature

A 28-year-old Moroccan woman, gravida 1, para 0, is 26 weeks pregnant. Her father has type 2 diabetes. A one-off blood glucose test showed that she has a non-fasting level of 9.6 mmol/L. She subsequently underwent an oral glucose tolerance test which also found an elevated blood glucose level. She is diagnosed with gestational diabetes. What is the treatment of choice?

160. A. glibenclamide
B. insulin
C. low-carbohydrate diet
D. metformin

A 65-year-old man suffers from difficult micturition. His urinary stream is weak and he has difficulty voiding all his urine. The symptoms developed gradually. What is the most likely diagnosis that is consistent with his symptoms?

161. A. benign prostatic hyperplasia
B. bladder stone
C. prostate cancer
D. urethral stricture

A 23-year-old man goes to his GP with asthma. For the past two years he has been using a short-acting beta-2 sympathomimetic and a corticosteroid inhaler. In spite of these drugs, his asthma is not well regulated and he suffers dyspnoea several times a week. What is the most appropriate next step? To add:

162. A. another short-acting beta-2 sympathomimetic
B. a short-acting anticholinergic
C. a long-acting beta-2 sympathomimetic

A 20-year-old man is found unconscious in his student room with carbon monoxide poisoning. What is the main mechanism underlying carbon monoxide poisoning?

163. A. carbon monoxide has a greater affinity for haemoglobin than oxygen
B. carbon monoxide suppresses the respiratory stimulus
C. carbon monoxide causes rhabdomyolysis

A 62-year-old woman goes to Accident & Emergency complaining that she suddenly stopped being able to see anything with her left eye an hour ago. During this blindness she also suffered from tingling, a numb sensation and loss of strength in the right side of her face and right arm and leg. The loss of function lasted a total of 20 minutes, after which all the symptoms cleared up. In which blood vessel is the cause of this patient's symptoms most likely to be found?

164. A. left internal carotid artery
B. left ophthalmic artery
C. left middle cerebral artery
D. right internal carotid artery
E. right middle cerebral artery

A 55-year-old woman with a history of recurring urolithiasis has a relapse of colic pain with restlessness. The CT scan shows hydronephrosis of the right kidney with a distended ureter. In which part of the urinary tract is the stone most likely to be causing an obstruction?

165. A. the junction between the kidney and the ureter
B. the junction between the ureter and the bladder
C. the junction between the bladder and the urethra

A 72-year-old woman is brought into Accident & Emergency with suspected pneumonia. She is responsive and says that she has been feverish since this morning and feels short of breath. Her results are as follows: temperature 39.2°C, respiratory rate 26/min., oxygen saturation 88%, BP 140/80 mmHg and heart rate 120 bpm. The physician would like to give her oxygen while continuing the diagnostic tests. What is the correct way to administer oxygen to this patient?

166. A. 10 litres of oxygen per minute via a nasal cannula
B. 15 litres of oxygen per minute via a non-rebreathing mask
C. CPAP (continuous positive airway pressure)

A 56-year-old woman has been diagnosed with hypothyroidism the cause of which appears to lie in the thyroid gland. What is most likely to be found as regards this woman's plasma levels of TRH (thyrotropin-releasing hormone) and TSH (thyroid stimulating hormone)?

167. A. TRH elevated, TSH elevated
B. TRH elevated, TSH reduced
C. TRH reduced, TSH elevated
D. TRH reduced, TSH reduced

What is most likely to be found from a physical examination of the abdomen in a patient with acute appendicitis?

- 168. A. local percussion pain
- B. positive Murphy's sign
- C. quiet stomach
- D. visible swelling

A healthy 80-year-old man goes to his GP complaining of hoarseness which started three months ago. Apart from slight nervousness, he has no other symptoms. What is the best strategy in this case?

- 169. A. reassure him
- B. prescribe a course of antibiotics
- C. refer him to a speech and language therapist
- D. refer him to an ENT specialist

Blood tests on a 45-year-old man show MDRD-eGFR of 45 ml/min/1.73m². He has highly developed muscles and says he does body-building. He is euvolemic. Because of this eGFR, the actual glomerular filtration rate adjusted for body surface area is:

- 170. A. underestimated
- B. estimated correctly
- C. overestimated

A mother brings her twelve-month-old daughter to the doctor at the child health centre. She proudly announces that her daughter is already crawling energetically and can say a few words. On examination the girl is seen to be able to grasp a small ball of paper with her thumb and index finger. She also plays with both feet. What should the girl also be able to do around this age according to the Van Wiechen Chart?

- 171. A. understand a few sentences in daily use
- B. put blocks into a box and take them out again
- C. play with give and take
- D. draw herself up to a standing position

A 30-year-old woman presents at the out-of-hours GP surgery after having her arm bitten by a dog half an hour ago. The GP cleans the arm, finds three small wounds and decides not to suture them. She has been fully vaccinated under the National Immunization Programme and has not had any other vaccinations since then. What should the GP do as regards tetanus vaccination?

- 172. A. give a single tetanus vaccination
- B. no vaccination is needed at present
- C. give tetanus immunoglobulin
- D. repeat the entire tetanus vaccination schedule

An 83-year-old man has been undergoing antibiotic treatment for a urinary tract infection for the past two days. He feels unwell and has a fever and painful urination. He has mild dementia and has not been doing so well recently. He now presents at the GP surgery complaining of increasing confusion. Following examination the GP diagnoses delirium. What is the most likely cause of the delirium? The:

173. A. antibiotics
B. dementia
C. urinary tract infection

A 68-year-old man has had a bilateral groin rash for the past few weeks. It is not painful and does not itch. Physical examination reveals a bilateral circumscribed reddish-brown even skin rash with slight scaling. What is the most likely diagnosis?

174. A. cellulitis
B. erysipeloid
C. erythrasma
D. impetigo

A 52-year-old man with a clean medical history presents to an internist complaining that his stool pattern changed a month ago and he has blood in the stools. What is the test of choice to diagnose or rule out colon cancer?

175. A. blood test
B. colonoscopy
C. abdominal CT scan
D. pelvic MRI scan
E. abdominal PET scan

A 30-year-old healthy woman's brother has died of cystic fibrosis (CF). His clinical diagnosis of CF has been confirmed at DNA level. What is the risk of this woman being a carrier of CF?

176. A. 1 in 4
B. 1 in 3
C. 1 in 2
D. 2 in 3

A 16-year-old boy develops severe pain in the scrotum during a football match. He has had this before, after being hit in the groin by a ball, but this time the pain is even worse. At hospital he is diagnosed with left-sided testicular torsion. Which anatomical structure ensures that the testicle is not fixed in the scrotum but is able to rotate?

177. A. ductus deferens
B. cremaster muscle
C. testicular vessels
D. tunica vaginalis
E. scrotal ligament

A 14-year-old boy is examined at A&E for severe abdominal pain. For the past two days he has had anorexia, vomited a few times and had vague non-localized abdominal pain. The pain is now sharper and has descended to the right lower abdomen. The patient just wants to lie still and has pain when he moves or is moved. Physical examination shows clearly localized tenderness, percussion pain and release pain particularly at one-third of the line from the right of the anterior superior iliac spine to the navel. The pain is also felt in the left abdomen when it is pressed and released. Raising the right leg causes protective muscle spasms. Blood tests show elevated CRP and leukocytosis. What is the best follow-up test?

178. A. abdominal CT scan
B. abdominal ultrasound scan
C. urinary sediment
D. abdominal X-ray

A GP pays a house call to an 82-year-old man who has been bed-ridden for the past few weeks. The man says he has pain around the coccyx. The GP inspects the man's coccyx and finds a blister 2 cm in diameter on the left buttock. The GP identifies it as a pressure ulcer. Which category of pressure ulcer does this patient have?

179. A. category 1
B. category 2
C. category 3
D. category 4

The alimentary canal is made up of four layers: the mucosa, submucosa, muscularis and serosa. The mucosa is not the same in all the digestive organs. In which part of the alimentary canal does the mucosa contain villi?

180. A. oesophagus
B. stomach
C. jejunum
D. colon

In order to determine how large the population for a scientific medical study should be, a sample-size calculation is often carried out. One of the elements in this calculation is the power. A power of 80% is often selected. What happens to the size of the population if a power of 90% is selected? It:

181. A. remains the same
B. becomes larger
C. becomes smaller

A 35-year-old man goes to his GP because he has had various ulcers on his penis for the past few weeks. They are not painful. The patient says that he has had various sexual contacts with men during the past year, some of them unprotected. On physical examination the GP finds painful bilateral swellings in the groin. The GP orders STD tests. What is the most likely pathogen?

182. A. Chlamydia trachomatis
B. human papilloma virus
C. Neisseria gonorrhoeae
D. Treponema pallidum
E. Trichomonas vaginalis

A 73-year-old man has been referred by his GP to a surgical outpatient clinic for further investigation. The man has a mandarin-sized swelling in the right groin. It has been there for months but is now starting to inconvenience him. It is repositionable and returns when the Valsalva manoeuvre is performed. What is the most likely diagnosis?

183. A. abscess
B. femoral artery aneurysm
C. inguinal hernia
D. lymphoma

A 55-year-old man presents at Accident & Emergency with flank pain and haematuria. He has had episodes of this kind before and was advised to capture any kidney stone that was ejected. He has done this, and the stone is sent for analysis. Based on prevalence, what is the stone most likely to be made of?

184. A. calcium phosphate
B. cystine
C. magnesium ammonium phosphate

A 60-year-old female patient is being treated for rheumatoid arthritis with infliximab. What is the principal mechanism of action of infliximab?

185. A. it blocks IL-1 (interleukin-1)
B. it blocks TNF alpha (tumour necrosis factor alpha)
C. it stimulates IL-1 (interleukin-1)
D. it stimulates TNF alpha (tumour necrosis factor alpha)

A 26-year-old Asian woman goes to her GP complaining of fluctuating pains in her right side and bright red urine that started the evening before. The pain persists for five minutes and then clears up of its own accord, and this has happened a few times. During the bouts of pain, she feels restless and nauseous. She does not feel unwell otherwise and has not had a fever. On physical examination, she is found to have a temperature of 37.6°C and no abnormalities are found on palpation of the abdomen. Her urine test shows haematuria. What is the most likely diagnosis?

186. A. pyelonephritis
B. urinary tract infection
C. urolithiasis
D. sickle cell crises

A 62-year-old man goes to Accident & Emergency complaining of a sudden-onset tearing pain between the shoulder blades. He has a prior history of hypertension. His blood pressure is 210/120 mmHg. His D-dimer, chest X-ray and ECG are normal. What is the most likely diagnosis?

187. A. aortic dissection
B. myocardial infarction
C. pulmonary embolism
D. pneumothorax

An increase in which hormone in girls sets off puberty?

188. A. follicle-stimulating hormone (FSH)
B. gonadotrophin releasing hormone (GnRH)
C. luteinizing hormone (LH)
D. oestrogen

A 45-year-old man with a prior history of hypertension presents at the GP surgery. He has been seeing a cloud in front of his left eye for the past three days. He says that he saw white flashes of light last night before going to sleep. Which diagnosis is at the top of the differential diagnosis list?

189. A. retinal detachment
B. amaurosis fugax
C. occipital cerebral lobe infarction
D. macular degeneration
E. migraine with aura

A 36-year-old woman goes to a neurologist complaining that she has had a transitory loss of function for the third time in two years. The neurologist thinks it could be multiple sclerosis and therefore performs a lumbar puncture, among other things. Which of the following findings in the CSF is most strongly suggestive of MS?

190. A. elevated erythrocyte count
B. elevated protein level
C. elevated IgG index
D. elevated IgM index

A 45-year-old woman has had increasing difficulty walking during the past year. People in her social circle describe her gait as 'wooden'. Neurological tests show bilateral pathological plantar reflexes (Babinski's sign). Where in the nervous system is the cause of this woman's gait pattern most likely to be found? In the:

191. A. basal ganglia
B. peripheral nerves
C. cerebellum
D. spinal cord

A 70-year-old woman has severe type 2 diabetes. It was difficult to get her diabetes under control. She is currently well regulated at last with 500 mg metformin 2 x day, 20 units of long-acting insulin 1 x day and fast-acting insulin with meals 3 x day. Because of her faith she would like to take part in Ramadan and asks for advice. What is the best advice for this woman?

192. A. take part in Ramadan and stop taking the insulin with meals during the daytime
B. take part in Ramadan and take the long-acting insulin during the daytime and the insulin with meals at night with the night-time meal
C. not take part in Ramadan, as she could develop health problems due to fasting and Islam therefore exempts her from Ramadan fasting

A seven-year-old boy presents at the surgery of a child psychiatrist. He is very introverted at school and does not seek to make many friends. He is also a daydreamer. He is falling behind with his school work and may need to repeat a year. As a toddler he did not play well with other toddlers and was rarely willing to share toys. Taking a case history from him is difficult. He keeps repeating a few words said by the psychiatrist, then smiles and goes on playing. Which element in the case description is most strongly suggestive of an autism spectrum disorder?

193. A. constantly repeating words
B. frequent daydreaming
C. falling behind at school
D. not being willing to share toys

The GP of a 56-year-old patient with hypercholesterolaemia prescribes simvastatin. During the consultation the GP explains that the patient needs to avoid certain foods. The reason is that these foods affect simvastatin metabolism by influencing the mechanism of action of the CYP3A4 enzyme. Which of the following foods should this patient avoid?

194. A. chocolate
B. grapefruit
C. red wine
D. tomato juice

Pregnant women are advised to take folic acid supplements before conception and during pregnancy to prevent which of the following congenital abnormalities?

195. A. neural tube defect
B. cleft palate
C. Fallot's tetralogy
D. trisomy 13

A 58-year-old patient is being treated by an oncologist for metastasized breast cancer. She goes to A&E with deep vein thrombosis in her left leg. Which anticoagulant is the treatment of choice for this patient's deep vein thrombosis?

196. A. acetylsalicylic acid
B. heparin
C. low-molecular-weight heparin
D. streptokinase

A 25-year-old woman wishing to have a baby goes to a clinical geneticist. She is a carrier of a deletion in the dystrophin gene on chromosome Xp21, which is associated with Duchenne muscular dystrophy, an X-linked recessive muscular disease. What (approximately) is the risk of this woman having a baby who is also a carrier?

197. A. 0%
B. 25%
C. 50%

A 75-year-old woman goes to her GP with her eldest daughter. The daughter is very worried about her mother and thinks she may have incipient dementia. While taking the patient's history, the GP notices that she looks at her daughter before answering each question. Physical examination shows that the patient is unable to perform simple actions, although she understands what is being said to her and there does not appear to be anything wrong with her motor function. What is the name of this cognitive disorder found in a physical examination?

198. A. aphasia
B. agnosia
C. apraxia

A 35-year-old woman goes to Accident & Emergency complaining of right lower abdominal pain. She lies supine on the examination table. The A&E doctor asks her to pull up her right knee against resistance. She then lies on her left side and he pulls her right leg back as far as he can. Which muscle is the A&E doctor testing with this test?

199. A. iliopsoas
B. obturator
C. pectineus
D. quadriceps femoris

A 21-year-old man falls off his bicycle, catching his fall with an outstretched hand. Since then he has had pain in his wrist and hand. Examination reveals tenderness with the PMI in the 'anatomical snuff box'. Which type of fracture is most likely in this case?

200. A. Colles fracture
B. radial styloid process fracture
C. lunate fracture
D. scaphoid fracture