

I. Read the text and answer 10 questions to it.

Medical systems

Each of the ancient civilizations developed medical practices, many of them linked to religious rituals. In Egypt, in the 4th millennium BCE, serious disease was regarded as the work of the gods — probably as a punishment for a misdemeanour in the current or past life. Temple priests administered herbal medications, carried out healing rituals, and placated the gods with offerings. By the 2nd millennium BCE, there were Egyptian doctors who specialized in disorders of the eyes, digestion, joints, and teeth, and in surgery that was informed by many centuries of experience in mummification and embalming. In China, the Huangdi Neijing (The Yellow Emperor's Classic of Internal Medicine) sets out the principles and methods of traditional Chinese medicine. In India, Ayurvedic medicine developed from around 800 BCE. Still practised by some physicians today, its central premise is that illness is caused by an imbalance between the body's three elemental doshas: vata (wind), pitta (bile), and kapha (phlegm). The task of the vaidya, the Ayurvedic physician, is to detect imbalances and correct them using herbal and mineral remedies, bloodletting, laxatives, enemas, emetics, and massage. Ancient China developed a theory of health based on balance within the body between the oppositions of yin and yang, the five elements of fire, water, earth, wood, and metal, and the life-sustaining energy of qi flowing along the body's many meridians (channels). Chinese medicine included some remedies that were common to other ancient civilizations, such as herbs, diets, and massage, but it also developed its own practices. It placed great emphasis on the pulse for diagnosis, and on acupuncture — the insertion of needles along the meridians - to correct imbalances in the body.

1. What was the role of temple priests in ancient Egyptian medicine?

- A. Herbal medications and healing rituals
- B. Surgery
- C. Bloodletting
- D. Diagnosis using pulse examination
- E. —

2. What is the central premise of Ayurvedic medicine?

A. Illness is caused by imbalance in the doshas

B. Illness is caused by genetic factors

C. Illness is a result of environmental pollution

D. Illness is purely psychological

E. —

3. What did ancient Chinese medicine emphasize for diagnosis?

- A.** Pulse examination
- B.** Blood tests
- C.** X-rays
- D.** Urine analysis
- E.** —

4. Which ancient civilization used mummification and embalming techniques that influenced their medical practices?

- A.** Egypt
- B.** China
- C.** India
- D.** Mesopotamia
- E.** —

5. What was the task of the vaidya in Ayurvedic medicine?

- A.** Correct dosha imbalances
- B.** Perform surgeries
- C.** Administer herbal remedies
- D.** Analyze blood samples
- E.** —

6. How did ancient Egyptians view serious diseases?

- A.** As divine punishments
- B.** As natural occurrences
- C.** As genetic predispositions
- D.** As environmental hazards
- E.** —

7. What technique did ancient Chinese medicine use to correct imbalances?

- A.** Acupuncture
- B.** Surgery
- C.** Herbal remedies
- D.** Massage therapy
- E.** —

8. Ayurvedic medicine includes practices such as bloodletting, laxatives, and massage for correcting imbalances.

- A.** True
- B.** False
- C.** Not given
- D.** —
- E.** —

9. Ancient Chinese medicine did not develop its own practices but relied solely on remedies common to other ancient civilizations.

- A.** False
- B.** True
- C.** Not given
- D.** —
- E.** —

10. Ayurvedic medicine considers illness to be caused by an imbalance of the body's three elemental doshas.

- A.** True
- B.** False
- C.** Not given
- D.** —
- E.** —

11. As a result of a stroke (hemorrhage in the brain), the patient cannot perform voluntary movements of the muscles in the head and neck. Brain examination using the NMR imaging revealed that the hematoma was located in the genu of the internal capsule. What conduction pathway is damaged in this patient?

- A.** *Fibrae corticonuclearis*
- B.** *Fibrae corticospinalis*
- C.** *Fibrae corticothalamicus*
- D.** *Fibrae frontopontinus*
- E.** *Fibrae thalamocorticalis*

12. During the lunch, a person ate salted herring and potatoes with pickles. After a while, this person became thirsty. This sensation has

been caused by impulsation from certain receptors. Name these receptors.

- A. Osmoreceptors in the hypothalamus
- B. Volume receptors in the venae cavae and atria
- C. Osmoreceptors in the liver
- D. Volume receptors in the hypothalamus
- E. Baroreceptors in the aortic arch

13. Autopsy detected stenosis of the left atrioventricular opening in the heart of a 50-year-old woman. Histology revealed focal cardiosclerosis in the myocardium and "flowering" Aschoff-Talalaev granulomas. What is the most likely cause of the patient's death?

- A. Rheumatic heart disease
- B. Scleroderma
- C. Dermatomyositis
- D. Polyarteritis nodosa
- E. Systemic lupus erythematosus

14. What eye function will become impaired, if the ciliary body is damaged?

- A. Accommodation
- B. Light conduction
- C. Light perception
- D. Protection
- E. Trophic function

15. What regulatory mechanisms cause an increase in the heart rate, when the body's position changes from horizontal to vertical?

- A. Unconditioned sympathetic reflexes
- B. Conditioned sympathetic reflexes
- C. Conditioned and unconditioned sympathetic reflexes
- D. Catecholamines
- E. Sympathetic reflexes and catecholamines

16. A newborn delivered at 33 weeks of gestation has the respiratory rate of 70/min. and the pulse of 148/min. at the second hour of life. The neonatologist suspects respiratory distress syndrome caused by surfactant deficiency. What is the most likely mechanism of developing such a clinical presentation?

- A. Tendency of alveoli to collapse
- B. Decreased airways resistance
- C. Decreased respiratory muscle work
- D. Increased lung ventilation
- E. Damage to the respiratory center

17. A 30-year-old patient with a femoral fracture was brought to the hospital after a car accident. The patient presents with sharply reduced blood pressure of 70/40 mm Hg, a weak pulse, and increased pain response provoked by the slightest touch in the damaged area. What should be administered in this case to prevent traumatic shock in the patient?

- A. Morphine
- B. Paracetamol
- C. Pentazocine
- D. Analgin (Metamizole)
- E. Papaverine

18. *Helicobacter pylori* was detected in a patient with peptic ulcer disease of the stomach.

What drug should be used in this case?

- A. Metronidazole
- B. Biseptol (Co-trimoxazole)
- C. Enteroseptol (Clioquinol)
- D. Levomycetin (Chloramphenicol)
- E. Sulfadimethoxine

19. A 6-year-old child has been diagnosed with a helminthic infestation. What changes can be observed in the child's leukogram in this case?

- A. Increased eosinophil count
- B. Increased neutrophil count
- C. Decreased eosinophil count
- D. Increased monocyte count
- E. Increased lymphocyte count

20. A 50-year-old man complains of pain in his big toe. The doctor suspects gout. What laboratory test should the patient undergo to confirm this diagnosis?

- A. Uric acid
- B. Cholesterol
- C. Bilirubin
- D. Urea
- E. Cystine

21. During examination, a patient presents with dilated subcutaneous veins in the umbilical region ("caput medusae"). This sign is caused by impaired blood flow in a certain vessel. Name this blood vessel.

- A. *V. portae hepatis*
- B. *V. mesenterica superior*
- C. *V. mesenterica inferior*
- D. *V. iliaca interna*
- E. *V. renalis*

22. During examination, a man has asthenia, muscle dystonia, and a balance disorder. What part

of the central nervous system is affected in this case?

- A. Cerebellum
- B. Substantia nigra
- C. Reticular formation
- D. Red nuclei
- E. Vestibular nuclei

23. With what is the pressor effect of angiotensin II associated?

- A. Contraction of arteriolar muscles
- B. Activation of biogenic amine synthesis
- C. Hyperproduction of prostaglandins
- D. Stimulation of vasopressin production
- E. Activation of the kallikrein-kinin system

24. Laboratory testing detected hyperchromia of erythrocytes, as well as megalocytes and megaloblasts, in the blood of a 28-year-old woman. What type of anemia is it?

- A. B12 and folate deficiency anemia
- B. Hypoplastic anemia
- C. Posthemorrhagic anemia
- D. Iron deficiency anemia
- E. Hemolytic anemia

25. A large number of glucose oxidation metabolites are dissolved in the cytoplasm of myocytes. What metabolite can be directly converted into lactate?

- A. Pyruvate
- B. Oxaloacetate
- C. Glycerophosphate
- D. Glucose-6-phosphate
- E. Fructose-6-phosphate

26. Into what anatomical area does the frontal sinus open

through the ethmoid bone?

- A.** Middle nasal meatus
- B.** Superior nasal meatus
- C.** Inferior nasal meatus
- D.** Choanae
- E.** Infratemporal fossa

27. A certain structure of the central nervous system was destroyed in a frog. As a result, the animal leaned towards its damaged side due to a significant decrease in the tone of the extensors. What structure of the central nervous system was damaged in the experiment?

- A.** Deiters' vestibular nucleus
- B.** Red nucleus
- C.** Substantia nigra
- D.** Corpora quadrigemina
- E.** Globus pallidus

28. In an experiment, the axons of the neurosecretory cells of the supraoptic nucleus of the hypothalamus were severed in the test animal. As a result, the accumulation of a certain hormone will become disturbed in the pituitary gland. Name this hormone.

- A.** Vasopressin
- B.** Somatotropin
- C.** Prolactin
- D.** Adrenocorticotropin
- E.** Lipotropin

29. A 45-year-old woman has developed a pigmented formation in the form of a nodule on the skin of her face. Microscopically, fields of spindle-shaped and polymorphic cells containing brown pigment and undergoing a large number of mitoses were detected in the biopsy material. What pathological condition has developed in the patient?

- A.** Melanoma
- B.** Pigmented nevus
- C.** Cancer
- D.** Papilloma
- E.** Dermatofibroma

30. What drug causes dilation of the pupil and paralysis of accommodation when instilled in the eyes?

- A.** Atropine sulfate
- B.** Pilocarpine hydrochloride
- C.** Prozerin (Neostigmine)
- D.** Galantamine hydrobromide
- E.** Furacilin (Nitrofuril)

31. A 48-year-old woman diagnosed with radiculitis complains of an intense pain syndrome. She is undergoing treatment for peptic ulcer disease of the duodenum. What selective COX-2 blocker should she be prescribed?

- A.** Celecoxib
- B.** Diclofenac sodium
- C.** Indomethacin
- D.** Aspirin
- E.** Metamizole sodium

32. What changes can be expected in an isolated heart after adrenaline is introduced into the perfusion solution?

- A.** Increased rate and force of contractions
- B.** Decreased force of contractions
- C.** Increased force of contractions
- D.** Diastolic cardiac arrest
- E.** Increased rate of contractions

33. What complication will develop in a patient diagnosed with hepatic cirrhosis and extremely low levels of albumin and globulin in the blood serum?

- A. Edema
- B. Hemorrhagic syndrome
- C. Anemia
- D. Encephalopathy
- E. Aminoaciduria

34. The deficiency of which blood clotting factor causes hemophilia B?

- A. IX
- B. VIII
- C. XI
- D. V
- E. VII

35. A 56-year-old woman complains of pain in the small joints of her hands and feet. She has been experiencing these symptoms for the last 12 years. Examination of her hands detects a subluxation of the metacarpophalangeal joints with fingers bent outwards ("walrus flippers"). There are high molecular weight immune complexes in the patient's blood. What disease corresponds with such pathological changes?

- A. Rheumatoid arthritis
- B. Rheumatic polyarthritis
- C. Systemic lupus erythematosus
- D. Dermatomyositis
- E. Gouty arthritis

36. Amniocentesis revealed that the karyotype of the fetus was 45, X0. What syndrome is it?

- A. Turner syndrome
- B. Patau syndrome
- C. Edwards syndrome
- D. Down syndrome
- E. Klinefelter syndrome

37. What acid-base imbalance can be observed in the patients with accumulation of ketone bodies in blood serum?

- A. Metabolic acidosis
- B. Metabolic alkalosis
- C. Respiratory acidosis
- D. Respiratory alkalosis
- E. Mixed alkalosis

38. A 45-year-old woman complains of a constant feeling of fear and anxiety. She was prescribed a drug with an anxiolytic effect. Select this drug from the list.

- A. Diazepam
- B. Ginseng tincture
- C. Metamizole sodium
- D. Chlorpromazine
- E. Caffeine and sodium benzoate

39. What nerve provides the skin sensitivity of the anterolateral surface of the forearm with its branches?

- A. *N. musculocutaneus*
- B. *N. medianus*
- C. *N. axillaris*
- D. *N. ulnaris*
- E. *N. radialis*

40. What nerve passes in the area of the muscular lacuna?

- A. *N. femoralis*
- B. *N. ischiadicus*
- C. *N. obturatorius*
- D. *N. genitofemoralis*
- E. *N. suralis*

41. In an experiment, despiralization of the DNA molecule was disrupted in a mammalian cell. What process will become primarily disrupted in this cell as a result?

- A. Transcription
- B. Translation
- C. Repair
- D. Processing
- E. Termination

42. What group of organisms has nucleoids — circular DNA molecules that form chromosomes with a simple structure (no histones)?

- A. Bacteria
- B. Viruses
- C. Protozoa
- D. Fungi
- E. Bacteriophages

43. What is the function of the goblet cells in the pseudostratified ciliated epithelium of the bronchi?

- A. Glandular function
- B. Support function
- C. Cambial function
- D. Contractile function
- E. Absorption function

44. A 47-year-old woman became blind as a result of a chronic infection caused by *Chlamydia trachomatis*. To detect cytoplasmic inclusions specific for this pathogen, a microslide was prepared from the conjunctival scrape. What staining technique should be used in this case?

- A. Romanowsky-Giemsa stain
- B. Gram stain
- C. Loeffler stain
- D. Neisser stain
- E. Burri-Gins stain

45. What drug is a third-generation calcium channel blocker?

- A. Amlodipine
- B. Lisinopril
- C. Losartan
- D. Atenolol
- E. Magnesium sulfate

46. The disease onset was acute in a 7-year-old child, manifesting as hyperthermia, catarrhal phenomena, and diarrhea. During the second week, the child developed respiratory disorders and flaccid paralysis of the legs. X-ray detected bilateral focal pneumonia. Autopsy of the body revealed foci of glial reaction around the dead neurons in the anterior horns of the spinal cord. What disease has caused the child's death?

- A. Poliomyelitis
- B. Meningoencephalitis
- C. Meningitis
- D. Myelitis
- E. Polyradiculoneuritis

47. Histology of the autopsy material obtained from a deceased pregnant woman detected cells of the squamous epithelium of the embryo's skin, downy hair, caseous lubricant, and mucins from the embryo's digestive tract in the microcirculatory system of the lungs. Edema, diffuse alveolar damage, and systemic thrombosis with fibrin thrombi were detected in the lungs. What type of embolism occurred in this woman?

- A. Amniotic fluid embolism
- B. Air embolism
- C. Gas embolism
- D. Fat embolism
- E. Thromboembolism

48. Examination of a 5-year-old child with a hereditary kidney

disorder detected signs of rickets, though laboratory tests showed normal vitamin D levels. What is the most likely cause of rickets in this case?

- A.** Disturbed calcitriol synthesis
- B.** Insufficient calcium intake with food
- C.** Increased calcium excretion
- D.** Hyperparathyroidism
- E.** Hypoparathyroidism

49. During the examination of a newborn, the doctor diagnosed the baby with congenital muscular torticollis. What neck muscle is affected in this case?

- A.** *M. sternocleidomastoideus*
- B.** *M. sternohyoideus*
- C.** *M. omohyoideus*
- D.** *M. mylohyoideus*
- E.** *M. platysma*

50. What enzyme increases its activity in the patient's blood during a myocardial infarction?

- A.** Creatine phosphokinase MB
- B.** Creatine phosphokinase BB
- C.** Creatine phosphokinase MM
- D.** Carbamoyl phosphate synthetases
- E.** Alkaline phosphatase