

## Anatomy

- 1- **In which joint Inversion and eversion movements are occurred?**
  - a) Subtalar
  - b) Ankle
  - c) Tarsometatars
  - d) Metatarsophalangeal
  
- 2- **Which muscle has attached fibers to zygomatic arch?**
  - a) Temporalis
  - b) Medial pterygoid
  - c) Lateral pterygoid
  - d) Masseter
  
- 3- **In the damage of pterygopalatine ganglion, secretion of all of the following glands will be disturbed, EXCEPT:**
  - a) Lacrimal gland
  - b) Nasal mucosa
  - c) Palatine mucosa
  - d) Sublingual gland
  
- 4- **All of the following branches are related to third part of the maxillary artery, EXCEPT:**
  - a) Middle meningeal a.
  - b) Greater palatine a.
  - c) Sphenopalatine a.
  - d) Posterior superior alveolar a.
  
- 5- **Which one is related to location of the laryngeal ventricle?**
  - a) between vocal fold and cricoids cartilage
  - b) between vocal and vestibular folds
  - c) superior to the vestibular folds
  - d) Anterior wall of the laryngopharynx
  
- 6- **Which bone is participated in the formation of lateral wall of the orbit?**
  - a) Greater wing of the sphenoid
  - b) Lacrimal
  - c) Lateral part of the ethmoid
  - d) Frontal process of the maxilla

- 7- All of the following bones are related to formation of the pterion, EXCEPT:
- Sphenoid
  - Parietal
  - Occipital
  - Frontal
- 8- Which one is the superficial structure in the parotid gland?
- Facial nerve
  - Retromandibular vein
  - External carotid artery
  - Superficial temporal artery
- 9- In which reaction of fertilization, acrosomal enzymes will be released?
- Acrosomal
  - Capacitation
  - Zona reaction
  - Cortical reaction
- 10- All of the following structures pass through superior orbital fissure, EXCEPT:
- Ophthalmic nerve
  - Superior ophthalmic vein
  - Ophthalmic artery
  - Trochlear nerve
- 11- Which one of the following layers, does make roof of the primary yolk sac?
- Epiblast
  - Exocoelomic membrane
  - Hypoblast
  - Cytotrophoblast
- 12- All of the following veins are drained into the right atrium, EXCEPT:
- Inferior vena cava
  - Superior vena cava
  - Pulmonary vein
  - Coronary sinus
- 13- Which one is origin of stellate reticulum in tooth development?
- Ectoderm
  - Neural crest
  - Paraxial mesoderm
  - Lateral plate mesoderm

- 14- If inferior mesenteric artery is obstructed in the origin, the blood flow in what area will be in danger the most?**
- a) Ascending colon
  - b) Transverse colon
  - c) Descending colon
  - d) Cecum and appendix
- 15- Liver is attached to ..... by falciform ligament and to ..... by lesser omentum.**
- a) Anterior abdominal wall, pancreas
  - b) Stomach, Duodenum
  - c) Anterior abdominal wall, stomach
  - d) Stomach, transverse colon
- 16- Which one is a derivative of Alar plate?**
- a) Somatic efferent nucleus
  - b) Hypothalamus
  - c) Anterior grey column of the spinal cord
  - d) Edinger- westphal nucleus
- 17- Which cell in the osseus tissue will secrete alkaline phosphatase?**
- a) Osteocyte
  - b) Osteoclast
  - c) Osteoblast
  - d) Osseus progenitor cell
- 18- Which neuroglia is related to absorbtion of extra neurotransmitters?**
- a) Astrocyte
  - b) Microglia
  - c) Oligodendrocyte
  - d) Ependymal cell
- 19- Activity of which cell is related to reduction of pulp cavity with aging?**
- a) Cementocyte
  - b) Osteoblast
  - c) Firoblast
  - d) Odontoblast

- 20- Second neuron of which pathway is located in the posterior grey column of the spinal cord?**
- a) Pain and temperature
  - b) Conscious proprioception
  - c) Discriminative touch
  - d) Vibration
- 21- Which one of the following ducts in the salivary glands does make main changing in the saliva?**
- a) Striated duct
  - b) Intercalated duct
  - c) Interlobular duct
  - d) Excretory duct
- 22- Which one is the epithelium of tympanic cavity?**
- a) Squamous stratified
  - b) Ciliated pseudostratified
  - c) Simple columnar
  - d) Simple squamous
- 23- Internal capsule is supplied by:**
- a) Posterior cerebral artery
  - b) Middle cerebral artery
  - c) Basilar artery
  - d) Anterior communicating artery
- 24- In epithelium of which organ is there ciliated cells?**
- a) Palatine tonsil
  - b) Pharyngeal tonsil
  - c) Peyer's patches
  - d) Appendix
- 25- All of the following tracts make a voluntary movements, EXCEPT:**
- a) Corticospinal
  - b) Corticonuclear
  - c) Corticobulbar
  - d) Corticopontine

- 26- Which of the following cells are replaced by the cells lost in lung alveoli?**
- a) Type I pneumocyte
  - b) Type II pneumocyte
  - c) Type III pneumocyte
  - d) Dust cell
- 27- All of the following nuclei are related to basal nuclei, EXCEPT:**
- a) Putamen
  - b) Globus pallidus
  - c) Caudate nucleus
  - d) Thalamus
- 28- Efferents of the cerebellum are received by which nucleus of the thalamus?**
- a) VPM
  - b) VPL
  - c) MD
  - d) VL
- 29- Which sensory part of trigeminal (V) has secondary neurons for pain of teeth?**
- a) Spinal
  - b) Pontin
  - c) mesencephalic
  - d) Ganglion
- 30- Which type of collagen does make anchoring fibrils?**
- a) I
  - b) II
  - c) IV
  - d) VII
- 31- Which layer of the epidermis in the skin is formed by single layer of cells?**
- a) Stratum basale
  - b) Stratum spinosum
  - c) Stratum corneum
  - d) Stratum granulosum
- 32- Which one of the following nuclei is located in the inferior half of the pons and all length of the medulla oblongata?**
- a) Ambiguus
  - b) Solitarius
  - c) Inferior salivatory
  - d) Motor nucleus of V

- 33- Which of the following is the most important vicinity of Lingual artery with regard to its origin?**
- a) Lingual nerve
  - b) Facial artery
  - c) Hypoglossal nerve
  - d) External jugular vein
- 34- Which one of the following cranial nerve has motor, sensory and parasympathetic parts?**
- a) Facial
  - b) Oculomotor
  - c) Trigeminal
  - d) Accessory
- 35- Superior and Inferior hypophysial arteries are branches of which part of the internal carotid artery?**
- a) Cervical
  - b) Cavernosal
  - c) Petrosal
  - d) Cerebral
- 36- Which one of the following branches is emerged from ophthalmic artery before entering to optic canal?**
- a) Lacrimal
  - b) Anterior ethmoidal
  - c) Supraorbital
  - d) Central retina
- 37- Which one is located in the sulcus between trachea and esophagus?**
- a) Vagus nerve
  - b) Phrenic nerve
  - c) Recurrent laryngeal nerve
  - d) Internal Jugular vein
- 38- All of the following structures are common in the knee and hip joints, Except one of the that is seen only in one of them.**
- a) Intracapsular ligaments
  - b) Articular capsule
  - c) Meniscus
  - d) Hyaline cartilage

- 39- Which one is between midbrain and thalamus?**
- a) Epithalamus
  - b) Subthalamus
  - c) Metathalamus
  - d) Hypothalamus
- 40- Which one of the following parts is supplied by posterior cerebral artery?**
- a) Wernike's area
  - b) Broca's area
  - c) Sensory area for lower limb
  - d) Primary visual area
- 41- Which one of the following arteries is emerged from first part of the subclavian artery?**
- a) Dorsal scapular a.
  - b) Superior thoracic a.
  - c) Internal thoracic a.
  - d) Subscapular a.
- 42- Which one of the following structure, is passed through diaphragm at the level of T8?**
- a) Esophagus
  - b) Inferior vena cava
  - c) Aorta
  - d) Sympathetic trunk

## Biochemistry

- 43- The activity of which of the glucose transporters is increased under the influence of insulin?**
- a) GLUT 1
  - b) GLUT 2
  - c) GLUT 3
  - d) GLUT 4
- 44- Which of the following enzymes are inhibited by Estatin drugs?**
- a) Hydroxy methyl glutaryl CoA reductase
  - b) Hydroxy methyl glutaryl CoA synthase
  - c) Hydroxy methyl glutaryl CoA lyase
  - d) Hydroxy methyl glutaryl CoA Ligase

- 45- In a buffer solution the ratio of alkali to acid is 100 to 1. If the acid pKa is equal to 4.7, what is the pH of the buffer solution?**
- a) 6.7
  - b) 4.7
  - c) 3.7
  - d) 2.7
- 46- Which of the following vitamins is important in gamma carboxylation of glutamate residues?**
- a) K
  - b) E
  - c) D
  - d) H
- 47- Methotrexate is an anti cancer drug. The activity of which of the following is disturbed by this drugs?**
- a) Ascorbic acid
  - b) Folic acid
  - c) Riboflavin
  - d) Salicylic acid
- 48- Which of the following is an ecosanoid hormone?**
- a) Progestrone
  - b) Pregnenolone
  - c) Leukoterines
  - d) Aldostrone
- 49- Sialic acid is a N-acetyl derivative of which of the following?**
- a) Neuraminic acid
  - b) Glucuronic acid
  - c) Mannoronic acid
  - d) Galactoronic acid
- 50- Cystine is produced from:**
- a) Oxidation of two cysteine molecules
  - b) Oxidation of two methionine molecules
  - c) Reduction of two cysteine molecules
  - d) Reduction of two methionine molecules
- 51- Desmosine is present in which of the following proteins?**
- a) Elastin
  - b) Collagen
  - c) Myosine
  - d) Actine



- 52- Which of the following is necessary for collagen synthesis?**
- a) Copper
  - b) Zinc
  - c) Iron
  - d) Molybden
- 53- At which substrate concentration the velocity of enzymatic reaction is 80% of maximum velocity?**
- a) 4 Km
  - b) 3 Km
  - c) 2 Km
  - d) 8 Km
- 54- Kinases belong to which group of enzymes?**
- a) Transferases
  - b) Oxidoreductases
  - c) Lyases
  - d) Hydrolases
- 55- Myelin belongs to which group of fats?**
- a) Sphingolipids
  - b) Gangliosides
  - c) Terpens
  - d) Steroids
- 56- By the activity of which of the following enzymes in Krebs cycle, CO<sub>2</sub> is released?**
- a) Isocitrate dehydrogenase
  - b) Citrate synthase
  - c) Malate dehydrogenase
  - d) Fumarase
- 57- Which of the following disorders is caused by the deficiency of UDP-glucuronyl transferase?**
- a) Crigler Najjar
  - b) Rotor
  - c) Dubin Johnson
  - d) Van den Berg

- 58- All the following amino acids directly participate in urea cycle **EXCEPT**:
- a) Asparagine
  - b) Arginine
  - c) Aspartate
  - d) Ornithine
- 59- During fatty acid synthesis in mammals, double bond can be produced in all carbon atoms **EXCEPT**:
- a) 10
  - b) 6
  - c) 9
  - d) 5
- 60- Which of the following disorders is caused by Peroxisomes deficiency?
- a) Zollinger
  - b) Refsum
  - c) Reyes syndrome
  - d) Gaucher
- 61- Which of the following hemoglobins are predominant till the end of first trimester in pregnancy?
- a)  $\alpha_2\gamma_2$
  - b)  $\zeta_2\varepsilon_2$
  - c)  $\gamma_2\beta_2$
  - d)  $\beta_2\delta_2$
- 62- Which of the following reactions in Krebs cycle is inhibited by Arsenite ( $\text{AsO}_2^-$ ) ?
- a) Oxaloacetate  $\rightarrow$  Citrate
  - b) Isocitrate  $\rightarrow$  Oxalosuccinate
  - c)  $\alpha$ -ketoglutarate  $\rightarrow$  Succinyl-CoA
  - d) Succinate  $\rightarrow$  Fumarate
- 63- By controlling the activity of the enzyme catalyzing which reaction, all the metabolic pathways are regulated?
- a) Velocity limiting reaction
  - b) Equilibrium reaction
  - c) First reaction process
  - d) Production or usage of ATP

- 64- Different enzymes catalyzing the same reaction are known as:**
- a) Zymogen
  - b) Enzyme
  - c) Isoenzyme
  - d) Apoenzyme
- 65- Selenium as a prosthetic group is present in which of the following enzymes?**
- a) Glutathione peroxidase
  - b) Glutathione reductase
  - c) Superoxide desmutase
  - d) Catalase
- 66- What of the following is the effect of thermogenin on oxidative phosphorylation?**
- a) Inhibition of complex VI
  - b) Uncoupler
  - c) Competitive inhibitor of succinate
  - d) Inhibitor of oxidation process
- 67- In which tissues Pentose Phosphate pathway is least important:**
- a) Erythrocytes
  - b) Liver
  - c) Adrenal cortex
  - d) Skeletal muscle

### Medical Physics

- 68- Which of the following electrode designs is more suitable for treatment of sinuses abnormalities using high frequency wave?**
- a) Signal pole
  - b) Side by side
  - c) Opposite
  - d) Crossed
- 69- In Sonography, what is the role of intermediating (connecting) materials between the transducer head and tissue surface?**
- a) Absorption
  - b) Reflection
  - c) Transmission
  - d) Dispersion

- 70- What type of radiation is required to be emitted from a radiopharmaceutical during thyroid scan in Nuclear Medicine?**
- a) x-ray
  - b)  $\gamma$ -ray
  - c) Neutron
  - d) Alpha
- 71- In which interface between the two following tissues, reflection of ultrasound wave is less?**
- a) Blood and fat
  - b) Air and bone
  - c) Muscle and bone
  - d) Muscle and air
- 71- In which of the following cell cycles, more radiation sensitivity exists?**
- a) S
  - b) G1
  - c) M
  - d) G2

### Psychology

- 73- In which of the psychological approach, main motive of the human behavior is self-actualization?**
- a) Psychodynamic
  - b) Phenomenological
  - c) Behavioral
  - d) Cognitive
- 74- According to the Piaget's theory, cognitive development is acquired based on ....**
- a) Emotional development
  - b) Environmental punishment and reinforcement
  - c) Assimilation and Accommodation
  - d) Attachment
- 75- A 8 years old child is afraid of the dentistry clinic after painful injection. According to learning theory, fear from dentistry clinic called?**
- a) Conditioned stimulus
  - b) Conditioned response
  - c) Primary stimulus
  - d) Primary response

- 76- Which of the following is main critic to the moral judgment theory of Kohlberg:**
- a) Gender dependency
  - b) Kohlberg's theory derived from Piaget's theory
  - c) Assigning stages for moral development
  - d) Kohlberg's theory is based on moral behavior
- 77- Patient who afraid from dentistry clinic, suffered from ....**
- a) Generalized Anxiety
  - b) Obsession
  - c) Panic
  - d) Phobia
- 78- According to psychodynamic theory, which of the following is most basic defense mechanism?**
- a) Denial
  - b) Projection
  - c) Suppression
  - d) Reaction formation
- 79- Which of the following is vital in somatic illness?**
- a) Physical features
  - b) Cognitions
  - c) Emotions
  - d) Coping mechanism
- 80- Which of the following are characteristics of hardiness?**
- a) Energy, Power, Resistance
  - b) Commitment, Control, Effort
  - c) Control, Persistence, Challenge
  - d) Commitment, Control, Challenge
- 81- A child who suffered from common cold is crying during examination by physician. After examination she beat her toy. Which one of the defense mechanism she used?**
- a) Reaction formation
  - b) Denial
  - c) Displacement
  - d) Repression
- 82- Which of the following is true about hearing of infants?**
- a) Head rotating response is disappearing at 8 week.
  - b) Infants don't have startle response for loud voices.
  - c) Infants can't differentiate between features of human speeches.
  - d) Infants understand two voices which different one note on musical scale.

## Parasitology

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- 83- Which symbiotic relationship exists between human and *Entamoebagingivalis*?
- a) Parasitism
  - b) Mutualism
  - c) Phoresis
  - d) Commensalism
- 84- Lack of mouth and dental hygienic measures increases probability of infectivity with this organism: .....
- a) *Trichomonastenax*
  - b) *Entamoebahistolytica*
  - c) *Leishmania major*
  - d) *Toxoplasma gondii*
- 85- Egg of this parasite is infectious directly after release: .....
- a) *Ascarislumbricoides*
  - b) *Enterobiusvermicularis*
  - c) *Trichuristrichiura*
  - d) *Necatoramericanus*

## Mycology

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- 86- Which of the following sentence is correct in relation to ergosterol?
- a) It is a cytoplasmic cell membrane compounds in fungi and a target organelle for azole drugs.
  - b) It is a cellular nuclear membrane compounds and effective in pathogenesis of fungi.
  - c) It is cellular nuclear compounds and a target organelle for azole drugs.
  - d) It is a cytoplasmic cell membrane compounds in fungi and effective in pathogenesis of fungi.
- 87- Which fungi has higher affinity for invasion to central nervous system (CNS)?
- a) *Geotrichum condidum*
  - b) *Pneumocystis carinii*
  - c) *Sporothrix schenckii*
  - d) *Cryptococcus neoformans*
- 88- Which fungi is body normal flora, isolating from dairy and vegetative materials and produces oral lesions like thrush?
- a) *Geotrichum condidum*
  - b) *Cryptococcus neoformans*
  - c) *Saccharomyces cerevisiae*
  - d) *Rhinosporidium seeberi*

## Bacteriology

- 89- All the following activities are related to bacterial endotoxins EXCEPT:
- Hyperglycemia
  - Activation of complement
  - Hypotension
  - Disseminated intravascular coagulation
- 90- Bacterial toxin is involved in all the following disorders in cases of infections with *Staphylococcus*, EXCEPT:
- Food Poisoning
  - Scaled skin syndrome
  - Folliculitis
  - Bullous impetigo
- 91- All the following organelles are observed in Gram negative bacteria, EXCEPT:
- Periplasmic space
  - Lipopolysaccharide
  - Lipoteichoic acid
  - Peptidoglycan
- 92- What kind of mutation occurs in case of insertion or deletion of a nucleotide?
- Frameshift
  - Nonsense
  - Silent
  - Missense
- 93- Which of the following metabolic pathways is considered as pentose phosphate?
- ATP
  - NADPH
  - NAD<sup>+</sup>
  - GTP
- 94- Which of following antibiotics functions as Cytotoxic compound and causes disruption of DNA?
- Clotrimazol
  - Trimethoprim
  - Metronidazole
  - Imipenem
- 95- Which virulence factor of *Streptococcus pyogenes* involved in rheumatic fever?
- Erythrogenic toxin
  - Carbohydrate C
  - Hyaluronidase enzyme
  - Protein M1

- 96- Which pathotype of *Escherichia coli* is causative of traveler diarrhea?**
- a) EPEC
  - b) ETEC
  - c) EIEC
  - d) EAEC
- 97- Which species of salmonella is pathogen to human only?**
- a) *S. enteritidis*
  - b) *S. choleraesuis*
  - c) *S. typhi*
  - d) *S. typhimurium*
- 98- Which of the following bacteria is considered as most prevalent cause of burn wounds infection?**
- a) *Enterobacter cloacae*
  - b) *Pseudomonas aeruginosa*
  - c) *Escherichia coli*
  - d) *Staphylococcus epidermidis*
- 99- Which of the following choices is correct on the productive damage of tuberculosis?**
- a) It is observable as chronic granuloma
  - b) It is similar to inflammation in bacterial pneumonia
  - c) It is observable as severe inflammation
  - d) It is disseminated infection
- 100- Which of the following infective organisms produces sulfur granules in exudated pus?**
- a) *Fusobacterium nucleatum*
  - b) *Actinomyces israelii*
  - c) *Prevotella intermedia*
  - d) *Bacteriodes fragilis*
- 101- Which of the following enzyme is involved in pathogenesis of *Helicobacter pylori*?**
- a) Protease
  - b) Lipase
  - c) Urease
  - d) Phosphatase
- 102- Which of the following bacteria can grow independently?**
- a) *Orientia*
  - b) *Chlamydia*
  - c) *Coxiella*
  - d) *Ureaplasma*



- 103- To Which group of antibiotics the extensively drug resistant *Mycobacterium tuberculosis* (XDR) should be resistant at least?**
- a) Isoniazide , Amikacin, Rifampin, Ciprofloxacin
  - b) Isoniazide, Rifampin, Ethambutol, Kanamycin
  - c) Isoniazide, Kanamycin, Ciprofloxacin, Ethambutol
  - d) Isoniazide, Kanamycin, Pyrazinamide, Rifampin
- 104- Which of the following spirochetes can be observed simply in smear prepared from peripheral blood?**
- a) Primary syphilis
  - b) Leptospirosis
  - c) Secondary syphilis
  - d) Relapsing fever
- 105- Which of the following organisms play the major role in periodontal diseases?**
- a) *Nocardia*
  - b) *Francisella*
  - c) *Listeria*
  - d) *Prevotella*
- 106- Which of the following vaccines is prepared from live attenuated bacterium for human?**
- a) Pertussis
  - b) Tuberculosis
  - c) Anthrax
  - d) Tetanus
- 107- Which of the following bacteria is an obligate pathogen and is not considered as microflora?**
- a) *Enterococcus faecalis*
  - b) *Mycobacterium tuberculosis*
  - c) *Escherichia coli*
  - d) *Pseudomonas aeruginosa*

## Virology

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- 108- Which one of the following viruses is associated with high mortality rate in fulminant hepatitis in pregnant women?**
- a) HAV
  - b) HBV
  - c) HDV
  - d) HEV

**109- Which one of the following viral infections has an effect on parotid glands?**

- a) Mumps
- b) Infectious mononucleosis
- c) Measles
- d) Parainfluenza virus infections

**110- Which one of the following viruses is a major cause of breakbone fever?**

- a) Marburg
- b) CCHF
- c) Yellow fever
- d) Dengue

**111- Which one of the following organs is the main location of primary replication of echoviruses?**

- a) Central nervous
- b) Gastrointestinal
- c) Respiratory
- d) Skin

**112- Which one of the following cellular receptors act as coreceptor in the attachment of HIV?**

- a) CD4
- b) Integrin
- c) CCR5
- d) gp120

### **Pathology**

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**113- Nutritional deficiency of which of the following vitamins interferes with collagen synthesis and causes gingival bleeding?**

- a) A
- b) C
- c) E
- d) D

**114- A young lady presents with gingival hyperpigmentation. Toxicity with which of the following trace elements is more probable?**

- a) Cadmium
- b) Arsenic
- c) Lead
- d) Mercury

- 115- Which of the followings is the most important cause of delay in wound healing?**
- a) Foreign body
  - b) Infection
  - c) Mechanical pressure
  - d) Poor perfusion
- 116- Which of the following molecules can cause leukocyte chemotaxis?**
- a) C5b
  - b) NO
  - c) LTB<sub>4</sub>
  - d) PGI<sub>2</sub>
- 117- Which of the followings is expected in heart of a patient suffering from increased blood pressure?**
- a) Hyperplasia
  - b) Metaplasia
  - c) Atrophy
  - d) Hypertrophy
- 118- Which of the following molecules is involved in adhesion of platelet in to extracellular matrix?**
- a) Thromboxane A<sub>2</sub>
  - b) Prostaglandin I<sub>2</sub>
  - c) Von Willebrand factor
  - d) Interlukin 1
- 119- What is called minute hemorrhages in to skin measuring 1 to 2 mm in diameter?**
- a) Petechiae
  - b) Hematoma
  - c) Purpura
  - d) Ecchymoses
- 120- Which of the following nuclear changes is reversible?**
- a) Pyknosis
  - b) Clumping
  - c) Karyolysis
  - d) Karyorrhexis
- 121- Which of the following physiologic functions is lost in cancerous cell?**
- a) Self-sufficiency in growth signals
  - b) Evasion of cell death
  - c) Sensitivity to growth inhibitory signals
  - d) Development of sustained angiogenesis

**122- All of the followings are true in familial cancers; EXCEPT for:**

- a) Early age at onset
- b) Autosomal dominant transmission
- c) Presence of multiple tumors
- d) Two or more close relatives involvement

**123- All of the following mediators are pyrogenic factors of inflammation EXCEPT for:**

- a) IL1
- b) PGE2
- c) TNF
- d) C3b

**124- What is called “Secondary implants of tumor cells, discontinuous with the primary tumor”?**

- a) Invasion
- b) Metastasis
- c) Undifferentiating
- d) Anaplasia

**125- Which of the following morphologic features is seen in ileum?**

- a) Teniae coli
- b) Brunner’s gland
- c) Peyer’s patch
- d) Epiploic fat

**126- Gingiva is lined with which kind of epithelium?**

- a) Non keratinizing stratified squamous
- b) Keratinizing stratified squamous
- c) Simple squamous
- d) Pseudostratified

**127- Exposure of which of the following factors is responsible for platelet adhesion and clot formation after endothelial injury?**

- a) VWF
- b) VIII
- c) Glanzmann
- d) I

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**Physiology**

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**128- In the present of cortisol, which of the following decreases?**

- a) Glycogenesis
- b) Gluconeogenesis
- c) Insulin sensitivity
- d) Blood ketone bodies

**129- All of the following structures play role in the pain control EXCEPT:**

- a) Raphe nuclei
- b) Periaqueductal grey matter
- c) Periventricular nuclei
- d) Red nucleus

**130- Which of the following increases the glomerular filtration rate (GFR)?**

- a) Endothelin
- b) Prostaglandins
- c) Adenosine
- d) Epinephrin

**131- With disconnection between thalamus and cerebral cortex, which of the brain rhythm remains intact?**

- a) Alpha
- b) Beta
- c) Theta
- d) Delta

**132- If the cell membrane of neuron is permeable only to  $K^+$  ion, how much is the Nernst of equilibrium potential?**

- a) -90 mv
- b) +60 mv
- c) -70 mv
- d) +30 mv

**133- Which of the following is decreased by thyroid hormones?**

- a) Consumption of tissue  $O_2$
- b) Rate of gluconeogenesis
- c) Free fatty acids concentration
- d) Cholesterol level

**134- Regarding big neurotransmitter (neuropeptides), which of the following is correct?**

- a) Induces fast response in nervous system
- b) They are synthesized in the terminal of presynaptic neuron
- c) It is regenerated after release in synaptic gap
- d) Their effects are very longer than small neurotransmitters

**135- Which of the following senses is transferred in the middle lemniscus and posterior column?**

- a) Pain and temperature
- b) Pressure and tickle
- c) Accurate touch and vibration
- d) Sex senses

- 136- The increasing phase of Ramp Signal, is related to the activity of which of the controlling respiratory area?**
- a) Dorsal respiratory group
  - b) Ventral respiratory group
  - c) Apnestic center
  - d) Pneumotaxic center
- 137- Which of the following muscles contribute in the expiratory reserve volume?**
- a) Diaphragm
  - b) Scalen
  - c) Internal intercostal
  - d) External intercostal
- 138- In the swallowing movement which of the following is not correct?**
- a) Pharynx muscles are skeletal muscles
  - b) Pharyngeal stage of swallowing is voluntary
  - c) The origin of primary peristaltic wave is in the region of pharyngeal of swallowing
  - d) The origin of secondary peristaltic wave is in the region of esophageal of swallowing
- 139- The increase of which of the following decrease the transport of a particle through membrane?**
- a) Concentration gradient across the membrane
  - b) Membrane surface area
  - c) Membrane thickness area
  - d) Solubility in the membrane
- 140- Regarding the differences between fast and slow muscles fibers, which of the following is true?**
- a) Fast fibers have vast sarcoplasmic reticulum
  - b) Fast fibers have vast vascular and capillary system
  - c) Slow fibers have more diameter than fast fiber
  - d) Slow fibers have more glycolysis enzymes than fast fiber
- 141- Which of the following hormones is not regulated by hypothalamus?**
- a) Cortisol
  - b) Thyroxin
  - c) Prolactin
  - d) Insulin

**142- What is the role of the principle cells in the cortex of collecting duct?**

- a) Reabsorption of  $\text{Na}^+$  and secretion of  $\text{K}^+$
- b) Secretion of  $\text{HCO}_3^-$  and reabsorption of  $\text{K}^+$
- c) Reabsorption of  $\text{K}^+$  and secretion of  $\text{H}^+$
- d) Secretion of  $\text{K}^+$  and reabsorption of  $\text{H}^+$

**143- Which of the following is related to the external clot pathway?**

- a) Faster start
- b) Activation of X factor
- c) Requiring Hageman factor
- d) Requiring XI factor

**144- Which hormone stimulates pancreatic cells more than acinar cells?**

- a) Acetylcholine
- b) CCK
- c) Secretin
- d) Histamine

**145- Which of the following causes distention and bradycardia in heart?**

- a) Extracellular  $\text{K}^+$
- b) Extracellular  $\text{Ca}^{2+}$
- c) Body temperature
- d) Venous return

**146- Which of the following increases lymph circulation?**

- a) Decrease capillary hydrostatic pressure
- b) Increase capillary permeability
- c) Increase oncotic plasma pressure
- d) Decrease oncotic inter tissue

**147- Pulse pressure has direct relation with which of the following?**

- a) Heart rate
- b) Stroke volume
- c) Vascular compliance
- d) End of systolic volume

**148- Which of the following is the effect of sympathetic system stimulatory on the heart?**

- a) Increase permeability to  $\text{K}^+$
- b) Increase negativity inside the cell
- c) Decrease the impulse transport from atrium to ventricle
- d) Decrease of the rhythm of nodal fibers

- 149- When the amount of filtration rate of  $\text{HCO}_3^-$  is more than normal level, but is less than the  $\text{H}^+$  secreted in the kidney tubules, what are the consequences?**
- Respiratory acidosis
  - Metabolic acidosis
  - Metabolic alkalosis
  - Respiratory alkalosis
- 150- Which of the following is the vaso dilator in the tissue?**
- Endothelin
  - Angiotensin
  - Vasopressin
  - Histamine
- 151- Which of the following is the beginning and major effect of sensitive channels to acetylcholine in the motor end plate?**
- Entrance of large amounts of  $\text{Na}^+$  ions into the muscle fiber
  - Entrance of large amounts of  $\text{Ca}^+$  ions into the muscle fiber
  - Exit of large amounts of  $\text{Cl}^-$  ions from muscle fiber
  - Exit of large amounts of  $\text{K}^+$  ions from muscle fiber
- 152- For motilin, which of the following is true?**
- Secret from stomach and increase peristaltic waves in the GI system
  - Secret from colon and increase mass movement
  - Release inter the ingestion of food and increase peristaltic waves in the GI system
  - Release in the fasting phase and induce migrating myoelectric complex
- 153- Which of the respiratory area center is sensitive to increase of blood artery  $\text{CO}_2$  directly?**
- Rostal area
  - Central chemical receptors
  - Environmental chemical receptors
  - Expiratory area
- 154- Which of the following are the effects of analgesic enkephaline in the spinal cord?**
- Inhibition of serotonin secretion in the posterior spinal cord horne
  - Inhibition of pre and post synaptic of pain fibers
  - Increase of substance P secretion in the posterior spinal cord horne
  - Increase of glutamate secretion in the spinal cord
- 155- Regarding aqueous humor, which of the following is correct?**
- Secret inactive form by cilliary body
  - Empties to outer venus of eyeball by schelmm channel
  - Without amino acids but full of glucose
  - Secret, interrupt and regulate intraocular pressure



## Genetics

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**156- What happens in nonsense mutation:**

- a) one amino acid changes to another one
- b) mRNA produced by mutated gene is more stable
- c) protein product degrades fast in cell
- d) protein product is completely changed

**157- Pedigree of an inherited disorder shows that the disease is manifested when only one of the parents is affected. Which one is the most possible pattern of inheritance:**

- a) Autosomal recessive
- b) X-link recessive
- c) Mitochondrial inheritance
- d) Autosomal dominant

**158- In which of the following inherited abnormalities both structural and numerical chromosomal abnormalities are seen:**

- a) Down syndrome and Turner syndrome
- b) Edward's syndrome and Retinoblastoma
- c) Hypo and hyper thyroidism
- d) Microdeletions in mental retardation and infertility

**159- Which of the following chromosomal translocation is Robertsonian translocation?**

- a) 9-22
- b) 13-17
- c) 21-21
- d) 15-18

**160- Reduced penetrance means:**

- a) skip generation
- b) variable expressivity
- c) late onset
- d) dominant negative

**161- In which of the following genetic disorders consanguinity marriage is more important?**

- a) Autosomal recessive
- b) Chromosomal
- c) Mitochondrial
- d) X-Linked

**162- What does uniparental disomy mean:**

- a) uniparental isodisomy
- b) uniparental disomy
- c) biparental heterodisomy
- d) biparental nolosomy

**163- Maple syrup disease is among which of the following groups?**

- a) Charbohydrates
- b) Amino acids
- c) Steroids
- d) Lipids

**164- Which of the following techniques can be used to detect hetero duplexes in genome:**

- a) Compound sensitive electrophoresis
- b) Southern blot
- c) Oligonucleotid assay
- d) Western blot

**165- About trisomy 21, homologus chromosomal nondisjunction happens in which of the following steps:**

- a) Paternal anaphase of miosis I
- b) Maternal metaphase of miosis I
- c) Maternal anaphase of miosis I
- d) Paternal metaphases of miosis I

### Medical Immunology

**166- Which of the following choices is the main mechanism of innate immune response against extracellular bacteria?**

- a) Phagocytosis and inflammatory response
- b) Producing different antibodies
- c) Activation of TCD4 lymphocytes
- d) Neutralization of toxins by antibody

**167- After HIV infection, all of the following cells will decreased gradually, EXCEPT:**

- a) Helper T cells
- b) Macrophages
- c) Dendritic cells
- d) NK cells

**168- Which of the following choices is the cause of severe combined immune deficiency?**

- a) lack of granulocytes
- b) lack of antibody production
- c) lack of B and T lymphocyte
- d) immune deficiency in NK cells

**169- What is the most important antigen presenting cell (APC)?**

- a) Macrophage
- b) Dendritic cell
- c) Neutrophil
- d) Epithelial cell

**170- Which of the following choices play less important role in increasing and intensity of tissue inflammation?**

- a) Increasing of IL-1, IL-6, TNF $\alpha$
- b) Gathering of neutrophils and macrophages
- c) Dilation of arterioles and increasing of blood flow
- d) Increasing IL-10, TGF $\beta$

**171- Which of the following choices will happen through production and increasing of IgE?**

- a) Lupus erithematosus disease
- b) Delayed type hypersensitivity
- c) Myastenia gravis disease
- d) Immediate hypersensitivity

**172- Which of the following is most common method in cancer immunotherapy?**

- a) Cytokines
- b) Monoclonal antibodies
- c) Dendritic cells
- d) Activated NK cells

**173- Fibrosis in the tissue of transplanted kidney is a sign of which of the following rejection?**

- a) Hyperacute
- b) Acute
- c) Chronic
- d) Graft versus host disease (GVHD)

**174- Lack of which of the following molecules is the reason of hereditary angioedema disease?**

- a) C3 convertase
- b) C1 inhibitor
- c) C4
- d) C3

**175- Which of the following cells is the most phagocytic leukocyte in the blood?**

- a) Monocytes
- b) Basophiles
- c) Neutrophils
- d) Eosinophils

**176- Which of the following TLRs, is located endosomally inside the cell?**

- a) TLR3-7-8,9
- b) TLR2-4-6,9
- c) TLR4-5-6,7
- d) TLR4-6-7,9

**177- Which of the following molecules is antibacterial peptide on the surface of epithelial cells?**

- a) Collectin
- b) Defensin
- c) Ficolin
- d) pentraxin

**178- Which of the following costimulator receptors is specific for T lymphocytes?**

- a) CD21
- b) CD19
- c) CD40
- d) CD28

**179- M cells (in intestine) has all of the following characteristics, EXCEPT:**

- a) Endocytosis
- b) Phagocytosis
- c) Antigen processing
- d) Antigen uptake

**180- Link between infection and autoimmunity, is not related to which the following mechanism?**

- a) Molecular mimicry
- b) Induction of stimulation of antigen presenting cells
- c) Production of cross reaction antibodies
- d) Activating regulatory cells

### Persian Language

۱۸۱- مادر مریم از دو روز پیش در ناحیه شانه خود احساس درد می کند. مریم او را به بیمارستان می برد. پزشک پس از معاینه به مریم می گوید: مادر شما نیاز به فیزیوتراپی دارد.  
در جمله دوم فاعل کدام است؟

د) درد

ج) مریم

ب) پزشک

الف) مادر

۱۸۲- در جمله "حسین برای خرید دارو به داروخانه رفت." زمان فعل را مشخص کنید؟

- الف) مضارع خبری
- ب) گذشته ساده
- ج) گذشته دور
- د) آینده

۱۸۳- زمان فعل "من هر روز معلم خود را می‌دیدم" را مشخص کنید.

- الف) گذشته استمراری
- ب) گذشته ساده
- ج) گذشته دور
- د) گذشته التزامی

۱۸۴- در کدام نوع از انقلاب‌ها، معمولاً شمار کشته‌ها بالا است؟

- الف) در انقلاب‌های سیاسی
- ب) در انقلاب‌هایی که مردم با استبداد داخلی درگیر هستند.
- ج) در انقلاب‌هایی که مردم با بیگانه درگیر هستند.
- د) در انقلاب‌های فرهنگی

۱۸۵- محدود ساختن ابزار شناخت به «حس و تجربه» کدامیک از بحران‌های زیر را در پی دارد؟

- الف) بحران علمی
- ب) بحران اخلاقی
- ج) بحران روانی
- د) بحران معرفتی

۱۸۶- در جمله "قلم پیمان در دست کاوه است" نقش کلمه پیمان را مشخص کنید.

- الف) صفت
- ب) مضاف
- ج) مضاف‌الیه
- د) متمم

۱۸۷- در جمله "من وارد خانه شدم" نهاد را مشخص کنید.

- الف) وارد
- ب) خانه
- ج) من
- د) شدم

۱۸۸- بدن انسان از اعضای مختلفی مثل قلب، مغز، کلیه و ریه تشکیل شده است و هر عضو از بافت‌های مختلف به وجود می‌آید. در بدن انسان چهار نوع بافت اصلی وجود دارد که عبارتند از: بافت پوششی، بافت همبندی، بافت عضلانی و بافت عصبی. هر یک از بافت‌ها از مجموعه سلول‌ها تشکیل شده‌اند.

کدام یک از ساختارهای زیر واحد ساختمان بدن انسان است؟

- الف) سلول (ب) بافت (ج) عضو (د) دستگاه

۱۸۹- در بافت عصبی دو نوع سلول وجود دارد: سلول‌های عصبی و سلول‌های گلیال. سلول‌های عصبی یا نورون‌ها در انتقال پیام عصبی نقش دارند و سلول‌های گلیال نقش پشتیبانی و تغذیه را به عهده دارند. سلول‌های گلیال عبارتند از: آستروسیت، اولیگودندروسیت، میکروگلی و سلول اپاندیمی.

کدام سلول زیر نقش انتقال پیام عصبی را به عهده دارد؟

- الف) نورون (ب) آستروسیت (ج) میکروگلی (د) اولیگودندروسیت

۱۹۰- در بافت عصبی دو نوع سلول وجود دارد: سلول‌های عصبی و سلول‌های گلیال. سلول‌های عصبی یا نورون‌ها در انتقال پیام عصبی نقش دارند و سلول‌های گلیال نقش پشتیبانی و تغذیه را به عهده دارند. سلول‌های گلیال عبارتند از: آستروسیت، اولیگودندروسیت، میکروگلی و سلول اپاندیمی.

کدام یک از سلول‌های زیر به عنوان یک سلول گلیال شناخته می‌شود؟

- الف) ماکروفاژ (ب) اولیگودندروسیت (ج) فیبروبلاست (د) نورون

## Oral and Public Health

191- Which of the followings is **NOT** true about dental fluorosis?

- Enamel lesions result from increase in fluoride use
- Dentine lesions result from increase in fluoride use
- It starts firstly as white patches on enamel
- Use of fluoridated toothpaste under one year of age causes mild fluorosis

192- Which of the followings is the definition of clinical trial study?

- Summerization of previous studies
- Investigation of a disease at a certain time section
- Investigation of treatment effects of an intervention
- Detailed investigation of a rare case

193- What is the current recommendation for reminder dose for dentists receiving a complete series of hepatitis B vaccination in childhood?

- No need to reminder dose
- Inoculation of a single reminder dose
- Inoculation of a repeated complete series
- Making decision based on the antibody titer

- 194- Oral examination of pregnant women in order to early diagnosis of dental caries can be considered as which level of prevention?**
- a) Primitive
  - b) Primary
  - c) Secondary
  - d) Tertiary
- 195- A woman feels to have a mass in her breast when performing self-test. She goes for mammography, and breast cancer is diagnosed. Which term is true about her condition?**
- a) disease
  - b) illness
  - c) dysfunction
  - d) ill health
- 196- A mother takes her 4-months infant to health center stating that her infant is restless and sucks his fingers. The mother is worried about the insufficiency of her milk for the infant. Based on which index it is possible to judge about the sufficiency of mother's milk?**
- a) Frequent demand of the infant for milk
  - b) Restlessness and sleeplessness of the infant
  - c) Sucking fingers by the infant and statements by the mother
  - d) The amount of the infant's weight gain
- 197- Dentists and their assistants are at the risk of exposure to all types of viral hepatitis EXCEPT:**
- a) HBV
  - b) HCV
  - c) HDV
  - d) HEV
- 198- All of the followings are the characteristics of the third epidemiologic transition, EXCEPT:**
- a) Increase in deaths caused by chronic diseases
  - b) Decrease in mothers and children deaths
  - c) Population decrease
  - d) Population aging
- 199- After birth and inoculation of hepatitis B vaccine for the neonate, it is revealed that the mother is HBsAg positive. What is the maximum time to receive hepatitis B specific immunoglobulin after birth?**
- a) 24 hours
  - b) 48 hours
  - c) Three days
  - d) One week

**200- What is that level of prevention focusing on inhibition of creation and establishment of disease risk factors?**

- a) Primitive
- b) Primary
- c) Secondary
- d) Tertiary