

The list of questions for the final examination in anatomy including organogenesis for students of general medicine. Academic year 2014/2015

Each question covers both microscopic and macroscopic aspects of organ structure, its syntopy, development and the most frequent birth defects

Skeleton and its connections

Structure and types of bones, innervation and blood supply of bone (draw scheme)

Osteogenesis, ossification, remodeling and growth of bone

Connection of bones, structure and types of joints

The osseous nasal cavity, relations to neighboring structures

Bony orbit - walls, relation to neighboring structures, passages

Skull, skull of neonate and its development Vertebrae, vertebral column and its development, connections, curvatures and motility

Craniovertebral joint

Skeleton of thorax and its development, connections and motility of ribs

Temporomandibular joint - structure and motility

Development and growth of limb, molecular mechanisms, limb defects

Shoulder joint - structure and movements Elbow joint - structure and movements

Bones and joints of hand including reading of X-ray images

Bony pelvis as complex, connections, passages, diameters, planes, sexual differences

Hip joint - structure, movements, developmental dysplasia of hip

Knee joint - structure, biomechanics, movements

Talocrural and subtalar joints - structure, movements

Bones and joints of foot including reading of X-ray images, plantar arches and their support

Muscles, fascias, osteofascial compartments

Origin and development of muscles, molecular mechanisms

General features of striated muscle, its auxiliary structures (motor end plate, motor unit, muscle spindle, Golgi tendon organ), motor and proprioceptive innervation

Muscles and fascias of the head

Muscles and fascias of the neck (draw transverse section of the neck)

Muscles and fascias of thorax, diaphragm - structure, passages, function, innervation, diaphragmatic hernias

Muscles of abdominal wall, fascias, function

Inguinal canal (draw scheme), inguinal hernias

Pelvic floor muscles, perineal muscles, ischioanal fossa, pelvic fascias (draw frontal section of pelvis)

Muscles and fascias of back

Muscles of shoulder girdle, fascias, axillary fossa

Muscles and fascias of arm and forearm (draw transverse sections)

Muscles and fascias of hand (draw transverse section), tendon sheaths, carpal canal

Muscles and fascias of hip Muscles and fascias of thigh, femoral triangle, popliteal fossa

Muscles, fascias and compartments of leg and foot (draw transverse sections)

Gastrointestinal tract

General anatomy (macro and micro) of intestinal tube.

Microscopic structure of the teeth and their development

Macroscopic structure of the teeth, fixation, gingivodental junction, innervation and vascular supply,

Primary and permanent dentition formula, eruption, types of occlusion

Tongue, structure, intra- and extraglosseal muscles, vascular supply, innervation

Soft and hard palate, muscles of soft plate (draw scheme), isthmus of fauces

Palate development, cleft defects

Salivary glands - structure, syntopy, innervation

Pharynx - structure, syntopy, blood supply, innervation,

Nasal, palatine and lingual tonsills structure (Waldeyer circuit)

Oesophagus - structure (macro and micro), syntopy

Stomach - shape, position, syntopy, projections

Stomach - structure of the wall, divisions, vascular supply, innervation, lymphatic drainage

Development of oesophagus, stomach and small and large intestine

Small intestine - structure, divisions, vascular supply, innervation, lymphatic drainage

Duodenum - divisions, positions, syntopy (draw scheme), blood supply

Large intestine, structure, divisions (draw scheme), syntopy, vascular supply, innervation, positions of vermiform appendix

Pancreas - structure, Langerhans islets, syntopy,

Liver - segments, syntopy (draw scheme of visceral surface)

Liver - structure, nutritional and portal vascular bed, intrahepatic bile ducts

Gallbladder and extrahepatic bile ducts (draw scheme)

Development of pancreas and liver

Rectum and anal canal - structure, syntopy (draw frontal and sagittal sections), vascular supply, sphincters and their innervation

Peritoneum - parietal and visceral, greater and lesser omentum

Lesser sac (omental bursa), its recesses

Development of visceral situs and mesentery, intestinal rotation

Respiratory system

Nasal cavity, choanae, vascular and nerve supply

Paranasal sinuses and their syntopy, their development

Larynx - cartilages, ligaments, joints, muscles (draw frontal section)

Larynx - position and syntopy, vascular and nerve supply (draw laryngoscopic view of inlet)

Trachea - description, structure, syntopy (draw scheme), tracheotomy

Bronchi, bronchial tree - structure, lobar bronchi, segmental bronchi, syntopy

Lungs - description, syntopy, bronchopulmonary segments

Internal structure of lungs - alveoli and their microscopic structure, surfactant, development and maturation of lungs

Lungs - description, syntopy, borders and projection onto thoracic wall, vascular and nerve supply, lymphatics

Pleura - visceral and parietal, structure, borders of pleura, pleural dome and recesses (draw scheme), innervation

Mechanics of respiration, pneumothorax

Urinary and reproductive system

Development of urinary system

Kidney - description, position, syntopy (draw scheme), birth defects

Structure of kidney - cortex, medulla, nephron, envelopes

Vascular supply of kidney, segments

Renal calices, pelvis, ureter - syntopy

Urinary bladder - structure and position, fixation and syntopy in male and female (draw scheme)

Male and female urethra - description, its parts, hypospadias

Development of reproductive system

Testis and epididymis

Scrotum and coverings of testis, descent of testis and its defects

Vas (ductus) deferens, spermatic cord, seminal vesicles

Prostate - structure, topographic relations, prostatic urethra, ejaculatory ducts

Penis - structure (draw cross-section), vascular and nerve supply, mechanism of erection

Ovary - structure and position, ovarian cycle, vascular supply, extrauterine gravidity, infertility, IVF

Uterine (Fallopian) tube - structure, divisions, position, vascular supply

Uterus - shape and divisions, structure of wall, endometrial cycle, vascular supply, lymphatics

Uterus - position, fixation, syntopy, birth defects

Vagina - structure and syntopy (draw uterus and vagina in sagittal section)

External female genital organs, perineum

Heart

Heart - description, prenatal and postnatal circulation

Heart development and its common birth defects

Cardiac wall arrangement, cardiac skeleton, chambers (draw section through ventricles)

Endocardium, cardiac valves - structure and function, auscultation heart points, cardiac skeleton (draw scheme)

Conducting system of the heart- structure and function

Coronary arteries, veins and nerves, coronarography

Heart location and projection, X-ray (draw scheme of radiogram), auscultation heart points

Epicardium and pericardium - structure, syntopy, pericardial reflections around roots of the great vessels, pericardial puncture (pericardiocentesis)

Arteries

Vascular development, structure of arteries, veins, lymphatic vessel, collateral circulation

Ascending aorta, aortic arch, thoracic aorta (course, syntopy, branches)

Common carotid artery, internal carotid artery

External carotid artery - course, syntopy, branches

Subclavian artery - course, syntopy, branches

Arteries of upper extremity - course, syntopy, branches

Abdominal aorta, position, topographic relations, parietal and visceral branches

External and internal iliac artery Arteries of lower extremity - course, syntopy, branches

Anatomical background for vessel punctures, pressure points, palpation

Veins

Superior vena cava, brachiocephalic veins, jugular veins

Internal jugular vein - course and tributaries

Cranial veins, sinus durae matris, cerebral veins

Inferior vena cava - course and tributaries, cavocaval anastomoses

Azygos and hemiazygos veins, vertebral venous plexuses

Portal vein - tributaries, portocaval (portosystemic) anastomosis

Superficial and deep veins of upper and lower extremities

Lymphatic system

Thymus - structure, position and syntopy, function

Lymph node - structure and functional zones, sentinel lymph node, lymphatic tissue in organs, main lymphatic ducts

Spleen - structure, position, syntopy, vascular supply

Lymph nodes and collectors of head and neck

Lymph nodes and collectors of thoracic wall and lungs

Lymph nodes and collectors of stomach, liver and pancreas

Lymph nodes and collectors of intestines, lymph nodes and collectors of testis

Lymph nodes and collectors of vagina, uterus and ovaries

Lymph nodes and collectors of upper and lower limbs

Central nervous system - CNS

Neural tube development and its differentiation, defects of neural tube closure

Spinal cord segments, positional changes of cord (vertebromedullar topography), cauda equina

Spinal cord - structure of gray and white matter, cross section (draw scheme)

Medulla oblongata and pons - gray and white matter, draw cross sections

Floor of rhomboid fossa and cranial nerve nuclei (draw scheme)

Mesencephalon (midbrain) - gray and white matter, draw cross section

Reticular formation

Cerebellum - structure, subdivision and functional organization, nuclei and afferent connections

Intrinsic and efferent connections of cerebellum and their function

Diencephalon - structure, subdivision and functional organization

Thalamus - nuclei, afferent and efferent connections of main nuclei, their function

Hypothalamus - subdivisions, connections and function

Anatomical background of hypothalamohypophyseal regulation

Basal ganglia, their connections and function, parkinsonism

Main functional areas of cerebral cortex

White matter of hemispheres - association and commissural fibers, internal capsule (draw scheme of tracts in internal capsule)

Ventricular system of brain (draw scheme), circulation of liquor, hydrocephalus

Meninges, vascular supply of spinal cord, lumbar puncture

Brain vessels and blood-brain barrier, brain dysfunctions related to inadequate blood supply via particular blood vessels brain damage due to vascular occlusion

Lemniscal system (dorsal column tract), proprioceptive and tactile sensation, sensory loss in spinal cord lesions

Anterolateral system of sensitive spinal tracts - (spinothalamic, spinoreticular and spinotectal tracts), pain pathways

Corticospinal (pyramidal) and corticonuclear tract

Motor pathways in spinal cord and motor deficiencies in spinal cord lesions

Auditory pathway

Visual pathway and visual cortical areas

Olfactory and gustatory pathway, olfactory nerve

Limbic system - connections and function (cortical areas, hippocampal formation, amygdalar complex)

Neurotransmitters in the CNS, main brain chemical systems

Peripheral nervous system - PNS

Neural crest cells and their differentiation Ventral and dorsal spinal nerve root, dorsal root ganglion, draw general structure of the spinal nerve and its branches, autonomic fibers of spinal nerve

Segmental innervation, radicular areas, dermatomes, Head's zones (zones of referred visceral pain), sensory receptors, peripheral nerve regeneration

Cervical plexus, supraclavicular portion of brachial plexus Infraclavicularis portion of brachial plexus (draw scheme) and upper limb innervation

Radial and axillary nerve, paralysis of them

Median and ulnar nerve, paralysis of them

Skin and motor innervation of head and neck

Lumbar plexus and its branches

Femoral nerve Sacral plexus and its branches

Sciatic nerve, paralysis of common peroneal nerve

Overview of muscular and skin innervation of lower limb

First and second branch of trigeminal nerve, sensory trigeminal nuclei

Third branch of trigeminal nerve

Oculomotor, trochlear, abducens nerve

Facial nerve Glossopharyngeal and vagus nerve

Accessory and hypoglossal nerves

Cervical and thoracic sympathetic system

Cranial and sacral parasympathetic system

Abdominal and pelvic autonomic plexuses and ganglia, enteric system

Sensory organs, skin, endocrine glands

Eye development

Eyeball (draw sagittal section)-vascular supply, innervation, chambers, aqueous humor circulation

Cornea, sclera and vitreous body, corneal reflex Iris, ciliary body, choroidea, pupillary light reflex

Lens - structure and insertion, accommodation

Retina - structure, vascular supply (draw schema of eye fundus)

Eyelids, conjunctiva, lacrimal apparatus

Extraocular muscles

External acoustic meatus and tympanic membrane (draw otoscopic view), paracentesis (myringotomy)

Tympanic cavity, auditory ossicles, auditory tube

Bony and membranous labyrinths (draw cross section of bony cochlea and cochlear duct)
vestibulocochlear nerve, nystagmus

Skin - epidermis and dermis, skin types, skin receptors, skin appendages (hair, nails, glands)

Mamma - description and structure, blood supply and innervation, lymphatics

Thyroid and parathyroid glands - structure, function, topography, blood supply

Suprarenal gland - structure and developmental origin of cortex and medulla, function, syntopy (draw scheme), blood supply

Hypophysis - development, structure of adeno and neurohypophysis, function, syntopy

Regional Anatomy

Layers of scalp, frontal and temporal regions

Superficial regions of face

Infratemporal fossa and pterygoplatine fossa

External and internal cranial base - openings for vessels and nerves

Submandibular triangle, carotid triangle (draw scheme)

Lateral neck region, scalenic fissure

Axilla - boundaries, content

Brachial region (draw transverse section)

Cubital fossa

Antebrachial region (draw transverse section)

Topographic anatomy of the hand (draw transverse section) and fingers

Gluteal region

Anterior thigh region, iliopectineal fossa, femoral triangle (draw schema)

Popliteal fossa, adductor canal

Leg region (draw transverse section)

Retromalleolar regions (med.+ lat.)

Topography of foot (draw transverse section)

Mediastinum - division, borders (draw transverse section)

Topography of chest wall (draw scheme of intercostal space)

Projections of heart, lungs and pleura onto thoracic wall, puncture of thorax

Topography of abdominal wall, rectus abdominis sheath (draw transverse section), blood supply, innervation, surgical approaches

Projections of abdominal organs onto abdominal wall

Inguinal region, inguinal canal, hernias

Topography of peritoneal cavity - supra and inframesocolic part (draw transverse section through lesser sac)

Topography of duodenum and pancreas (draw schema)

Retroperitoneal space, topography of its organs including vessels and nerves

Topographic anatomy of male pelvis (draw sagittal section)

Topographic anatomy of the female pelvis (draw sagittal section), mechanism of continence

Pelvic floor muscles, ischioanal fossa (draw frontal section of pelvis), perineal region

Topography of vertebral canal, anatomic backgrounds of spinal tap (lumbar puncture) and epidural anesthesia