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ФИО: Стегний Кирилл Владимирович
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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY

Director of the Institute of
Simulation and Training Technology
_____ / Gnezdilov V.V./
"10th" of April 2025

COLLECTION OF ASSESSMENT TOOLS
Б1.О.11 Topographic anatomy and operative surgery
of the basic educational program
of Higher Education

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	**Full-time**
Period of mastering the BEP	**6 years** (nominal length of study)
Institute	of Simulation and Training Technology

Vladivostok, 2025

1. INTRODUCTION

1.1. **Collection of Assessment Tools** is a document that regulates the format, content, and types of assessment tools for continuous assessment, interim examination and final (state final) examination, and graded criteria for each type of assessment tools.

1.2. Assessment tools allows to evaluate the development of universal, general professional, and professional competencies (UCs, GPCs and PCs respectively) outlined in Federal State Educational Standard of Higher Education and defined in the basic educational program of higher education for the specialty 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system).

(BEP HE for the 31.05.01 General Medicine for international students (in English) specialty, section 3 Learning Outcomes Requirements of the Basic Educational Program of Higher Education)

2. DOCUMENT BODY

2.1. Types of Assessment, Formats of Assessment Tools

No.	Types of assessment	Assessment Tools Format
1	**Continuous assessment**	**Tests**
		Interview Questions
2	**Interim assessment**	**Interview Questions**

3. The contents of assessment tools for continuous and interim examination are prepared by the teacher of the course

Tests for continuous assessment

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
I		**ANSWER LEVEL 1 TEST QUESTIONS (ONE CORRECT ANSWER)**
		1. In what direction are the loops tightened when performing a subcutaneous suture interruption relative to the wound itself? +1) Longitudinal 2) Transverse 3) Obliquely transverse 4) All of the above 2. Which artery is primarily used for coronary stenting? +1) Radial 2) Ulnar 3) Femoral 3. Which suture material is preferred for suturing vessels? 1) Absorbable monofilament

+2) Non-absorbable monofilament
3) Absorbable polyfilament
4) Non-absorbable polyfilament

4. The number of meninges in the spinal cord is
+1) 3
2) 4
3) 5
4) 6

5. Between which membranes is the cerebrospinal fluid located?
1. Pia and dura
2. Dura and arachnoid
+3. Pia and arachnoid
4. Dura and vertebral body

6. The hypoglossal canal passes through
1. the frontal bone
2. the occipital bone
3. the parietal bone
+4. the sphenoid bone

7. Which nerve is located in the carpal tunnel

1) the radial
2) the ulnar
+3) the median
4) the radial and median

8. The lowest risk of developing gangrene of the upper limb occurs with brachial artery ligation
+1) Below the branch of the superior ulnar collateral artery
2) Above the branch of the superior ulnar collateral artery
3) Above the deep brachial artery

9. The bifurcation of the aorta is located at the level of
1) the second lumbar vertebra
2) the third lumbar vertebra
3) the twelfth thoracic vertebra
4) the sacroiliac joint
+5) the fourth lumbar vertebra

10. The lowest risk of developing gangrene in the lower extremity is
1) When ligating the artery above the inguinal ligament, the risk of gangrene is:
2) When ligating the artery immediately below the inguinal ligament, the risk of gangrene is:
3) When ligating the artery below the deep femoral artery
+4) When ligating the deep femoral artery

11. From which border of the Chipault triangle during antrotomy is there a high risk of facial nerve damage?

1) From the posterior border
2). From the superior border
+3) From the anterior border of the mastoid tuberosity
4) From the mastoid crest

12. The esophagus skeleton corresponds to the vertebrae
1) C5 – Th10;
2) C4 – Th11;
3) C6 – Th12;
+4) C6 – Th11.

13. The sigmoid colon is located
1) regio hypochondriaca sinistra
2) right iliac fossa
+3) regio inguinalis sinistra

14. The duodenum is covered by the peritoneum
+1) extraperitoneally
2) intraperitoneally
3) mesoperitoneally

15. The blood supply to the jejunum and ileum is provided by
1) the celiac trunk;
+2) the superior mesenteric artery;
3) the inferior mesenteric artery;
4) renal artery.

16. How is the fundus of the gallbladder projected?
+1) Intersection of the outer edge of the rectus abdominis muscle with the costal arch
2) At the level of the 10th rib cartilage
3) Intersection of the costal arch with the anterior axillary line
4) Intersection of the costal arch with the midclavicular line

17. Between the branches of which arteries is the arc of Riolan formed?
1) Colica media and a. colica dextra
2) Colica dextra and a. colica sinistra
+3) Colica sinistra and a. colica media
4) Colica sinistra and a. iliocolica

18. In which pelvic compartment does the internal iliac artery pass in men?
+1) Lateral
2) Retrorectal
3) Perivesical
4) Prostatic capsule

19. Which main vessel crosses the left ureter in the pelvic area?
1) Left common iliac artery
+2) Left external iliac artery

		3) Left internal iliac artery 4) All of the above 20. Which peritoneal recess is the lowest part of the peritoneal floor of the pelvis in women? 1) Prevesical 2) Vesicorectal 3) Retrorectal +4) Uterinerectal
I		**ANSWER LEVEL 2 TEST QUESTIONS (MULTIPLE CORRECT ANSWERS)**
		1. Absorbable suture materials include 1) Nylon +2) Catgut 3) Etibond +4) Vicryl 5) Silk 2. Types of external osteosynthesis include +1) Extrafocal compression-distraction osteosynthesis 2) Extramedullary osteosynthesis +3) External nail fixators 4) Intramedullary osteosynthesis 3. Carpal tunnel contents 1) Radial nerve +2) Flexor digitorum superficialis +3) Flexor digitorum profundus 4) Palmaris longus +5) Median nerve 6) Flexor carpi ulnaris 4. The wrist joint is punctured 1) The space between the palmaris longus muscle, the flexor digitorum superficialis muscle, and the median nerve. +2) The space between the tendons of the extensor pollicis longus and the extensor digitorum indicis, at the distal end of the radius. +3) Between the extensor pollicis brevis and the tendon of the abductor pollicis muscle (anatomical snuffbox) at the level of the intersection of the radioulnar line. 5. Which wrist bones form the carpal tunnel arch? 1) Trapezius +2) Pisiform +3) Hooked 4) Capitate +5) Scaphoid +6) Trapezium 6. Which pairs of cranial nerves pass through the auditory canal? 1) 9 2) 12

		+3) 7 +4) 8 7. Spinal cord thickenings include +1) Cervical 2) Thoracic +3) Lumbar 4) Sacral 8. Branches of the trigeminal nerve pass through +1) Superior orbital fissure +2) Foramen rotundum +3) Foramen ovale 4) Jugular foramen 5) Hypoglossal canal 6) Internal auditory foramen 9. Which nerves are involved in facial nerve grafting? 1) Third branch of the trigeminal nerve 2) Glossopharyngeal 3) Vagus +4) Hypoglossal +5) Accessory +6) Diaphragmatic 10. Borders of Pirogov's triangle consist of 1) GKS muscle +2) Hypoglossal nerve +3) Free edge of the mylohyoid muscle +4) Intermediate tendon of the digastric muscle 5) Superior belly of the omohyoid muscle. 6) Carotid artery 11. Absolute indications for amputation include 1) Chronic disseminated tuberculosis of bones and joints in elderly and senile individuals +2) Open multiple bone fractures with significant soft tissue damage 3) Chronic osteomyelitis of bones with the risk of osteomyelitis of internal organs +4) Traumatic limb avulsion +5) Malignant tumors 12. The cardiac conduction system includes 1) Tendinous filaments 2) Annulus fibrosus +3) Bundle of His +4) Purkinje fibers +5) Sinoatrial node +6) Atrioventricular node 13. What are the characteristics of the lower limb's blood supply? +1) It is highly susceptible to vascular diseases.

		2) It is one of the most highly vascularized parts of the human body. 3) The anterior surface of the leg and foot has extensive muscular-cutaneous sources of nutrition, and the skin and fascia have abundant vascularized soft tissue covering for the bones. +4) Venous anatomy is characterized by intertwining of accompanying veins (perforators), which makes their dissection difficult. 14) Pirogov's methods of leg amputation are 1. Three-stage 2. Two-stage +3. Flap +4. Osteoplastic 15) Bursae of the upper peritoneal cavity include +1. Hepatic 2. Mesenteric +3. Omental +4. Progastric 5. Colonic
I		**ANSWER LEVEL 3 TEST QUESTIONS (MATCHING QUESTIONS)**
		1. Communications of the paranasal sinuses +1) Sphenoid sinus = superior nasal meatus +2) Maxillary sinus = middle nasal meatus 3) Frontal sinus = inferior nasal meatus 4) Ethmoid sinus = inferior nasal meatus 2. The exit points of the three branches of the trigeminal nerve from the skull 1) Ophthalmic nerve (1st branch) = foramen rotundum +2) Ophthalmic nerve (1st branch) = superior orbital fissure 3) Maxillary nerve (2nd branch) = foramen ovale +4) Mandibular nerve (3rd branch) = foramen ovale +5) Maxillary nerve (2nd branch) = foramen rotundum 3. Venous outflow from superficial tissues and deep sections of the face +1) Superficial tissues of the face = facial vein 2) Superficial tissues = lingual vein 3) Deep parts of the face = thyroid veins +4) Deep parts of the face = pterygoid plexus and submandibular vein 4. The brachial canal has the following neurovascular structures +1) Brachial canal = radial nerve and deep brachial artery 2) Brachial canal = ulnar nerve and deep brachial artery 3) Brachial canal = radial nerve and superficial brachial artery

		5. The crotal popliteal canal has the following neurovascular structures 1) Crotal popliteal canal = anterior tibial artery, veins, tibial nerve 2) Crotal popliteal canal = popliteal artery, veins, peroneal nerve +3) Crotal popliteal canal = posterior tibial artery, veins, tibial nerve 6. The adductor canal has the following neurovascular structures +1) Adductor canal = femoral artery and vein, saphenous nerve (n. saphenus) 2) Adductor canal = popliteal artery and vein, tibial nerve 3) Adductor canal = femoral artery and vein, tibial nerve 7. The following anatomical structures pass through the inguinal canal in men +1) Inguinal canal = spermatic cord, ilioinguinal nerve, genital branch of the genitofemoral nerve 2) Inguinal canal = round ligament of the uterus, ilioinguinal nerve, genital branch of the genitofemoral nerve 3) Inguinal canal = spermatic cord, iliohypogastric nerve, genital branch of the genitofemoral nerve 8. Anatomical structures located in the trilateral and quadrilateral openings of the axillary cavity +1) Trilateral opening = a. circumflexa scapulae 2) Tripartite foramen = a. profunda brachii +3) Quadripartite foramen = a. circumflexa humeri posterior and n. axillaris 4) Quadripartite foramen = a. circumflexa humeri anterior n. subscapularis

Assessment criteria
"Very good" - more than 80% correct answers of questions of every level
"Good" - 70-79% correct answers of questions of every level
"Satisfactory" - 55-69% correct answers of questions of every level
"Unsatisfactory" - less than 55% correct answers of questions of every level

Interview questions

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
I		**ANSWER THE QUESTIONS** **General issues of topographic anatomy and operative surgery.**

		1. N.I. Pirogov - as the founder of operative surgery and topographic anatomy, and the anatomical and physiological approach to surgery. 2. Surgical operation: types, stages. 3. Surgical approach and surgical technique: requirements for surgical approaches, criteria for their evaluation; types of surgical techniques; individualization of surgical approach and technique. 4. Microsurgical, endovascular, and endoscopic procedures. 5. Types of surgical instruments and their use. 6. Tissue separation and closure: rules and techniques, instruments, and suture material. Primary, secondary, and delayed suturing. 7. Bleeding control: types and techniques. Indications and rules for ligating vessels along their length. 8. Fundamentals of collateral circulation: types of anastomoses, physiological significance in surgery, cava-caval and portocava-caval anastomoses. 9. N.I. Pirogov's theory of vascular sheaths and the compartmental structure of the extremities. Fascial beds, septa, cellular spaces, and their clinical significance. 10. General principles of primary surgical wound treatment. 11. General principles of surgery for purulent diseases of soft tissues. 12. Serous membranes: anatomical and physiological characteristics and properties, significance in surgery. 13. Skin grafting: indications, types. 14. Organ and tissue transplantation: methods of organ and tissue preservation, types of transplantation. Concept of heart, kidney, and lung transplantation. **Topographic anatomy and operative surgery of the extremities.** 1. Topographic anatomy of the subclavian region. 2. Topographic anatomy of the deltoid region and shoulder joint. 3. Topographic anatomy of the axillary region, localization and routes of spread of pus. 4. Topographic anatomy of the scapular region, scapular arterial circle. 5. Topographic anatomy of the anterior shoulder. 6. Topographic anatomy of the posterior shoulder. 7. Topographic anatomy of the cubital fossa and elbow joint. 8. Topographic anatomy of the anterior forearm. 9. Topographic anatomy of the posterior forearm. 10. Topographic anatomy of the palmar surface of the hand. 11. Topographic anatomy of the dorsal surface of the hand. 12. Levels and symptoms of nerve injury in the upper limb. 13. Topographic anatomy of the gluteal region, localization and spread of pus. 14. Surgical anatomy of the hip joint. 15. Topographic anatomy of the anteromedial region of the thigh.

16. Topographic anatomy of the knee joint and popliteal fossa. Jobert's fossa.
17. Topographic anatomy of the posterior thigh.
18. Topographic anatomy of the anterior leg.
19. Topographic anatomy of the posterior leg.
20. Topographic anatomy of the dorsum of the foot.
21. Topographic anatomy of the plantar surface of the foot, localization and routes of spread of phlegmon.
22. Levels and symptoms of nerve damage in the lower limb.
23. Exposure and ligation of the axillary artery, collaterals.
24. Exposure and ligation of the brachial artery, collaterals.
25. Exposure and ligation of the femoral artery, collaterals.
26. Exposure and ligation of the popliteal artery, collaterals.
27. Vascular suture: requirements, types, and methods, Carrel suture technique.
28. Surgeries for aneurysms and vascular occlusions: types and methods.
29. Venesection. Seldinger vascular puncture technique. Subclavian vein catheterization.
30. Surgeries for varicose veins of the lower extremities: Babcock, Troyanov-Trendelenburg.
31. Nerve surgery: block, neurolysis, nerve suturing, transfer. Nerve plastic surgery: anatomical and physiological basis, types. Surgical treatment of pathological pain.
32. Tendon suture: indications, requirements, methods, anatomical and physiological basis.
33. Bone surgeries: extra- and intramedullary osteosynthesis, compression-distraction osteosynthesis, comparative evaluation. Osteomyelitis surgeries.
34. Joint surgeries: puncture, arthrotomy, joint resection, arthrodesis, arthroplasty, arthroresis. Indications, types.
35. Panaritium surgeries: indications, anesthesia, incision types.
36. Amputation and disarticulation: definition, instrumentation, classification of amputations by time and indications for amputation. Social significance of surgeries.
37. Types and methods of amputation.
38. Amputation stages, requirements for the amputation stump.
39. Pirogov's cone-circular 3-moment femur amputation. Stages and technique.
40. Pirogov's osteoplastic amputation of the tibia. Stages and technique. Gritti-Szymanowski femur amputation.
41. Peculiarities of amputation in children.

Topographic Anatomy and Surgical Head Surgery

1. Topographic anatomy of the fronto-parieto-occipital region.
2. Topographic anatomy of the temporal region.
3. Topographic anatomy of the mammillary region, Chipault's triangle.
4. Surgical anatomy of the meninges and venous sinuses.
5. Topographic anatomy of the skull base.

		6. Features of the vascular supply of the soft tissues of the skull. Blood supply to the brain. 7. Topographic anatomy of the lateral face (buccal and parotid-masticatory regions). 8. Topographic anatomy of the deep face. 9. Topography of the facial and trigeminal nerves. 10. Primary surgical treatment of head wounds. Stopping bleeding from the cerebral and meningeal arteries and sinuses. 11. Osteoplastic craniotomy: indications, stages, technique, and instrumentation. 12. Decompressive craniotomy: indications, stages, technique, and instrumentation. 13. Facial surgery for purulent processes: types of incisions, topographic and anatomical rationale. 14. The concept of endovascular surgery. Indications, instrumentation, and technique. **Topographic anatomy and surgical surgery of the neck** 1. Fasciae and cellular spaces of the neck and their clinical significance. 2. Topographic anatomy of the suprahyoid region 3. Topographic anatomy of the carotid triangle of the neck. 4. Topographic anatomy of the sternocleidomastoid region. 5. Topographic anatomy of the lateral triangle of the neck. 6. Surgical anatomy of the larynx and trachea. 7. Surgical anatomy of the thyroid gland. 8. Surgical anatomy of the pharynx and esophagus. 9. Features of neck surgery, surgical approaches to the neck organs. Incisions for superficial and deep phlegmons of the neck. 10. Exposure and ligation of the carotid arteries. Indications, technique, collateral circulation. 11. Tracheostomy: Indications, types, stages, and technique. Possible complications and their prevention. Instrumentation. 12. Thyroid resection: indications, stages, technique. Possible complications and their prevention. **Topographic anatomy and operative breast surgery.** 1. Topographic anatomy of the chest wall. Topography of the intercostal space. 2. Topographic anatomy of the mammary gland. Regional lymph nodes. 3. Surgical anatomy of the pleura and lungs. Syntopy of the lung root. 4. General overview of the mediastinum. Topography of the major vessels and nerves of the anterior mediastinum. 5. Surgical anatomy of the heart and pericardium. 6. General overview of the posterior mediastinum. Topography of the esophagus. 7. Surgical anatomy of the diaphragm. 8. Surgeries for purulent mastitis and retromammary phlegmon. Radical mastectomy: indications, main stages, and general technique.

		9. Thoracotomy: indications, types. Thoracotomy with rib resection: stages, surgical technique, instrumentation. 10. Surgeries for penetrating chest wall wounds: stages and technique, suturing of heart and lung wounds, surgical considerations depending on pneumothorax. 11. Surgeries for coronary circulatory failure: indications, types of surgeries, general technique. 12. Surgeries for heart defects and large vessels: classification, types, surgical approaches, and main stages. 13. Surgeries for suppurative diseases of the lungs and pleura: types of surgeries, approaches, main stages, general technique, and instrumentation. 14. Esophagoplasty: indications, types, and main stages. **Topographic anatomy and operative abdominal surgery** 1. Topographic anatomy of the anterolateral abdominal wall: medial and lateral sections. Linea alba. Umbilical ring. 2. Topographic anatomy of the inguinal region. 3. Topography of the inner surface of the anterior abdominal wall. 4. Laparotomy: types, stages, technique, critical assessment. Laparoscopic approach. 5. Surgical anatomy of external abdominal hernias: classification, anatomical parts, hernia exit sites. 6. Inguinal hernia surgery: basic principles, stages, possible complications, and their prevention. 7. Direct inguinal hernia repair according to Bassini and Lichtenstein: indications, stages, and surgical technique. 8. Indirect inguinal hernia repair according to Martynov and Girard-Spasokukotsky: indications, stages, and surgical technique. 9. Features of operations for congenital, sliding, and strangulated inguinal hernias. 10. Operations for umbilical hernias and hernias of the linea alba: according to Lexer, Sapezhko, and Mayo: stages and technique. 11. Surgical anatomy of the femoral canal. 12. Femoral hernia operations according to Bassini and Ruggi-Parlavecchio: stages, approaches, technique. 13. Topography of the peritoneum of the upper abdominal cavity: bursae, ligaments, lesser omentum, omental foramen, omental bursa, and their clinical significance. 14. Topography of the peritoneum of the lower abdominal cavity: canals, sinuses, greater omentum, mesentery, and their clinical significance. 15. Surgical anatomy of the stomach. 16. Surgical anatomy of the liver. 17. Surgical anatomy of the gallbladder and extrahepatic bile ducts, syntopy of the elements of the hepatoduodenal ligament. 18. Surgical anatomy of the spleen. 19. Surgical anatomy of the small intestine (duodenum, jejunum, ileum). 20. Surgical anatomy of the colon, differences from the small intestine.

		21. Intestinal suture: anatomical and physiological basis, classification, types, technique according to Lambert, Albert, and Schmieden. 22. Small bowel resection: indications, stages, technique. Types of enteroanastomoses, technique, critical assessment. 23. Surgeries for penetrating abdominal wounds: approaches, exploration of abdominal organs, suturing techniques for stomach and intestinal wounds. 24. Gastrostomy: indications, types, methods, technique. 25. Gastroepterostomy: indications, types, stages, and technique. 26. Gastric resection: indications, types, main stages, technique, comparative assessment. 27. Suturing a perforated gastric ulcer: indications, methods, surgical technique. 28. Enterostomy: indications, types, and surgical technique. 29. Appendectomy. Appendiceal placement options. Indications, approaches, surgical methods, stages, and technique. 30. Colostomy, creation of an artificial anus. Indications, stages, and technique. 31. Cholecystectomy: indications, approaches, methods, and technique. 32. Anatomical and atypical liver resection. Indications, methods, stages, and general technique. 33. Surgeries for portal hypertension. Indications, classification, anatomical and physiological justifications, and main stages. 34. Pancreatic surgery: indications, approaches, surgical types, and general technique. 35. Splenectomy: indications, approaches, stages, technique. **Topographic anatomy and surgical procedures of the lumbar region, retroperitoneum, and pelvis.** 1. Topographic anatomy of the lumbar region. 2. Topographic anatomy of the retroperitoneum: fascia and cellular spaces, vessels, and nerve plexuses. 3. Surgical anatomy of the kidneys and ureters. 4. Kidney surgery: indications, types of surgery, and main stages. 5. Nephrectomy. Indications, approaches, stages, and surgical technique. 6. Pelvic floors. Topography of the peritoneal floor of the pelvis. 7. Topography of the subperitoneal and subcutaneous floors of the pelvis: fascia, cellular spaces, vessels, and nerves. 8. Surgical anatomy of the uterus and its appendages. 9. Surgical anatomy of the rectum. 10. Surgical anatomy of the urinary bladder and prostate gland. 11. Topographic anatomy of the female and male perineum. Topography of the scrotum. 12. Bladder surgeries: puncture, cystostomy, cystotomy. Indications, stages, technique.

		13. Surgery for ectopic pregnancy: approaches, stages, technique. 14. Surgery for hemorrhoids, paraproctitis. Indications, general technique. 15. Surgical anatomy of the spine. 16. Laminectomy: indications, general technique. Methods of spinal fixation in fractures.

Assessment criteria for learning outcomes

"Very good" grade is given to a student who possesses knowledge of the subject in full scope outlined in the curriculum, has a sufficiently deep insight into the subject; is able to answer all questions clearly, exhaustively, and with no outside help; structures their answers logically, with emphasis on the most important information; is able to analyze, compare, classify, summarize, refine, and structure the course content, giving particular attention to cause-and-effect relationships.

"Good" is given to a student whose knowledge of the subject is almost in full scope outlined in the curriculum (gaps are only present in the knowledge of some especially complex aspects); is able to answer questions exhaustively with little to no outside help; does not always put emphasis on the most important information, but does not make significant mistakes.

"Satisfactory" is given to a student who possesses the bulk of knowledge on the subject; has difficulties answering questions with no outside help, uses imprecise wording; makes mistakes in substantial number of their answers.

"Unsatisfactory" is given to a student who does not have the mandatory minimum of knowledge on the subject, is not able to give an answer even with additional guiding questions.