Study Guide

SURGERY & ALLIED

MBBS

AIMC

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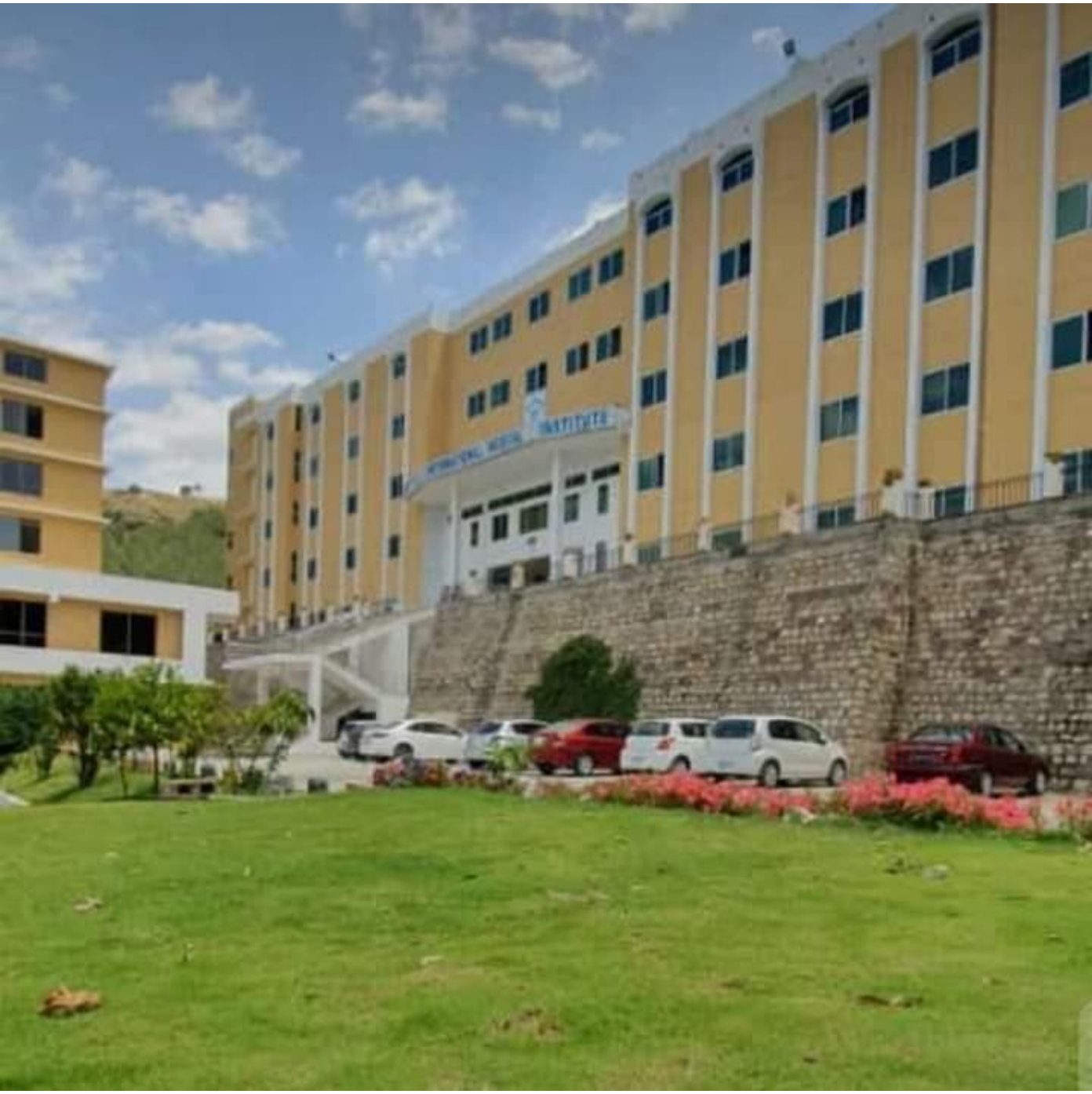

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Syllabus

MBBS

at the

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ABBOTTABAD INTERNATIONAL MEDICAL INSTITUTE

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Academic Affairs Concerned Officials

Prof. Muhammad Akbar	Principal
Prof. Sajjad Ahmad	Head of General Surgery
Dr. Yousuf Aziz	Head of Pediatric Surgery
Dr. Riffat Ullah Khan	Head of Neuro Surgery
Dr. Humayun Khan	Head of Urology
Dr. Mumtaz Ali Khan	SR General Surgery
Dr. Abudul Ghaffor	SR General Surgery
Dr. M.Kamran Khan	SR General Surgery

SYLLABUS–COMMITTEE

1.	Prof. M. Akbar	Chairperson
2.	Head of the Department of General Surgery	Member
3.	Head of the Department Pediatric Surgery	Member
4.	Head of the Department of Neuro Surgery	Member
5.	Head of the Department of Urology	Member
6.	Dr. M. Kamran Khan	Member

PREAMBLE

Departments of Surgery are the back bone in every medical teaching institute. They are indeed the "Holding Bond" of the institution. Recent development in science & technology has revolutionized the field of surgery, which has expanded through multiple fields including Transplantation, Endoscopy, Robotic Surgery etc.

DESCRIPTION: Department of Surgery incorporates the core discipline of general Surgery, the specialties like Orthopedics, Urology, Neuro Surgery, Pediatric surgery etc. Though in bigger institutions, the specialties are departments in their own right, leaving the department of Surgery only as an administrative unit.

HISTORY OF DEPARTMENT OF SURGERY, AIMC: AIMC was established in 2002 with a skeleton staff, an inadequate building and a remote ill equipped hospital. The same could be said of the Surgery department. It started under the able leadership of **Professor Dr. Rasheed Ahmad**. His efforts were restrained by the unavailability of a hospital for clinical teaching. The hospital was at Haripur and clinical teaching had to be delegated to less enthusiastic district specialists. This arrangement did not meet expectations. The college administration has felt this deficiency and developed multi specialties in Surgery & Allied department which is equipped with a state of art machinery and modular operation theaters meeting the international standards.

Professor Dr. Muhammad Akbar a well renowned General & Laparoscopic Surgeon currently working as Principal AIMC joined the institution in November 2017 as a head of Surgery & Allied and due to his strenuous efforts now, we are lucky to have a brand new modern, well equipped Surgical & Allied Unit in a teaching hospital next to the college. It boasts all the facilities a modern teaching hospital should have. The faculty in Surgery has swelled up to beyond PMDC requirements with many subspecialties (Please look up organogram) and is still growing. He is also controller of examination Abbottabad region, senior examiner and supervisor in CPSP. He produced a number of highly professional and trained surgeons who are currently working all over the country and abroad as well.

Professor Dr. Sajjad Ahmad a pioneer Laparoscopic Surgeon of Abbottabad region joined AIMC in july 2019 as a head of General Surgery department. He performed over 7000 laparoscopic cholecystectomies and laparoscopic ventral hernias repair. In his carrier he performed all the major surgeries including Whipple's procedures successfully. His subject of interest is laparoscopic procedures and thyroid surgeries in addition to teaching as supervisor.

Apart from General Surgery department there are separate units for Urology, Neuro Surgery, Pediatrics Surgery and Orthopedic Surgery. **Assistant Professor Dr. Yousaf Aziz** is working as head of Pediatrics Surgery, **Dr. Humayun Khan** as head of Urology Unit and **Dr. Riffat Ullah Khan** is head of Neuro Surgery Unit.

All the Units of Surgery & Allied are supported by a Team of highly trained and professional Resident Medical Officers.

MISSION: *The mission of the **Department of Surgery & Allied** is to provide the best possible care to patients, who require surgical services in the areas of General & Laparoscopic, Pediatrics, Orthopedics, Urology and Neuro surgery. To provide state of the art educational programs in all areas of clinical surgery and in the biologic basis of surgical illness*. The ultimate objective is training of students and junior doctors to meet the prevailing standards of national institutes of excellence.

CHALLENGES:

1. **Size of the department.**What is the right size for the department? To determine how many divisions a department of Surgery will have, the department will decide when to create a new division, when to consolidate existing divisions, and when to bud off a division to create another department, are all problems with no easy solutions. Competing interests make decisions more difficult and unpopular

2. **Research.** We frequently joke 'let the west do research and we reap the benefit" Nothing can be far from reality. Research is food for the brain. It promotes "out of the box" thinking and gets one out of the rut. Though its importance is undisputed, in the backdrop of economic hardships getting funds for research is a tall order. Nevertheless it is something we all should passionately strive for.
3. **Continuing Medical Education for teachers.** This is a much neglected area. Many of us last studied (seriously) for our specialist exams. Since then the knowledge is inadequately refreshed by teaching students/postgraduates. A proper system is not in place and it all depends on our personal appetite for improvement. A serious effort is needed in this respect.

CHAIRS RESPONSIBILITY:

The chair is responsible for the quality of patient care in the department and serves as the clinical service chief (or appoints a physician to this role). As service chief, the chair reports to the Executive Director. The Department of Surgery is critical for the success of the campus. As such, the chair will work with College and hospital leadership as well as the leadership of physician's practice organization. The department should be recognized as a leader in clinical care and should work collaboratively with other departments and be responsive with clinicians and hospital leadership.
The chair oversees the department's engagement with local, regional and national organizations, the people of Abbottabad and other community stakeholders.
The chair supports the growth and achievement of the faculty, especially in clinical and translational research. It will be critical to recognize the research strengths of the campus to build the department's academic profile.

CONTENTS

SURGERY

Aims of the surgical education for undergraduates are to develop a primary care physician with appropriate knowledge, skill and attitude to treat common disease at the primary care level. Emphasis will be laid on the primary care of the injured, care of comatose, common wounds and ulcers, resuscitation of patient with cardiac arrest, initial care of acute abdominal conditions and other emergencies. Diagnosis, workup and proper referral of common conditions viz. hernia, lumps in breast, thyroid, piles and fissure & fistula, abdominal lumps, renal stones, varicose veins will be covered substantially.

OBJECTIVES

Knowledge

At the end of the course, the student shall be able to:

1. Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children:
2. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion:
3. Define asepsis, disinfection and sterilization and recommend judicious use of anatibiotics:
4. Describe clinical features and risk factors of common malignancies in the country and their management including prevention.
5. Enumerate different types of anaesthetic agents, their indications, mode of administration, contraindications and side effects.

Skills

At the end of the course, the student should be able to:

1. Diagnose common surgical conditions both acute and chronic, in adult and children;
2. Plan various laboratory tests for surgical conditions and interpret the results;
3. Identify and manage patients of haemorrhagic, septicaemic and other types of shock;

4. Be able to maintain patent air-way and resuscitate a -
   (i) a critically injured patient;
   (ii) patient with cardio-respiratory failure;
   (iii) a drowning case.
5. Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children;
6. Provide primary care for a patient of burns;
7. Acquire principles of operative surgery, including pre-operative, operative and post operative care and monitoring;
8. Treat open wounds including preventive measures against tetanus and gas gangrene;
9. Diagnose neonatal and paediatric surgical emergencies and provide sound primary care before referring the patient to secondary / tertiary centers;
10. Identify congenital anomalies and refer them for appropriate management.

COURSE CONTENT

A combination of system-based model and the spiral model is recommended for the MBBS course:

Pathogenesis, causes, epidemiology, Clinical Presentation, Investigations, and management of the diseases in the following systems:

1. **Skin**: ulcers and wounds, wound infections, burns, skin infections (boils, carbuncle, abcess), cysts (epidermoid cyst, dermoid),skin tumors(basal cell carcinoma, squamous cell carcinoma, melanoma).
2. **Head and Neck region**: congenital anomalies (cleft lip, cleft palate, branchial cyst and fistula, thyroglossal cyst) swellings of parotid and submandibular glands, oral ulcers, leukoplakia, submucous fibrosis, lichen planus, common jaw tumors, squamous carcinoma of oral cavity, pharynx & larynx. Thyroid swellings (adenomatous goitre, Graves' Disease, papillary and follicular thyroid cancer).Swellings of lymph nodes (tuberculosis, lymphoma, metastatic carcinoma)
3. **Arteries**: Features of limb Ischaemia, noninvasive vascular diagnostic tests, obliterative atheromatous disease, aneurysms, Raynaud's syndrome, arterial emboli.
4. **Veins**: varicose veins, deep vein thrombosis , pulmonary embolism.
5. **Breast**: mastalgia, ANDI, fibroadenoma, cyst, breast abscess, cancer of the breast.
6. **Oesophagus**: dysphagia, reflux, hiatus hernia, benign and malignant tumours.
7. **Stomach and duodenum**: Peptic ulcer- stomach and duodenum, carcinoma of the stomach, gastritis.
8. **Small intestine**: Small bowel obstruction, intestinal tuberculosis.
9. **Colon and rectum**: Amoebic colitis, Ulcerative colitis, colorectal cancer.
10. **Appendix**: Acute appendicitis.
11. **Anus:** Haemorrhoids, Pruritus ani, Fissure-in-ano, Anorectal abscesses, Fistula-in-ano, cancer of the anus.
12. **Peritoneum and intraperitoneal abscesses:** peritonitis.
13. **Liver:** Hepatic trauma, abscesses, cancer.

14. **Biliary tract:** gall stone disease, carcinoma of the gallbladder.
15. **Pancreas:** Acute panacreatitis, pancreatic cancer.
16. **Acute abdomen**
17. **Hernias of the abdominal wall:** Inguinal hernias, femoral hernia, umbilical and epigastric hernia.
18. **Urology:** Diagnostic studies and techniques in the urinary tract, trauma to the urinary tract, urinary calculi, urinary tract infection, prostatic hyperplasia, tumours of the kidney, epididymo-orchitis, hydrocele, tumours of the testicle, carcinoma of the penis.
19. **Neuro Surgery:** Diagnostic studies and techniques in Neuro Surgery, head and spinal trauma, congenital anomalies, infections related to brain and spinal cord, tumors of brain and spinal cord.

TEACHING LEARNING METHODS

The following strategy is used for organizing teaching learning activities:

a) Lectures are used for teaching the basic principles for students 3rd, 4th and final year of surgery viz. infection, wound healing, shock, trauma and different systems

b) Clinical teaching to a group of 12 students on surgical Inpatient Wards and OPD's.

c) Clinical skill training- We teach basic surgical skills to our final year students and interns in minor OT, casualty theatre and main theatre. In the department we also organize yearly workshop on suturing & knot tying where students get an opportunity to acquire hands-on experience on these important skills.

Guidelines for students posted in Department of Surgery

3rd YEAR

This is the first introductory posting in surgery to provide orientation, towards the general functioning of the Department and the nature of clinical work performed in the Department of surgery. You will be posted in the surgical Out-patients and In-patient departments 02 days a week from 1230hrs to 1430hrs. Lectures will be delivered on Satyrda from 0900hrs to 1000hrs on every Saturday. The learning objectives for this session are to learn :

- the art and science of history taking,
- general evaluation of overall health;
- basic principles of examination of a lump;
- examination of hernia, hydrocoele and abdomen;
- examination of breast;
- examination of head and neck;
- evaluation of wounds, ulcers and sinuses.
- Arteries,Veins and Lymph Nodes
- Skin
- Wound healing and Wound infection
- Cyst, Ulcer, Sinus

- Heart and Pericardium
- Hemorrhage, Shock and Blood transfusion
- Fluid and Electrolytes
- Trauma
- General Orthopedics
- Wound Infection
- Antibiotics in Surgery
- Post Op Complications
- Special infection, Hand and feet infections
- Pain in Surgery
- Neoplasia
- Anaesthesia

You will be required to attend the surgical Out-patient clinic and ward on designated days. Attendance register will be sent to the Dean and HOD.

You are required to be properly dressed, wear a white coat, with a name plate (no jeans and no sneaker shoes please!). You are required to bring the following:-

A pen torch with metal tip, measuring tape, stethoscope, patella hammer; tongue depressors, BP apparatus,troniquets, Hand senitizer, thermometer

Please read " Norman Browse- An Introduction to the symptoms and signs surgical diseases" or "Hamilton Bailey- Physical signs", in order to acquire theoretical background of clinical examination.

ACADEMIC INCHARGE

Dr.Mumtaz Ali Khan is the academic incharge of 3rd Year MBBS. Students will consult him in case of any quarry.

4th YEAR

The learning objectives for this session are honing the skills of physical examination. You are again posted in the Out-patient surgical department and wards on designated days. The timings are 9.15 A.M. **Attendance is compulsory**. For this year utilize your time in examining as many patients as possible. Visit the consultation rooms of all the consultants and senior registrars. Remember there is no substitute for seeing the patients.

You cannot acquire the practical skills by sitting in the Library.

A famous physician of USA, Sir William Osler said" ***To study the phenomena of disease without books is to sail an uncharted sea whilst to study books without patients is not to go to sea at all"***

Besides seeing patients you should also acquire the following basic surgical skills- wound dressing, debridement, abscess aspiration and drainage, excision biopsy of skin lesions, lipoma and epidermal cysts, skin suturing and knot tying, proctoscopy, rubber banding of piles.

Please attend minor surgical operation theatre situated at the end of the surgical OPD corridor to acquire the above skills. Please maintain a record of cases seen and surgical skills learnt in a **diary/log book.** You will be assessed on this.

- Appendix
- Small Intestine and Abdominal wall
- Thorax
- Heart and Pericardium
- Esophagus
- Fluid and Electrolytes
- Nutrition
- Hernia
- Urogenital system
- Salivary glands
- Lymph nodes
- Neck swellings(excluding thyroid)
- Head injury
- Orthopedics including trauma
- Oral, facial, dental pathologies
- Anaesthesia

Assessment of 3rd and 4th Year

A ward test compromising of short cases and TOACS(100 marks) will be conducted at the end of clinical rotation. The result will be incorporated in internal assessment of final professional examination.

Final Year

The learning objectives in the Final year are to master the skills of surgical diagnostic evaluation. You are advised to follow a **problem based approach (PBL**).

Greet the patient cheerfully with a smile and introduce yourself. Seek patient's permission for interrogation and examination (e.g. " I am_____, a final year student of MBBS. Can I ask a few questions about your illness and can I examine you. This will help me in learning the diagnosis and in becoming a good doctor so that I may serve the society well). Be extremely polite in your approach. If patient refuses simply thank him and go to a next one. Ask presenting symptoms along with duration**.**

Formulate a diagnostic hypothesis (e) based on the patient's age, gender, place of living and initial symptoms. This is essentially a list of differential diagnoses. Think about pros and cons of each possibility.

Now ***ask details of the present and past history*** focused on the initial diagnostic hypothesis. For example-in a patient with bleeding P/R at age 40. If you have consider piles and cancer rectum as your diagnostic hypothesis, your interrogation should revolve around these two conditions with the objective of proving one and refuting the other.

After interrogation revise your diagnostic hypothesis(e) on the basis of historical facts. ***Perform a quick general exam*** and make a note of overall health status.

The next step is to carry out a ***detailed physical exam*** of the lump, swelling or ulcer. *Remember no exam of a swelling or ulcer is complete without checking the draining lymph nodes*

Make a diagrammatic representation of your findings with color felt pens on your diary/log book. Go through the following checklist while seeing any lump: **number, site, size, shape, margin , surface, skin over it, structures superficial and deep to it, temperature over it, tenderness, consistency, transillumination, thrill or bruit and the regional nodes.**

Apart from this final session is to develop the competency in **making a diagnosis,** generating a **diagnostic decision plan** and outlining the **therapeutic decision.** During this period you have to accompany the patient to the operation theatre, assist in the operation, write postoperative orders and follow the postoperative recovery of the case. Write down the daily progress in your case records till the patient is discharged.

Perform dressings, I.V. line insertion, catheter and nasogastric tube insertion on your cases

Once again **revise** your diagnostic hypothesis. Generate a diagnostic workup plan (**Diagnostic decisions**).

Following topics should be covered in final year

- Pancreas

- Thyroid
- Parathyroid
- Stomach
- Peritoneum and Omentum
- Gall bladder and biliary tract
- Instestinal Obstruction
- Colon,Rectum and anal canal
- Breast
- Elective Orthopedics
- Urogenital System
- Neuro Surgery
- Anaesthesia

Allocation of Units

The class will be divided into batches and each batch will be of 12 students each.

You will get 5 beds allotted to you. You are responsible for seeing all the patients admitted to these beds during your stay. Record the history, exam findings and results of any investigations.

Assessment: OSCE = 120 marks with 3 clinical skills stations. Log Book= 30 marks. Total=150 marks. Note these marks are added in the final MBBS exam result.

Log Book

Each student will be provided a Log Book in the start of 3rd year. It will be compulsory for the students to maintain the proper record of the Log book and get it signed by the respective teacher on daily basis. Log books will be evaluated during ward tests and professional examinations and marks will be included in internal assessment.

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Objectives of Clinical Training

At the end of clinical posting in surgery, a student should be able to:

- Elicit a detailed & relevant history
- Carry out a physical examination
- Identify patients problem
- Reach a differential diagnosis
- Formulate appropriate investigations
- Interpret the results of investigations
- Plan appropriate management
- Undertake some aspects of management
- Demonstration

TEXTBOOKS RECOMMENDED

(1) Short Practice of surgery- Bailey & Love
(2) An introduction to the symptoms and signs of surgical Disease-Norman L. Browse
(3) Hamilton Bailey's Physical Signs in Surgery.
(4) Principles and Practice of Surgery Eds-Garden, Bradbury Forsythe.
(5) Pye's Surgical Handicraft.

ASSESSMENT AND EXAMINATION

The total weightage of 600 marks to Surgery comes from both internal and external assessment, viz., final professional examination in theory as well as practical. Since surgery included several specialties questions are distributed among different sub-specialities

Theory:

Final Professional Examination – Surgery A and Surgery B	135+135=270
Internal Assessment derived from allied specialties:	30

Practical:

Final Practical and Clinical examination with Long and Short cases and TOACS Consisting of allied surgical specialties:	270
Internal marks derived from allied specialties, and end of year Examination marks	30
Grand Total	600

Types of Questions suggested

Theory:

Short Essay Questions (SEQs) and MCQs;

Practical / Clinical Assessment:

Long Case, Short Case, Objective Structured Clinical Examination (OSCE)

Notes on OSCE

Objective Structured Clinical Examination (OSCE) has proved to be a valid, reliable and objective modality of assessment for assessing clinical skills. This involves breaking up clinical competence in to a series of clinical skills (history taking, performing physical examination, interpreting lab data, differential diagnosis, treatment & follow up), and testing each skill in a separate 'station'. Each station is provided with a real or simulated patient, mannequin, equipment, X-Ray, or even a question which should be tackled by a student within a prescribed time limit say, 2 – 5 minutes, on rotation basis. The performance is observed by an observer using a predetermined check list for assigning marks. A detailed discussion on the preparation of OSCE is beyond the scope of this book. However, a few tips have been given for initial introduction.

Principles of Designing OSCE

Define skill to be tested

- Break into steps
- 3-5 minutes to perform each task
- Observation by examiner

Scoring based on vital components of skill and precautions to be observed

- Provision for negative score, if necessary

Two types: Procedure stations (needs observer) and Question stations Skills that can be tested using OSCE

- History taking
- Physical examination
- Analysis of clinical data

- Observation and ability to recognize disease patterns
- Interpretation of investigations
- Performance of a procedure
  - Diagnostic
  - Therapeutic
- Problem solving skill
- Communication skill
- Others
  - Surgical/clinical instruments
  - Surgical specimens
  - Procedures on models/dummy
  - Patient education

A model OSCE for our 8th semester students is given below: Conduct of an OSCE in surgery using 7 stations

Station 1

(History taking skill)

- Take the history of this patient who has sudden onset right lower abdominal pain

Marks :10

Checklist

The student questions the patients about

history of pain	2
history of vomiting	2
history of fever	2
history of previous surgery	1
Attitudes and communication (gentle approach)	2
General proficiency	2

Station 2

(Physical Examination skill)

Examine the neck swelling of this patient. You are being observed by the examiner for your skills in physical examination and your attitude towards the patient.

Marks:10

Checklist

Student looks for the following parameters

a) movement with swallowing 1

b) examination of each lobe of thyroid 1

c) relationship with sternocleidomastoid 1

d) testing for retrosternal extension 1

e) palpation of carotids 1

f) elicitation of signs for airway obstruction 0.5

g) examination of cervical lymph nodes 0.5

h) auscultation over the swelling 0.5

i) Positions patient properly to examine neck swelling 1.5

j) correct sequence of procedures 0.5

Attitude towards patient

k) . explains procedure 0.5

l). causes minimal discomfort to the patient 0.5

General proficiency 0.5

Station 3

(Procedural skill)

Apply a Pressure bandage to stop bleeding from cut wrist:

Marks:10

Check-list

Explains the procedure to the patient 1

Follows properly the steps of the procedure:

- a) positioning of the patient: supine 2
- b) positioning of the limb: straight 2
- c) properly tying the bandage 2
- Performs the procedure confidently and gently 1
- Explains the following aftercare to the patient
  a) finger movements 1
- b) warns about swelling of fingers & to report immediately if severe pain or swelling occurs 1

Station 4

Palpate the abdomen of this patient (Has a generalized liver enlargement)

Marks: 10

Check list:

1. Explains the procedure and approaches to him gently 2

2.	Inspects the abdomen first	2

3.	Starts palpating from lower abdomen first	2
4.	Palpates the whole of anterior surface of liver and its entire lower border	2
5.	Percusses for dullness over liver and its upper border	2

Station 5

Questions based on **station 5**: Marks: 10

Q1. Describe your findings (if correctly described)	3
Q2. Enumerate 2 most probable causes of this condition (mentions obstruction of common bile duct, congestive heart failure)	2
Q3. Mention: one blood test mentions (LFTs)	2
one imaging technique for this patient (mentions Ultrasound)	3

Station 6

Skill Station: Problem: An adult male met with an accident on the road and has come to the casualty with a clean lacerated wound on the abdomen. Demonstrate suturing of this wound using the skin simulator provided. Put 3 interrupted sutures. Note that skin edges have a tendency to invert.

Marks: 10

CHECK LIST FOR SKIN SUTURING

INSTRUCTIONS TO CANDIDATES

Suture the clean incised wound with interrupted sutures

ITEM	Done correctly	Not Done correctly
1. Selects appropriate suture, needle holder and forceps.	0.5	0
2. Needle loaded ½ to 2/3 from tip.	0.5	0
3. Bite distance from the skin edge-5mm.	0.5	0
4. Angle at which bite taken - 90^0	0.5	0
5. Single attempt while taking bites in the skin	0.5	0
6. Movement occurs at wrist	0.5	0
7. Forceps used to hold skin or subcutaneous tissues (minimum use)	0.5	0
8. Whether takes bites from both skin edges in one go or separately1	0.5	
9. Equal bites on both sides	0.5	0

10. Whether needle touched with hand	0.5	0

11. Number of knots taken	0.5	0
12. Knot is square or not.	0.5	0
13. Knot is too tight or too loose.	0.5	0
14. Suture breaks or not	0.5	0
15. Knot is on the incision line or on one side	0.5	0
16. Distance of cutting the suture from the knot	0.5	0
17. Suture board moves or not	0.5	0
18. Skin edges are everted or inverted	0.5	0
19. Inter sutural distance – 0.5 to 1cm.	0.5	0
20. Overall skill	0.5	0

MAXIMUM TOTAL SCORE (20)

TOTAL SCORE

EXAMINER _____

Station 7

Marks: 10

Look at the x-ray on the view box and answer the following:

1. Name the special film taken (mentions barium meal for stomach and duodenum) 1
2. Describe the abnormality (mentions gastric dilatation, block in duodenum and no filling defect in stomach) 2
3. Name the disease producing these features (mentions chronic duodenal ulcer with gastric outlet obstruction) 3
4. List 2 main symptoms this patient would have presented with (mentions projectile vomiting and epigastric pain) 2
5. List 2 main water and electrolyte disturbances seen in such cases (mentions metabolic alkalosis, or hypokalemia or paradoxical aciduria) 2