

Valid and Reliable Bank of Multiple Choice Questions (MCQs)

IBN E SINA UNIVERSITY

BY

Prof Dr Jawaid Aqeel
Incharge Question bank

- ▶ Multiple choice questions are one of the most frequently used written assessments particularly when there is a large body of material to be tested and a large number of students to be assessed.
 - ▶ MCQ examinations have manageable logistics, are easy to administer, can be scored rapidly and difficulty indices and the discriminatory value of each item can be easily calculated, facilitating standard application.
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- ▶ Methods of ensuring quality assurance are essential when assessment is used for the purposes of certification.

▶ **METHODOLOGY WE HAVE
USED TO DEVELOP
QUESTION BANK AT IBN E
SINA UNIVERSIRT**



Step 1 (development of a Team)

- ▶ Curriculum planners.
 - ▶ Content experts.
 - ▶ Course coordinators.
 - ▶ Medical educators.
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- ▶ **Curriculum planners:** define the scope of the assessment and approve the assessment modalities.

CURRICULUM PLANNARS PANEL

- ▶ Anatomy.
 - ▶ Physiology.
 - ▶ Biochemistry.
 - ▶ Pathology.
 - ▶ Pharmacology.
 - ▶ Community health sciences.
 - ▶ Surgery.
 - ▶ Medicine.
 - ▶ OBGYN.
 - ▶ Pediatrics.
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- ▶ **Content experts:** authenticate the knowledge assessed.

CONTENT EXPERTS

- ▶ Prof:
 - ▶ Prof:
 - ▶ Prof:
 - ▶ Prof:
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- ▶ **Course coordinator:** give insight into the actual learning experiences provided, which do not necessarily match with the expectation of curriculum developers and planners.
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COURSE COORDINATOR

- ▶ 1-
- ▶ 2-
- ▶ 3-
- ▶ 4-

- ▶ **Medical educators:** provide the technical input in item construction.

MEDICAL EDUCATORS

- ▶ Prof: Dr Syed Razi Muhammad.
- ▶ DR kiran Fatima.

Regular Q-Bank schedule of MBBS at IBN E SINA UNIVERSITY

- | ▶ Name of Teacher | Subject | Day | Time |
|--------------------|------------|---------|-----------|
| ▶ Dr Saqib Baloch | Anatomy | Monday | 10-11 am |
| ▶ Dr Shahab Hanif | Anatomy | Monday | 10- 11 am |
| ▶ Dr Ramesh | Pharma | Tuesday | 12-1.0 pm |
| ▶ Dr Abid Iaghari | Pharma | Tuesday | 12-1.0 pm |
| ▶ Dr Ayesha Majeed | Patho | Wed | 10 -11 am |
| ▶ Dr Naila | Physiology | Wed | 10-11 am |

Cont:

- ▶ Prof Dr Naveed Biochemistry Tues 10–11 am

Cont:

- ▶ Prof Ejaz Memon Surgery Mon 12–1.0 pm
- ▶ Prof Qamer Habib OBGYN Tuesday 10.–11 am
- ▶ Dr Muneeba Medicine Thursday 9.30–11 am
- ▶ Dr Saleem raza ENT Friday 10–11 am
- ▶ Dr Rehan EYE Friday 10–11 am
- ▶ Dr Ohm Parkash Paeds Wed 10–11 am

BDS TEACHERS

- | | DAY | TIME |
|-------------------------------|--------|---------|
| ▶ Dr Marya& Dr Farzana | Monday | 9.30 to |
| ▶ Dr Champa Dr Shagufta | | 11.30 |
| ▶ Dr. Asha Devi, Dr A.Rehman. | | am |
| ▶ Dr Sajid. | TO | |
| ▶ Dr Tipo Sultan. | | |
| ▶ Dr Shuja Aslam Dr Salma. | Friday | |
| ▶ Dr Najamul Sehar. | | |

TEACHER	DAY	TIME
▶ Dr Faryal Manzoor	Monday	9.30 am
▶ Dr. Shahzaman	To	To
▶ Dr Madiha.		
▶ Dr Hafiz Mehmood am	Friday	11.30
▶ Dr Paras		
▶ Dr Jamshed Bashir.		
▶ Prof A Qadir khan		

- | ▶ Teacher
Time | Day | To |
|------------------------------------|--------|----|
| ▶ Prof Dr Farzana Majeed
9.30am | Monday | |
| ▶ Dr Muhammad Imran | To | To |
| ▶ Dr Fatima Dr Taqdees
11.30 am | Friday | |
| ▶ Dr Jagdesh. | | |
| ▶ Dr Aliya Zaman | | |
| ▶ Dr Kiran Fatima | | |
| ▶ Dr Shujaullah | | |

Step 2 (develop an examination blueprint)

- ▶ For any examination to be reliable and valid, it is essential it be designed according to a predetermined examination blueprint.
 - ▶ This will ensure that all concepts that are considered essential and important are given fair and balanced representation on the examination.
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Sample of examination blue print.



- ▶ We have developed examination blue print of each department based on the guidelines

Step 3(critical review of the existing question bank).

- ▶ Coordinators involved in selecting items for the examination paper are most likely to recognize faulty items, gaps and deficits in the existing Question Bank.
 - ▶ New questions need to be reviewed and revised for construct and content.
 - ▶ This exercise should continue on an ongoing basis, so that each item is reviewed at least every five years.
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Step 4 (faculty development)

- ▶ To ensure a broad based contribution, all faculty members that will be involved in the assessment should receive basic training in the development and critique of MCQs through frequent workshops conducted by experts in medical education.

- ▶ We have made a systematic program to involve each and every faculty member from senior registrar to professor for grooming junior faculty members.

Step 5 (Multidisciplinary review of new MCQs)

- ▶ All new MCQs go through two cycles of reviews before they are accepted as good quality questions.
 - ▶ First is the internal departmental review .
 - ▶ Second level of review is Multidisciplinary review.
 - ▶ We encourage active participation of members of their departments, clinical faculty , basic sciences and medical educators.
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- ▶ Multidisciplinary groups are formed according to the disciplines being reviewed, for example , a group that will review MCQs from OBGYN will have representative content experts as well as representative from pediatrics, medicine, surgery, endocrinology. Physiology and medical education.
 - ▶ In this way faculty members have an opportunity to develop question writing skills through a multidisciplinary collaborative learning experience .
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Question Review Board

- ▶ Medical Education.
 - ▶ Prof Dr Syed Razi Muhammad.
 - ▶ Dr Kiran Fatima.

 - ▶ Accreditation Officer .
 - ▶ Prof Dr Farzana Majeed
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- ▶ SURGERY:
 - ▶ Prof Dr Ejaz Memon.
 - ▶ Prof Dr Jawaid Aqeel.
 - ▶ Prof Dr Rao Abdul Manan.
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- ▶ Medicine.
 - ▶ Prof Dr Abdul Qadir.
 - ▶ Prof Dr Nadeem Memon
 - ▶ Prof Dr Aslam Ghori
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- ▶ OBGYN.
 - ▶ Prof Dr Qamer Habib.
 - ▶ Prof Dr Hem Lata.
 - ▶ Prof Dr Yasmeen.
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- ▶ Cardiology.
 - ▶ Prof Dr Fasih Hashmi.

- ▶ Pediatrics.
 - ▶ Prof Dr Hassan Memon.
 - ▶ Dr Akram Shaikh.

 - ▶ ENT.
 - ▶ Prof Dr Noor Alam.
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- ▶ Ophthalmology.
 - ▶ Prof Dr Rajesh Rathi.

 - ▶ Endocrinology.
 - ▶ Prof. Dr Khalid Shaikh.

 - ▶ Nephrology.
 - ▶ Dr Babeta.
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Photographs of board reviewing
the Q-BANK.





Step 6 (Defining item attributes and banking the questions in a question bank).

- ▶ After the items are reviewed, revised and accepted, they are assigned attributes that will facilitate extraction from QB.
 - ▶ These attributes include categories such as clinical presentation, discipline, organ system, disease process.
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- ▶ For each item reviewed, an MCQ attribute sheet is mandatory to be filled. This sheet facilitates the process of feeding the MCQs into QB.
 - ▶ It includes difficulty and discriminatory index, date of administration and is isolated from the internet with effective virus protection and secure data backup.
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MCQ ATTRIBUTE SHEET

IBN E SINA UNIVERSITY MCQs Development Format

Note: The font for writing or pasting is century Gothic size 12, Normal as seen in all the following sections. Please retain it. The instructions are given in italics font 10 against each heading *that should be removed* before adding text for each of them. **Section 1** should be repeated when next question is from a different author, otherwise not. Before writing the required information in the blank underlined spaces, select underline (UL) portion & overwrite the required text.

SECTION # 1:

Department: Surgery Date of Submission 26/06/2020

Paper Code: _____ (To be assigned by Examinations Department of **SURGERY**)

Name of the Module: Renal Modul2022 #: 1, 2, 3, 4 (**Bold** the relevant)

Subject: Urology (Write if different than the name of Department & remove Underline)

Semester: I, II, III, IV, V, VI, VII, VIII, IX, X (**Bold** the relevant one)

SECTION # 2: *Note: Remove Underline before writing relevant information.*

- Name of Author:** Prof. Jawaid Rajput
- Topic/Theme/Investigation**
- Reference:** Baily Love Text book of Surgery Chapter urology (Book, page, Edition, Editor(s), Author(s), Publisher)
- Stem/Scenario/Vignette** (it will change with every question to be written with Q. No.):

Q: 75 years male came in O.P.D with frequency of micturation . urgency , urinary incontinence and nocturia. He is also c/o pain in both lumber region, which aggravates on changing posture. Which investigation do you need first? Key: b""

- Serum Calcium level
 - Serum PSA level
 - Serum Vitamin D3 level
 - Serum HbA1c level
 - Serum amylase
-

SECTION: 3 (It may change with every question); **Bold** the most relevant ones.

- Importance:** Essential/ Important/ Supplementary
- Cognitive level:** C1/C2/ C3.
- Difficulty:** Easy/ Moderate/Difficult/Very Difficult.

Step 7 (selecting items for the examination paper).

- ▶ Putting together a set of 100 questions, to test higher levels of cognition, like application and problem solving, requires careful selection of ‘good quality items’ and adherence to the examination blueprint, and select 70% of the items with moderate difficulty and 10–15% of the items from the easy and difficult indices.
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Step 8 (post hoc analysis).

- ▶ It provides a measurable outcome of all the time and efforts. It includes review of the item analysis where difficulty and discriminatory indices of each item are determined.
 - ▶ If problems are identified, the item is suspended from the Q bank until it is reviewed and corrected.
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THANKS