INTRODUCTION

An examination is the process of evaluation of the knowledge of a person. The evaluation can be in the form of a formal test with or without the assessment of performance skills. It is often stated that ‘Everybody is a genius. But if you judge a fish for its ability to climb a tree, it will live its whole life believing that it is stupid’.\(^1\) This highlights the fact that the parameters of the assessment should be appropriate to the knowledge and skills of the assessee. There are two components of the examination: theory and practical. Theory examination reflects the student's ability to recall whatever is read, organise the thoughts and put them on the paper in the time allotted. The practical examination, however, not only tests the knowledge but also the presentation skills and situational awareness of the student. These skills can complement the subject knowledge which can make a difference in the final outcome. The practical examination is perceived to be more difficult as the student has to think, formulate the reply and speak at the same time while the examiner is looking at him, which may be quite intimidating to some. Assessment of students can be formative (assessment at regular intervals throughout the course of training) or summative (assessment at the end of the entire period of training, i.e., exit examination). This article will focus on the summative assessment and the practical examination.

What does the examiner expect from the student?

The main purpose of the examination is to assess the knowledge base as well as the practical skills that a student has acquired over the period of training. It also has to determine whether students have been exposed to an adequate variety of clinical cases and if they
can conduct anaesthesia safely for the routine and emergency cases scheduled for surgery. The major goal of training in Doctor of Medicine (MD)/Diplomate of National Board (DNB) in Anaesthesiology is to enable the candidate to function as an independent specialist anaesthesiologist, well trained in the practice of anaesthesia, critical care, pain management and resuscitation.[2] To this end, the student should possess diagnostic skills as well as familiarity with current technological tools, laboratory procedures and their judicious use and sensible interpretation in various clinical settings. He should also have an in-depth knowledge of the basic sciences and disciplines of medicine relevant to the practice of anaesthesiology. The aim of the examination is to test whether the candidate has acquired the relevant competencies in the cognitive, affective and psychomotor domains,[3] that is, assessment of the knowledge, attitude and skills to practise as an anaesthesiologist. Knowledge is assessed during all stages of the practical examination. While it is difficult to test attitude, examiners form an impression by the way the candidates present themselves, the tone and tenor of speech, confidence or the lack of it, body language, how the candidates listen to a question and respond, their presence of mind when a potential error is pointed out, etc. In the long and short cases, the examiners determine whether the candidates have grasped the essence of the patient’s problems, are able to present them in an organised and coherent manner, and whether they can formulate the care plan with correctly prioritised actions. Skills are usually not assessed, except perhaps in a cardiopulmonary resuscitation scenario. The examiners often ask the candidates to describe a procedure to know whether they can perform the procedure safely and competently, and evaluate whether the candidate can do so in a sequential, step-wise manner, highlighting important anatomical landmarks, techniques, sterile precautions (e.g. while using an ultrasound probe) and significant methods to avoid complications.

The questions in the practical examination are often unstructured and without any fixed format. The examiner may ask questions at will, and different questions may be asked on the same problem to different candidates. A structured pattern lists the questions to be asked for every case. These are usually validated and are graded in difficulty. A semi-structured pattern lies in between, where part of the examination consists of independent, objective, validated questions followed by a conditional probing question to ‘dig deeper’ for assessing the clinical reasoning, at the discretion of the examiner. While the unstructured format appears arbitrary and non-reproducible, most examiners do follow a graded approach with respect to the difficulty level of the questions asked. Initial questions are relatively simple to put the candidate at ease; the level of difficulty goes up as the candidate answers them. Examples of the initial questions are like ‘What are the fasting guidelines for children?’ It may later go on to questions such as ‘What are the recent developments in these guidelines?’ One can start with ‘What is pre-eclampsia?’ and then go on to pathophysiology and anaesthetic management. In the long cases, examiners assess whether the candidate has an understanding of the pathophysiology and clinical aspects of the disease and their implications in the perioperative period; for example, ‘What factors can worsen the transmitral valvular gradient in mitral stenosis?’ and ‘Why are obese patients more prone to hypoxia during induction and maintenance of anaesthesia?’ The viva will eventually progress to anaesthetic management, monitoring modalities and postoperative care including analgesia. Scenarios of acute medical problems and discussions could be brought in; for example, ‘If a patient develops severe bronchospasm, how will you evaluate and treat the patient?’ In the short cases, the candidate must be able to make a quick, pointed diagnosis of the case with the major positive and significant negative findings in the history and examination. The main difference between a long and a short case is that in the long case, the candidate is expected to make a diagnosis after a detailed history and physical examination and write in a detailed manner for presentation. In short cases, however, the diagnosis is either very obvious, like a cleft lip or a hernia, or a brief history and examination will lead to the diagnosis. Very often, the first question from the examiner is ‘What is your diagnosis?’ and it goes on from there. The examiner expects precise and brief answers. All answers must relate to the patient at hand; for example, if the patient has a small thyroid nodule with no airway involvement, it is inappropriate to say that one would consider an awake intubation; instead, one can mention that ‘the airway examination is unremarkable’ and would like to go ahead with intravenous induction and a muscle relaxant to facilitate intubation while keeping the difficult airway trolley at hand. This would satisfy the examiner who is interested in knowing if the student has a backup plan just in case. Several areas are tested and common deficiencies can be encountered in the candidates during the practical examination [Table 1].[4]
The bottom line is that the examiners want to find what the students know and not what they do not. They want to ensure that the students can keep the patient safe and manage most cases with reasonable competence, and are able to take appropriate actions (including calling for help) for difficult cases and in times of crisis. While the examiners may overlook failure to answer certain questions, there are some areas where they may not; for example, oxygen therapy, anatomy of the airway, epidural or subarachnoid space, steps of resuscitation, local anaesthetic toxicity and anaesthesia machine.

**How to prepare for the examination?**

Preparation for the post-graduate (PG) examination requires a deep learning approach in contrast to the undergraduate examination. The preparation should start much before the actual announcement of the examination date by the university. To pass the examination, the candidate not only needs to have in-depth knowledge but also the ability to answer effectively, coherently and in a concise manner. The presentation skill can be improved by presenting more cases during the training period. This would not only prepare a student on how to answer the routinely asked questions but will make him/her more confident and comfortable in handling the questions.

Learning is a continuous process and the student should strive to learn from the seniors as much as possible during the conduct of anaesthesia in the OT. In the early phase of postgraduation, say the first 3–4 months, it would be a good practice to read the basic subjects and refresh the knowledge of the undergraduate period as this has a significant implication in understanding the pathophysiology and the basics of management. Subsequently, the student can add to this knowledge by going into the systems approach. The student should read about the management in various specialities and diseases in the course of their rotation (e.g. obstetric anaesthesia, cardiac anaesthesia and intensive care). The student must strike a balance between work hours and study hours and tune himself/herself for a dedicated, self-directed learning. Preparatory leave prior to the examination is a privilege given for varying durations in different institutes, and it helps in revising the syllabus and bringing optimal output during the examination period. The key to a successful learning strategy is to adhere to a fixed routine after the clinical work. The duration of study hours can vary depending on the ability to grasp and consolidate the learning rather than a casual read. The practice of going through the previous years’ question papers and preparing notes is always rewarding for the theory examination. For practical examination, honing the case presentation skills is vital. Quite often, the result of practical examination is largely dependent on how effectively the candidate approaches and presents the given clinical problem.

Another useful approach is to have a peer group that is like-minded and is preparing for the same examination. A peer group of 2–3 members helps in remaining motivated and competitive to finish the course in time. Explaining the pathophysiology of diseases and mechanism of action of anaesthetic drugs to a peer member is a definite help in memorising hard concepts easily. Moreover, it improves understanding of the topic and adds confidence to the expression. Revising and rehearsing the material on various equipment available in the department with senior colleagues a few days before the examination can add to the preparedness that is vitally important. With regard to the ‘recent advances topic’ in theory, it is worthwhile to go through the editorials published in the Indian Journal of Anaesthesia, which keeps pace with the new developments and recent advances. [5-7]
MD and DNB examinations

MD examination is conducted by the university as per the National Medical Commission guidelines, whereas the DNB examination is conducted by the National Board of Examinations for Medical Sciences (NBEMS) under the Ministry of Health and Family Welfare. The format of the examination is nearly the same: four theory papers and a practical examination. The structure of practical examination for post-graduate Master’s degree is slightly different for MD and DNB.

For the MD examination, there are two internal examiners who are from the same department where the examination is conducted and two external examiners who are often from another state. DNB examination is never conducted at the place where the student has worked but at a centre that is neutral, and the students have to travel to that place. There is one centre coordinator, usually the head of the Anaesthesia department at that hospital, while the other three examiners come from other states. NBEMS ensures that the examiners are not from the same hospital or the city where the students are coming from to ensure total impartiality and uniformity in the process. Thus, for a student appearing in the DNB examination, all four are external examiners as neither the student has ever met or known the examiner and nor has the examiner ever met the student before.

In the MD examination, there is one long case (100 marks) and two short cases (50 marks). In the last DNB examination, however, there were four cases of equal marks. The long case viva in the MD examination is usually timed for 30 minutes, whereas each short case is for 15 minutes. It may be helpful to know the surgical case profile of the hospital to predict the cases most likely to be kept for the examination. It is always a good practice to proceed to examine the patient in the same way as in a pre-anaesthesia clinic and rather not be conscious about the examination hall. The candidate should be familiar with the sequential process of examining and interpreting the common and obvious physical signs as there cannot be any excuse for not being able to identify icterus while memorising the entire list of conditions that can lead to icterus.

The viva-voce particularly for the DNB examination comprises five stations not related to each other. These five stations are

1: Investigations (electrocardiogram, X-rays, arterial blood gas (ABG) analysis, pulmonary function tests, capnograph, etc.) [Table 1]

2: Anaesthetic drugs, emergency drugs, intravenous (IV) fluids, skeleton for nerve blocks, anaesthesia work station, airway management devices, ventilator and oxygen therapy equipment.

3: Resuscitation equipment, difficult airway and monitoring equipment.

4: Recent advances and research methodology.

5: Communication skills.

To test the communication skills, a volunteer acts like a family member and the student is asked to communicate on a situation such as breaking the bad news, obtaining consent for a procedure (e.g. tracheostomy) or explaining the sudden deterioration in the patient’s general condition. The volunteer would ask probing questions such as why and how or anything that may be opposite to the line of medical opinion. There is one examiner for each table. For the MD examination, however, the tables are not well defined. There may be only two or even one: anaesthesia equipment including machine and drugs, investigations and resuscitation (50 marks each). For each table, there is one internal and one external examiner. If there is only one table, all four examiners sit together. For the table viva, the candidate is expected to read an electrocardiogram, Roentgenogram, ABG analysis report or a capnograph.

Quite often, the candidate is asked to compare two sets of drugs (lidocaine vs. bupivacaine) or fluids (Ringer’s lactate vs. Isolyte P). The candidate should be thoroughly prepared with at least one or two pieces of equipment and drugs in case the examiner asks them to pick up and speak on an equipment or the drug of his choice.

NBEMS has introduced Objective Structured Clinical Examination (OSCE) with 25 stations wherein each one is projected on the monitor in a hall where the students are seated. The projection is done from the control room of the NBE. Each OSCE is for 4 minutes and has 3–4 answer components that have to be replied to and written on the answer sheet provided to the student (one sheet for every question). After the OSCE component of the examination is over, these sheets are scanned and sent by mail to the NBE office. Thereafter, there is a ward round with real patients where the student is asked questions about the medical condition on the bedside, like any conventional ward round. Of the four cases, including ward rounds, two can be virtual. There is also a skill station where the student is asked to demonstrate a procedure or the landmarks for the same, such as performing cardiopulmonary...
resuscitation (CPR), insertion of central venous line or percutaneous tracheostomy.

The study material for exam preparation varies from textbooks to e-learning and podcasts. However, one should remember that all these e-platforms can, at the best, support and supplement prescribed textbooks and can never be substituted for curriculum-orientated sustained hard work. Candidates should actively engage in PG update programmes organised by various city and state chapters as well as the national body, the Indian Society of Anaesthesiologists (ISA) to keep themselves updated with the recent pattern of questions in the theory and clinical viva-voce. The ISA online PG classes can be an excellent starting point to familiarise the PGs with current topics and concepts.\(^{[6]}\)

**How to examine the patient?**

When examining a patient, students have to introduce themselves, brief the patient about the plan and request his/her permission before they start the examination. When they have to examine a female patient and want to know about some personal information, such as the last menstrual cycle, they should request for a lady to help. There may be some ‘helpful patients’ who may tell the diagnosis. One can always thank them for the help and tell them that they would like to ask a few questions and examine to ensure that nothing has been missed during the previous assessment. This would make the patient more cooperative. The students’ attitude of being thorough in the assessment rather than working on a borrowed diagnosis can enhance their image in the eyes of the patient. One has to remember that having cooperation from the patient is crucial and can make a difference to the eventual outcome.

**How to face the examiners?**

The skill in impressing the examiner during viva lies in careful listening until the question is completely uttered and in quickly formulating an answer with minimal prompting from the examiner. While answering the question, one needs to maintain appropriate eye to eye contact with the examiner and not stare or glance around the room as it reflects disinterest in the proceedings and would rather be counterproductive. It is essential to understand that for any candidate, the practical examination is a test of ‘mind over matter’. The examination should be approached with a clear head and one should be dressed like a calm and confident professional. Males can wear a simple, traditional, weather-appropriate dress such as a shirt and trousers during summers and a blazer or a cardigan in winters. Ladies can wear a traditional Indian salwar kameez or saree. Greeting the examiners while entering the room and waiting till one is asked to sit down are good manners. The apron should be clean and not crumpled and should display the roll number bold enough to be visible from a distance.

One should not make the cardinal mistake of arguing with the examiner even when one is sure of the answer. Incomplete answers may prompt the examiner to ask further questions; for example, ‘Do you think propofol is a better induction agent in this situation?’ However, merely agreeing with the answers suggested by the examiners does not help in scoring marks! Providing multiple options for management or groups of drugs can be inappropriate; for example, ‘I can give either spinal anaesthesia, epidural anaesthesia or femoral and sciatic nerve block.’ Instead, ‘I will prefer spinal anaesthesia rather than epidural or regional nerve block’ sounds appropriate when the choice is justified. This will also give the examiner an insight into the student’s reasoning and analytical skills. ‘I will give a benzodiazepine for premedication’ is not a good answer; instead, ‘I will give inj. midazolam 2 mg intramuscularly one hour prior to surgery’ is a better answer. The student should not get flustered if the examiner interrupts with a counter-question in the middle of the answer. If a student needs to collect and recall the thoughts, he/she can request a few seconds to do that. Some examiners are persistent about hearing one particular key word or insist on a point to be mentioned. However, if one does not know the answer, one can be frank and say that he/she cannot recall that particular answer and hope that the discussion will move on beyond that point. A weak knowledge base and vague, incomplete replies to the questions asked are the common causes of failure. The student should be brief and to the point while answering and should avoid a monologue on what is not asked and should not try to trade an answer to a question not asked. One should avoid being too clever if one has no clue about the answer. Students should also avoid being too talkative or too quiet that requires frequent prodding. No examiner expects a student to know hundred percent, so if the student does not know the answer, he/she should just concede and pull back hoping that the next question can be answered.

**Summary**

Appearing in the examination is a challenging experience and is part of professional growth. Students
should face the examiner with confidence knowing that after three years of studying hard and working in the speciality, the odds are heavily stacked in favour of passing the examination comfortably. The examiner has one large question that he/she seeks an answer to, which is, ‘Will the patient be safe in his/her hands?’ If the examiner is convinced that the patient will be safe, then the student is safe too.

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