POST GRADUATE MEDICAL EDUCATION
REGULATIONS AND CURRICULUM
FOR
POST GRADUATE DEGREE AND DIPLOMA COURSES
2016

ANAESTHESIOLOGY

JAGADGURU SRI SHIVARATREESHWARA UNIVERSITY
MYSURU
POST GRADUATE MEDICAL EDUCATION
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FOR
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2016

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JAGADGURU SRI SHIVARATREESHWARA UNIVERSITY
SRI SHIVARATHREESHWARA NAGARA
MYSORE 570015
KARNATAKA, INDIA
THIS BOOK CAN BE OBTAINED FROM

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KARNATAKA, INDIA
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ANAESTHESIOLOGY

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CHAPTER I

REGULATIONS FOR POST GRADUATE DEGREE AND DIPLOMA COURSES

1. Branch of study

1.1 Post graduate degree courses

1.1.1 Doctor of Medicine

a) Anaesthesiology
b) Anatomy
c) Biochemistry
d) Community medicine
e) Dermatology, venereology and leprosy
f) Emergency medicine
g) Forensic medicine
h) General medicine
i) Hospital administration
j) Microbiology
k) Pathology
l) Paediatrics
m) Pharmacology
n) Physiology
o) Psychiatry
p) TB and chest diseases
q) Radio Diagnosis

1.1.2 Master of Surgery

a) General surgery
b) Obstetrics and gynaecology
c) Ophthalmology
d) Orthopaedics
e) Oto rhino laryngology

1.2 Post graduate diploma courses

a) Anaesthesiology (DA)
b) Child Health (DCH)
c) Clinical Pathology (DCP)
d) Dermatology, Venereology & Leprosy (DDVL)
e) Medical Radio Diagnosis (DMRD)
f) Obstetrics & Gynaecology (DGO)
g) Ophthalmology (DO)
h) Orthopaedics (D Ortho)
i) Otolaryngology (DLO)
j) Psychiatric Medicine (DPM)
2. **Eligibility for admission**
   
   **MD / MS Degree and Diploma courses:** A candidate who has passed final year MBBS examination after pursuing a study in a medical college recognized by the Medical Council of India and has completed one year compulsory rotating internship in a teaching institution or other institution recognized by the Medical Council of India, and has obtained permanent registration of any State Medical Council, shall be eligible for admission.

3. **Admission**
   
   A candidate desirous of admission to Post Graduate Medical Programmes MD/ MS / PG Diploma Courses is required to complete the application form and submit to the University along with prescribed documents on or before the scheduled date. Eligibility criteria, application form and details of documents to be submitted are available in the University website: www.jssuni.edu.in.

4. **Registration**
   
   A candidate who has been admitted to postgraduate course shall register in the university within a month of admission after paying the registration fee.

5. **Intake of students**
   
   The intake of students to each course shall be in accordance with the MCI.

6. **Duration of study**
   
   **6.1 MD, MS Degree Courses:** The course of study shall be for a period of 3 years consisting of 6 terms.
   
   **6.2 Diploma courses:** The course of study shall be for a period of 2 years consisting of 4 terms.

7. **Methodology of training**
   
   The training of postgraduate for degree/diploma shall be residency pattern, with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings. Every candidate shall participate in the teaching and training programme of undergraduate students. Training should include involvement in laboratory and experimental work, and research studies. Basic medical sciences students should be posted to allied and relevant clinical departments or institutions. Similarly, clinical subjects’ students should be posted to basic medical sciences and allied specialty departments or institutions.
8. Attendance, progress and conduct

8.1 A candidate pursuing degree/diploma course, shall work in the concerned department of the institution for the full period as full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate course, nor can he/she work in a nursing home or other hospitals/clinic/laboratory while studying postgraduate course.

8.2 Each year shall be taken as a unit for the purpose of calculating attendance.

8.3 Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

8.4 Every candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate course. Provided, further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year.

8.5 Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the University Examinations.

9. Monitoring progress of study

9.1 Work diary / Log Book: Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention shall be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any, conducted by the candidate. The work diary shall be scrutinised and certified by the Head of the Department and Head of the Institution, and presented in the University practical/clinical examination.

9.2 Periodic tests: In case of degree courses of three years duration (MD/MS), the concerned departments shall conduct three tests, two of them be annual tests, one at the end of first year and the other at the end of the second year. The third test shall be held three months before the final examination. The tests shall include written papers, practical / clinical and viva voce. Records and marks obtained in such tests shall be maintained by the Head of the Department and sent to the University, when called for.
9.3 In case of diploma courses of two years duration, the concerned departments shall conduct two tests, one of them at the end of first year and the other in the second year, three months before the final examination. The tests shall include written papers, practical / clinical and viva voce.

9.4 **Records:** Records and marks obtained in tests shall be maintained by the Head of the Department and shall be made available to the University or MCI.

10. **Dissertation**

10.1 Every candidate pursuing MD/MS degree course is required to carry out work on a selected research project under the guidance of a recognised post graduate teacher. The results of such a work shall be submitted in the form of a dissertation.

10.2 The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions.

10.3 Every candidate shall submit to the Controller of Examinations of the University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course, on or before the dates notified by the University. The synopsis shall be sent through proper channel.

10.4 Such synopsis will be reviewed and the dissertation topic will be registered by the University. No change in the dissertation topic or guide shall be made without prior approval of the University.

10.5 The dissertation should be written under the following headings:

- a) Introduction
- b) Aims or Objectives of study
- c) Review of Literature
- d) Material and Methods
- e) Results
- f) Discussion
- g) Conclusion
- h) Summary
- i) References
- j) Tables
- k) Annexure
- l) Proof of Paper presentation and publication
10.6 The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27” x 11.69”) and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

10.7 Four copies of dissertation thus prepared shall be submitted to the Controller of Examinations, six months before final examination, on or before the dates notified by the University.

10.8 The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

10.9 Guide: The academic qualification and teaching experience required for recognition as a guide for dissertation work is as per MCI Minimum Qualifications for Teachers in Postgraduate Medical Education Regulations, 2000. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Assistant Professor gained after obtaining post graduate degree shall be recognised as post graduate teachers.

10.10 Co Guide: A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognised for teaching/training by JSS University / Medical Council of India.

10.11 Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

10.12 A postgraduate student is required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

11. Schedule of examination

The examination for MD / MS courses shall be held at the end of three academic years (six academic terms). The examination for the diploma courses shall be held at the end of two academic years (four academic terms).
For students who have already passed Post Graduate Diploma and appearing for MD examination, the examination shall be conducted after two academic years (four academic terms, including submission of dissertation) The University shall conduct two examinations in a year at an interval of four to six months between the two examination. Not more than two examinations shall be conducted in an academic year.

12. Scheme of examination

12.1 MD/MS

12.1.1 Dissertation: Every candidate shall carry out work and submit a dissertation as indicated in Sl No 10. Acceptance of dissertation shall be a precondition for the candidate to appear for the final examination.

12.1.2 Written Examination (Theory): A written examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the 1st paper in clinical subjects will be on applied aspects of basic medical sciences. Recent advances may be asked in any or all the papers. In basic medical subjects and para-clinical subjects, questions on applied clinical aspects shall also be asked.

Pattern of Theory Examination Question Paper:
Each paper shall consist of two long essay questions each carrying 20 marks, 3 short essay questions each carrying 10 marks and 6 short answer questions each carrying 5 marks. Total marks for each paper shall be 100.

12.1.3 Practical/Clinical Examination: In case of Practical examination for the subjects in Basic Medical Sciences Practical Examination shall be conducted to test the knowledge and competence of the candidates for making valid and relevant observations based on the experimental/Laboratory studies and his ability to perform such studies as are relevant to his subject.

Clinical examination for the subjects in Clinical Sciences shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a specialist/Teacher, for which candidates shall examine a minimum one long case and two short cases.

The total marks for Practical / clinical examination shall be 200.
12.1.4 **Viva Voce:** Viva Voce shall be thorough and shall aim at assessing the candidate knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which form a part of the examination.

The total marks shall be 100 and the distribution of marks shall be as under:

i) For examination of all components of syllabus 80

ii) For Pedagogy 20

If there is skills evaluation, 10 marks shall be reserved for Pedagogy and 10 marks for skill evaluation.

12.1.5 **Examiners.** There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

12.1.6 **Criteria for declaring as pass in University Examination:** A candidate shall pass theory and practical including clinical and viva-voce examination separately and shall obtain 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for post graduate degree examination to be declared as pass.

A candidate obtaining less than 40% marks in any paper and obtaining less than 50% of marks cumulatively in all the four papers for post graduate degree examination shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

12.1.7 **Declaration of class:** A successful candidate passing the University examination in first attempt and secures grand total aggregate 75% of marks or more will be declared to have passed the examination with distinction, 65% but below 75% declared as First Class and 50% but below 65% declared as Second Class.

A candidate passing the University examination in more than one attempt shall be declared as Pass Class irrespective of the percentage of marks.
12.2 Post Graduate Diploma Examinations

Diploma examination in any subject shall consist of theory (written papers), Practical / Clinical and Viva - Voce.

12.2.1 Theory: There shall be three written question papers each carrying 100 marks. Each paper will be of three hours duration. In clinical subjects one paper out of this shall be on basic medical sciences. In basic medical subjects and Para- clinical subjects, questions on applied clinical aspects shall also be asked.

Pattern of Theory Examination Question Paper:
Each paper shall consist of two long essay questions each carrying 20 marks, 3 short essay questions each carrying 10 marks and 6 short answer questions each carrying 5 marks. Total marks for each paper shall be 100.

12.2.2 Practical Clinical Examination: In case of practical examination it shall be aimed at assessing competence, skills related to laboratory procedures as well as testing students ability to make relevant and valid observations, interpretation of laboratory or experimental work relevant to his/her subject.

In case of clinical examination, it shall aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate shall examine at least one long case and two short cases.

The maximum marks for Practical / Clinical shall be 150.

Viva Voce Examination: Viva Voce examination shall be thorough and shall aim at assessing the candidate’s knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which shall from a part of the examination. The total marks shall be 50.

12.2.3 Examiners. There shall be at least four examiners in each subject. Out of them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.
12.2.4 **Criteria for declaring as pass in University Examination:** A candidate shall pass theory and practical including clinical and viva-voce examination separately and shall obtain 40% marks in each theory paper and not less than 50% marks cumulatively in all the three papers for post graduate diploma examination to be declared as pass.

A candidate obtaining less than 40% marks in any paper and obtaining less than 50% of marks cumulatively in all the three papers for post graduate diploma examination shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

12.2.5 **Declaration of class:** A successful candidate passing the University examination in first attempt and secures grand total aggregate 75% of marks or more will be declared to have passed the examination with distinction, 65% but below 75% declared as First Class and 50% but below 65% declared as Second Class.

A candidate passing the University examination in more than one attempt shall be declared as Pass Class irrespective of the percentage of marks.

13. **Number of candidates per day**

The maximum number of candidates to be examined in Clinical/practical and Oral on any day shall not exceed eight for M.D./M.S. degree, eight for diploma.
CHAPTER II
GOALS AND GENERAL OBJECTIVES OF POSTGRADUATE MEDICAL EDUCATION PROGRAM

GOAL
The goal of postgraduate medical education shall be to produce competent specialists and/or medical teachers:

1. Who shall recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
2. Who shall have mastered most of the competencies, pertaining to the speciality, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
3. Who shall be aware of the contemporary advance and developments in the discipline concerned.
4. Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology and
5. Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

GENERAL OBJECTIVES
At the end of the postgraduate training in the discipline concerned the student shall be able to:

1. Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health section.
2. Practice the speciality concerned ethically and in step with the principles of primary health care.
3. Demonstrate sufficient understanding of the basic sciences relevant to the concerned speciality.
4. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
5. Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
6. Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the speciality.

7. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.

8. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.

9. Play the assigned role in the implementation of national health programme, effectively and responsibly.

10. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.

11. Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.

12. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.

13. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.

14. Function as an effective leader of a health team engaged in health care, research or training.

STATEMENT OF THE COMPETENCIES: Keeping in view the general objectives of postgraduate training, each discipline shall aim at development of specific competencies which shall be defined and spelt out in clear terms. Each department shall produce a statement and bring it to the notice of the trainees in the beginning of the programme so that he or she can direct the efforts towards the attainment of these competencies.

COMPONENTS OF THE POSTGRADUATE CURRICULUM:
The major components of the Postgraduate curriculum shall be:

- Theoretical knowledge
- Practical and clinical skills
- Thesis skills.
- Attitudes including communication skills.
- Training in Research Methodology, Medical Ethics and Medicolegal aspects.

(Source: Medical Council of India, Regulations on Postgraduate Medical Education, 2000)
CHAPTER III

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring shall be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Model checklists are given in this chapter which may be copied and used.

The learning outcomes to be assessed should include:

1. Personal Attitudes.
2. Acquisition of Knowledge.
3. Clinical and operative skills and
4. Teaching skills.

1. Personal Attitudes: The essential items are:
   a) Caring attitude.
   b) Initiative.
   c) Organisational ability.
   d) Potential to cope with stressful situations and undertake responsibility.
   e) Trust worthiness and reliability.
   f) To understand and communicate intelligibly with patients and others.
   g) To behave in a manner that establishes professional relationships with patients and colleagues.
   h) Ability to work in a team.
   i) A critical enquiring approach to the acquisition of knowledge.

   The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of Knowledge: The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.
a) **Journal Review Meeting (Journal Club).** The ability to do literature search, in depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter III)

b) **Seminars / Symposia.** The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio-visual aids are to be assessed using a checklist (see Model Checklist-II, Chapter III)

c) **Clinico-pathological conferences.** This should be a multidisciplinary study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

d) **Medical Audit.** Periodic morbidity and mortality meeting shall be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. **Clinical skills:**
   
a. **Day to Day work:** Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist III, Chapter III).

b. **Clinical meetings:** Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV, Chapter III).

c. **Clinical and Procedural skills:** The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3, Chapter III).

4. **Teaching skills:** Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist V, Chapter III).
5. **Periodic tests:** In case of degree courses of three years duration, the department may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. In case of diploma courses of two year duration, the departments may conduct two tests. One of them at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

6. **Work diary:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

7. **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

8. **Log book:** The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate. Format for the log book for the different activities is given in Tables 1, 2 and 3 of Chapter III. Copies may be made and used by the institutions.

**Procedure for defaulters:** Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set him or herself right.
# Format of Model Check Lists

## Check List-I

**MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS**

**Name of the Student:**

**Name of the Faculty/Observer:**

**Date:**

<table>
<thead>
<tr>
<th>SNo</th>
<th>Items for observation during presentation</th>
<th>Poor 0</th>
<th>Below Average 1</th>
<th>Average 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
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</thead>
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<tr>
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<td>Article chosen was</td>
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<td>2.</td>
<td>Extent of understanding of scope &amp; objectives of the paper by the candidate</td>
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<td>3.</td>
<td>Whether cross references have been consulted</td>
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<td>4.</td>
<td>Whether other relevant publications consulted</td>
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<td>5.</td>
<td>Ability to respond to questions on the paper / subject</td>
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<td>6.</td>
<td>Audio-visual aids used</td>
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<td>7.</td>
<td>Ability to defend the paper</td>
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<td>8.</td>
<td>Clarity of presentation</td>
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<td>9.</td>
<td>Any other observation</td>
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**Total Score**
Check List – II

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student:

Name of the Faculty/Observer:

Date:

<table>
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<tr>
<th>Sl No</th>
<th>Items for observation during presentation</th>
<th>Poor 0</th>
<th>Below Average 1</th>
<th>Average 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
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<tr>
<td>1.</td>
<td>Whether other relevant publications consulted</td>
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<td>2.</td>
<td>Whether cross references have been consulted</td>
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<td>3.</td>
<td>Completeness of Preparation</td>
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<td>4.</td>
<td>Clarity of Presentation</td>
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<td>5.</td>
<td>Understanding of subject</td>
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<td>6.</td>
<td>Ability to answer questions</td>
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<td>7.</td>
<td>Time scheduling</td>
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<td>8.</td>
<td>Appropriate use of Audio-Visual aids</td>
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<td>9.</td>
<td>Overall Performance</td>
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<td>10.</td>
<td>Any other observation</td>
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**Total Score**
Check List - III

MODEL CHECK LIST FOR EVALUATION OF
CLINICAL WORK IN WARD / OPD

(To be completed once a month by respective Unit Heads, including posting in other departments)

Name of the Student:

Name of the Faculty/Observer:

Date:

<table>
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<th>SI No</th>
<th>Points to be considered</th>
<th>Poor 0</th>
<th>Below Average 1</th>
<th>Average 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Regularity of attendance</td>
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<tr>
<td>2.</td>
<td>Punctuality</td>
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<tr>
<td>3.</td>
<td>Interaction with colleagues and supportive staff</td>
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<tr>
<td>4.</td>
<td>Maintenance of case records</td>
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<tr>
<td>5.</td>
<td>Presentation of cases during rounds</td>
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<tr>
<td>6.</td>
<td>Investigations work up</td>
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<tr>
<td>7.</td>
<td>Beside manners</td>
<td></td>
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<tr>
<td>8.</td>
<td>Rapport with patients</td>
<td></td>
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<tr>
<td>9.</td>
<td>Counseling patient's relatives for blood donation or Postmortem and Case follow up.</td>
<td></td>
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<tr>
<td>10.</td>
<td>Overall quality of ward work</td>
<td></td>
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</tr>
</tbody>
</table>

**Total Score**
Check List - IV

EVALUATION FORM FOR CLINICAL PRESENTATION

Name of the Student:
Name of the Faculty:
Date:

<table>
<thead>
<tr>
<th>SI No</th>
<th>Points to be considered</th>
<th>Poor 0</th>
<th>Below Average 1</th>
<th>Average 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Completeness of history</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Whether all relevant points elicited</td>
<td></td>
<td></td>
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<tr>
<td>3.</td>
<td>Clarity of Presentation</td>
<td></td>
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<tr>
<td>4.</td>
<td>Logical order</td>
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<tr>
<td>5.</td>
<td>Mentioned all positive and negative points of importance</td>
<td></td>
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<tr>
<td>6.</td>
<td>Accuracy of general physical examination</td>
<td></td>
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<tr>
<td>7.</td>
<td>Whether all physical signs elicited correctly</td>
<td></td>
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<tr>
<td>8.</td>
<td>Whether any major signs missed or misinterpreted</td>
<td></td>
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<tr>
<td>9.</td>
<td>Diagnosis: Whether it follows logically from history and findings</td>
<td></td>
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<tr>
<td>10.</td>
<td>Investigations required</td>
<td></td>
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<tr>
<td></td>
<td>☐ Complete list</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>☐ Relevant order</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>☐ Interpretation of investigations</td>
<td></td>
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<tr>
<td>11.</td>
<td>Ability to react to questioning Whether it follows logically from history and findings</td>
<td></td>
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<tr>
<td>12.</td>
<td>Ability to defend diagnosis</td>
<td></td>
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<tr>
<td>13.</td>
<td>Ability to justify differential diagnosis</td>
<td></td>
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<tr>
<td>14.</td>
<td>Others</td>
<td></td>
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</tbody>
</table>

Total Score
## Check List - V

### MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Strong Point</th>
<th>Weak Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Communication of the purpose of the talk</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Evokes audience interest in the subject</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>The introduction</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The sequence of ideas</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>The use of practical examples and/or illustrations</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Speaking style (enjoyable, monotonous, etc., specify)</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Attempts audience participation</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Summary of the main points at the end</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Asks questions</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Answers questions asked by the audience</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Rapport of speaker with his audience</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Effectiveness of the talk</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Uses AV aids appropriately</td>
<td></td>
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</tbody>
</table>
Check List - VI
MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name of the Student:

Name of the Faculty:

Date:

<table>
<thead>
<tr>
<th>SI No</th>
<th>Points to be considered divine</th>
<th>Poor 0</th>
<th>Below Average 1</th>
<th>Average 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Interest shown in selecting a topic</td>
<td></td>
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<tr>
<td>2.</td>
<td>Appropriate review of literature</td>
<td></td>
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<tr>
<td>3.</td>
<td>Discussion with guide &amp; other faculty</td>
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<tr>
<td>4.</td>
<td>Quality of Protocol</td>
<td></td>
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<tr>
<td>5.</td>
<td>Preparation of proforma</td>
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</tbody>
</table>

**Total Score**
## CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO GUIDE

### Check List - VII

**Name of the Student:**

**Name of the Faculty:**

**Date:**

<table>
<thead>
<tr>
<th>SI No</th>
<th>Items for observation during presentations</th>
<th>Poor 0</th>
<th>Below Average 1</th>
<th>Average 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Periodic consultation with guide/co-guide</td>
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</tr>
<tr>
<td>2.</td>
<td>Regular collection of case Material</td>
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<tr>
<td>3.</td>
<td>Depth of analysis / discussion</td>
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<td>4.</td>
<td>Departmental presentation of findings</td>
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<td>5.</td>
<td>Quality of final output</td>
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<tr>
<td>6.</td>
<td>Others</td>
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**Total Score**
Table 1: Academic activities attended

<table>
<thead>
<tr>
<th>Date</th>
<th>Type of Activity Specify Seminar, Journal Club, Presentation, UG teaching</th>
<th>Particulars</th>
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</thead>
<tbody>
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</tbody>
</table>
## LOG BOOK

**Table 2:** Academic presentations made by the student

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Type of Presentation Specify Seminar, Journal Club, Presentation, UG teaching</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
LOG BOOK

Table 2: Diagnostic and Operative procedures performed

Name: 

Admission year: 

College: 

<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>ID No.</th>
<th>Procedure</th>
<th>Category O, A, PA, PI*</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

* Key:

O - Washed up and observed

A - Assisted a more senior Surgeon

PA - Performed procedure under the direct supervision of a senior Surgeon

PI - Performed independently
# Model Overall Assessment Sheet

**Academic Year:**

<table>
<thead>
<tr>
<th>SL No</th>
<th>Faculty Member &amp; Others</th>
<th>Name of Student and Mean Score*</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>1.</td>
<td>Journal Review Presentations</td>
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<tr>
<td>2.</td>
<td>Seminars</td>
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</tr>
<tr>
<td>3.</td>
<td>Clinical work in wards</td>
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<tr>
<td>4.</td>
<td>Clinical presentation</td>
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</tr>
<tr>
<td>5.</td>
<td>Teaching skill practice</td>
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</tr>
<tr>
<td></td>
<td>Total Score</td>
<td></td>
</tr>
</tbody>
</table>

Note: Use separate sheet for each year.

**Signature of HOD**

**Signature of Principal**

The above overall assessment sheet used along with the logbook should form the basis for certifying satisfactory completion of course of study, in addition to the attendance requirement.

* **KEY:**

**Mean score**: Is the sum of all the scores of checklists 1 to 7.

**A, B,...**: Name of the trainees.
Chapter IV  
Medical Ethics  
Sensitisation and Practice  

Introduction  
There is now a shift from the traditional individual patient- doctor relationship and medical care. With the advances in science and technology and the needs of patients, their families and the community, there is an increased concern with the health of society. There is a shift to greater accountability to the society. Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems. To accomplish the Goal and General Objective stated in Chapter II and develop human values it is urged that ethical sensitisation be achieved by lectures or discussion on ethical issues, clinical discussion of cases with an important ethical component and by including ethical aspects in discussion in all case presentation, bedside rounds and academic postgraduate programmes.

Course Contents  

1. Introduction to Medical Ethics  
   - What is Ethics?  
   - What are values and norms?  
   - Relationship between being ethical and human fulfillment.  
   - How to form a value system in one's personal and professional life.  
   - Heteronomous Ethics and Autonomous Ethics.  
   - Freedom and personal Responsibility.  

2. Definition of Medical Ethics  
   - Difference between medical ethics and bio-ethics  
   - Major Principles of Medical Ethics  
     - Beneficence = fraternity  
     - Justice = equality  
     - Self determination (autonomy) = liberty  

3. Perspective of Medical Ethics  
   - The Hippocratic Oath.  
   - The Declaration of Helsinki.  
   - The WHO Declaration of Geneva.  
   - International code of Medical Ethics. (1993)  
   - Medical Council of India Code of Ethics.
4. Ethics of the Individual

- The patient as a person.
- The Right to be respected.
- Truth and Confidentiality.
- The autonomy of decision.
- The concept of disease, health and healing.
- The Right to health.
- Ethics of Behaviour modification.
- The Physician – Patient relationship.
- Organ donation.

5. The Ethics of Human life

- What is human life?
- Criteria for distinguishing the human and the non-human.
- Reasons for respecting human life.
- The beginning of human life.
- Conception, contraception.
- Abortion.
- Prenatal sex-determination.
- In vitro fertilization (IVF).
- Artificial Insemination by Husband (AIH).
- Artificial Insemination by Donor (AID).
- Surrogate motherhood.
- Semen Intra-fallopian Transfer (SIFT).
- Gamete Intra-fallopian Transfer (GIFT).
- Zygote Intra-fallopian Transfer (ZIFT).
- Genetic Engineering.

6. The Family and Society in Medical Ethics

- The Ethics of human sexuality.
- Family Planning perspectives.
- Prolongation of life.
- Advanced life directives – The Living Will
- Euthanasia
- Cancer and Terminal Care
7. Profession Ethics

- Code of conduct.
- Contract and confidentiality.
- Charging of fees, Fee-splitting.
- Prescription of drugs.
- Over-investigating the patient.
- Low – Cost drugs, vitamins and tonics.
- Allocation of resources in health care.
- Malpractice and Negligence.

8. Research Ethics

- Animal and experimental research / humaneness.
- Human experimentation.
- Human volunteer research — Informed Consent Drug trials.

9. Ethical workshop of cases

- Gathering all scientific factors.
- Gathering all human factors.
- Gathering all value factors.
- Identifying areas of value — conflict, setting of priorities
- Working out criteria towards decisions.

Recommended Reading

1. Francis C.M., Medical Ethics, 1 Ed, 1993, Jaypee Brothers, New Delhi, p 189, Rs. 150/-


4. CPCSEA Guidelines 2001 (www.cpcsea.org.)


CHAPTER V
SYLLABUS

Goals:
The goals of three year degree course in anaesthesiology (two years for post diploma in
anaesthesia) would be to train a MBBS doctor who after the satisfactory completion of
which shall:

1. Practice independently the art and science of anaesthesiology and resuscitation
effectively and ethically, backed by scientific knowledge and skill base.
2. Undertake responsibilities in critical care unit, trauma unit, and respiratory therapy
unit of unconscious patients requiring ventilatory support.
3. Undertake acute and chronic pain management.
4. Continue to evince keen interest in continuous professional development irrespective
of whether he is in a teaching institution or in private anaesthetic practice.
5. Be a dedicated, motivated teacher who is always keen to train or to share his
knowledge and skills with a colleague or junior or any learner.

Objectives:
The following objectives are laid out to achieve the goals of the course. These objectives
have to be achieved by the candidates by the time of completion of the course. The
objectives may be considered under the following headings.

1. Knowledge (cognitive domain).
2. Skills (psychomotor domain).
3. Attitudes communication skills, human values and ethical practice.

At the end of the training the candidate must be able to:

1. Knowledge:
   a. Demonstrate understanding of basic sciences relevant to anaesthesia.
   b. Describe the anaesthetic management of common and uncommon surgical
      ailments belonging to various branches of surgery, at all ages requiring operative
      interventions with a basic knowledge of the aetiology, pathophysiology and the
      surgical treatment of the conditions.
   c. Describe the underlying theoretical background of mechanism of pain perception
      and pain management.
   d. Describe the theory of the underlying aetiology, mechanism and management of
      the conditions requiring resuscitation.
   e. Demonstrate, understanding of the theoretical base of polytrauma and the science
      of resuscitation.
   f. Recognise the conditions that may be outside the area of his competence and
      refer them to an appropriate specialist prior to anaesthetising them.
   g. Advice regarding the anaesthetic management of any surgical case and to carry
      out this management effectively.
   h. Update himself / herself by self-study and by attending courses, conferences and
seminars relevant to anaesthesia.
i. Teach and guide his team colleagues and students.
j. Demonstrate understanding of medicolegal aspects of anaesthesia.
k. Demonstrate basic knowledge of the administrative aspects of operating room complex.
l. Undertake audit, use information technology tools and carry out research, both basic and clinical, with the aim of publishing the work and presenting the same at various scientific fora.

2. **Skills:**
   a. Perform pre-anaesthetic evaluation of patients undergoing surgery by taking, proper clinical history, examining the patient, ordering relevant investigations and interpreting them to have additional information about the surgical condition, and or the associated medical condition, which warrant the modification of the proposed anaesthetic management.
b. Administer anaesthesia (general and or regional) to common surgical operations independently and to superspecialities like cardiac surgery, neurosurgery etc. with the help of a senior anaesthesiologist.
c. Provide basic life support (BLS) and advanced cardiac life support (ACLS).
d. Manage airway and perform ventilatory care etc., of unconscious and polytrauma cases as a member of trauma team and critical care unit team.
e. Undertake complete patient monitoring including preoperative, intra-operative and postoperative ventilatory care of the patients.
f. Perform acute and chronic pain management.

3. **Attitudes and Communication Abilities:**
   a. Adopt ethical principles in all aspects of his anaesthetic practice. Professional honesty and integrity are to be fostered. Anaesthesia care is to be delivered to all in need, irrespective of the social status, caste, creed or religion of the patient.
b. Develop communication skills, in particular the skill to explain the various options available in the anaesthetic management, critical care, pain management and to obtain a true informed consent from the patient.
c. Provide leadership in the operating room environment and get best out of the team in a congenial working atmosphere.
d. Apply high moral and ethical standards while carrying out human or animal research.
e. Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.
f. Respect patient’s rights and privileges including patient’s right to information and right to seek a second opinion.

**Course Contents:**

It includes topics not only of anaesthesiology but also those aspects of all the other branches of medicine relevant to anaesthesia viz., medicine and its allied subjects, surgery and its allied branches, pediatrics, applied anatomy, physiology, pathology, pharmacology, microbiology etc. It is intended as a guide to the candidates and it is not comprehensive. As and when there is newer development, it becomes eligible for
inclusion. Hence, the candidates should be familiar with the current content of the scientific journals and reviews of major topics, in anaesthesia.

A. History of anaesthesiology
B. Basic sciences related to anaesthesia including anatomy, physiology, pharmacology, biochemistry, patho physiology, immunology and genetics.
C. Medicine applied to anaesthesiology.
D. Physics related to anaesthesiology, electronics, computers and lasers, in anaesthesiology. Internet/Medline and its uses and applications
E. Anaesthesiology.
   a. Pre anaesthetic evaluation and preparation.
   b. Principles and practice of anaesthesiology including pre, per and post operative care, of patients belonging to general surgery and other specialities like cardiothoracic surgery, neurosurgery, orthopaedics, plastic surgery and surgical endocrinology, surgical oncology, paediatric, obstetrics and gynaecology, ENT, ophthalmology, urology, dental surgery, laproscopic surgery etc.
   c. Blood transfusion fluid and electrolyte balance, acid base balance.
   d. Fires and explosion in operation theatre.
   e. Operation theatre sterilization procedures.
F. Pain clinic organisation and management, pain pathway, and management of pain.
G. Respiratory therapy and management of both acute and chronic respiratory insufficiencies and ventilator commitments in, ICU
H. Critical care anaesthesiology and trauma care unit management.
   a. Different methods of anaesthetic techniques.
   b. Regional anaesthesia including spinal, epidural and caudal etc.
   c. Local anaesthesia including nerve blocks.
   d. Anaesthesia in abnormal environments like high attitude anaesthesia etc.
   e. Complication in anaesthesiology and their management both pre and post operatively.
   f. Anaesthesia for day care surgery.
   g. Anaesthesia for diagnostic procedure like endoscopy CT Scan MRI etc
I. Informed consent/medicolegal issues: understanding the implications of acts of omission and commission in practice. Issues regarding consumer protection implications in medicolegal cases.
J. Communication skills with colleagues teachers, patients, and patients relatives.
K. Principles of anaesthesia audit, understanding the audit process and outcome; methods adopted for the same.
L. Essentials of Research methodology:
   b. Ability to undertake clinical and basic research.
   c. Ability to publish results of one’s work.
M. Principles of evidence based medicine and its application in anaesthetic practice.
N. Medical ethics/social responsibilities of the anaesthesiologists.
O. Record keeping: Ability to keep records as scientifically as possible; knowledge of computers is beneficial.
TECHNICAL SKILLS TO BE ACQUIRED:

The list within the tables indicates the procedures that the student should, by the end of the course, be able to perform independently (PI) by himself / herself, should have performed with assistance (PA) should have observed (O) or assisted (A) during the course. NA - Not Applicable

Skills may be considered under the following headings:

1. Basic graduate skills.
2. Anaesthesia procedures.
3. Critical care procedures.
4. Emergency room procedures.
5. Pain alleviation procedures.
6. Miscellaneous
   a. Disaster management camps
   b. Mass casualties
   c. Safety in Anaesthesia and occupational hazards
   d. Planning of operation theatres
   e. Selection and purchase of equipments

a. Basic Graduate Skills:
The student should have acquired certain skills during his undergraduation and internship. These skills have to be reinforced at the beginning of the training period. These include:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Category</th>
<th>Year</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion of I.V. lines</td>
<td>PI</td>
<td>I</td>
<td>100</td>
</tr>
<tr>
<td>Insertion of Nasogastic Tubes</td>
<td>PI</td>
<td>I</td>
<td>100</td>
</tr>
<tr>
<td>Recording of Vital Signs</td>
<td>PI</td>
<td>I</td>
<td>100</td>
</tr>
</tbody>
</table>

b. Anaesthesia Procedures:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Category</th>
<th>Year</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orotracheal intubation</td>
<td>PI</td>
<td>I/II/III</td>
<td>100</td>
</tr>
<tr>
<td>Nasotracheal Intubation</td>
<td>PI</td>
<td>I/II/III</td>
<td>50</td>
</tr>
<tr>
<td>Supraglottic airway devices</td>
<td>PI</td>
<td>I/II/III</td>
<td>50</td>
</tr>
<tr>
<td>Fibreoptic intubation</td>
<td>PA/PO</td>
<td>II/III</td>
<td>10</td>
</tr>
<tr>
<td>Videolaryngoscope assisted intubation</td>
<td>PA/PO</td>
<td>II/III</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Category</th>
<th>Year</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airway (oral/nasal) insertion</td>
<td>PI</td>
<td>I/II/III</td>
<td>100</td>
</tr>
<tr>
<td>Subarachnoid block</td>
<td>PI</td>
<td>I/II/III</td>
<td>100</td>
</tr>
<tr>
<td>Epidural block (including caudal)</td>
<td>PI</td>
<td>I/II/III</td>
<td>10</td>
</tr>
<tr>
<td>Brachial plexus block(Ultrasound guidance)</td>
<td>PI</td>
<td>I/II/III</td>
<td>5</td>
</tr>
<tr>
<td>Intravenous regional analgesia</td>
<td>PI</td>
<td>II/III</td>
<td>5</td>
</tr>
<tr>
<td>Three in one block</td>
<td>PI</td>
<td>II/III</td>
<td>2</td>
</tr>
<tr>
<td>Rectus sheath block</td>
<td>PI</td>
<td>II/III</td>
<td>2</td>
</tr>
<tr>
<td>Hernia block</td>
<td>PI</td>
<td>II/III</td>
<td>2</td>
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</tbody>
</table>
Other nerve blocks  
Major anaesthesia procedures  
Minor anaesthesia procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Level</th>
<th>PI</th>
<th>PA/PI</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other nerve blocks</td>
<td></td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
<tr>
<td>Major anaesthesia procedures</td>
<td></td>
<td></td>
<td>PA/PI</td>
<td>II/III*</td>
</tr>
<tr>
<td>Minor anaesthesia procedures</td>
<td></td>
<td></td>
<td>PA/PI</td>
<td>II/III*</td>
</tr>
</tbody>
</table>

**c. Critical Care Procedures:**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Level</th>
<th>PI</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion of arterial lines</td>
<td>I</td>
<td>PI</td>
<td>5</td>
</tr>
<tr>
<td>Insertion of central venous lines</td>
<td>I</td>
<td>PI</td>
<td>5</td>
</tr>
<tr>
<td>Intercostal drainage</td>
<td>O</td>
<td></td>
<td>II/III</td>
</tr>
<tr>
<td>Tracheostomy</td>
<td>O</td>
<td></td>
<td>III</td>
</tr>
<tr>
<td>Ventilatory management of patients</td>
<td>I</td>
<td>PI</td>
<td>50</td>
</tr>
<tr>
<td>Sampling for &amp; interpretation of ABG</td>
<td>I</td>
<td>PI</td>
<td>50</td>
</tr>
<tr>
<td>Correction of electrolyte imbalance</td>
<td>O</td>
<td>PI</td>
<td>20</td>
</tr>
<tr>
<td>Fiberoptic bronchoscopy</td>
<td>O</td>
<td>PA</td>
<td>III</td>
</tr>
<tr>
<td>Minitracheostomy</td>
<td>O</td>
<td>PA</td>
<td>III</td>
</tr>
<tr>
<td>Insertion of SWG catheter</td>
<td>O</td>
<td></td>
<td>III</td>
</tr>
</tbody>
</table>

**a. Emergency Room Procedures:**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Level</th>
<th>PI</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiopulmonary resuscitation (BLS &amp; ACLS)</td>
<td></td>
<td>PI</td>
<td>I/II/III</td>
</tr>
<tr>
<td>Management of cardiac failure</td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
<tr>
<td>Management of respiratory failure</td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
<tr>
<td>Management of shock</td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
<tr>
<td>Management of airway obstruction</td>
<td></td>
<td>PI</td>
<td>I/II/III</td>
</tr>
</tbody>
</table>

**b. Pain Alleviation Procedures:**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Level</th>
<th>PI</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stellate ganglion block</td>
<td></td>
<td>PA/PO</td>
<td>III</td>
</tr>
<tr>
<td>Coeliac ganglion block</td>
<td></td>
<td>PA/PO</td>
<td>III</td>
</tr>
<tr>
<td>Trigeminal nerve block</td>
<td></td>
<td>PA</td>
<td>III</td>
</tr>
<tr>
<td>Labour analgesia</td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
<tr>
<td>Post operative pain management</td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
<tr>
<td>Neurolysis, &amp; other nerve ablation procedures</td>
<td></td>
<td>PA</td>
<td>III</td>
</tr>
<tr>
<td>TENS</td>
<td></td>
<td>PI</td>
<td>II/III</td>
</tr>
</tbody>
</table>

**Teaching and Learning Activities**

A candidate pursuing the course should work in the institution as a full time student. No candidate should be permitted to run a clinic/laboratory/nursing home, while studying postgraduate course. Each year should be taken as a unit for the purpose of calculating attendance.

Every student shall attend teaching and learning activities during each year as prescribed by the department and not absent himself/herself from work without valid reasons.

A list of teaching and learning activities designed to facilitate students acquire essential knowledge and skills outlined is given below.
1. **Lectures:** Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated.
   a. **Didactic Lectures:** Recommended for selected common topics for postgraduate students of all specialities. Few topics are suggested as examples:
      i. Bio-statistics.
      ii. Use of library
      iii. Research Methods
      iv. Medical code of Conduct and Medical Ethics.
      v. National health and Disease Control Programs.
      vi. Communication Skills etc.
      vii. Initial introductory lectures about the subject.
      These topics may preferably taken up in the first few weeks of the 1st year.
   b. **Integrated Lectures:** These are recommended to be taken by multidisciplinary teams for selected topics, e.g. jaundice, diabetes mellitus, thyroid etc.

2. **Journal Club:** Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter relevant details in the logbook. Further, every candidate must make a presentation from the allotted journal(s) of selected articles at least four times a year and a total of 12 presentations in three years. The presentations would be evaluated using checklists and would carry weightage for internal assessment (See checklist in chapter IV). A time table with names of the students and the moderator should be announced at the beginning of every year.

3. **Subject seminar:** Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter relevant details in the logbook. Further, every candidate must present on selected topics, at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using checklists and would carry weightage for internal assessment (See checklist in chapter IV). A timetable for the subject, with names of the student and the moderator should be scheduled at the beginning of every year.

4. **Student Symposium:** Recommended as an optional multidisciplinary programme. The evaluation may be similar to that described for subject seminar.

5. **Ward Rounds:** May be service rounds or teaching rounds.
   a) **Service Rounds:** Postgraduate students should do ward rounds every day.
      i) For preanaesthetic evaluation of the patients posted for operation.
      ii) And to do the postanaesthetic follow up of operated patients for alleviation of post-operative pain, fluid management and for diagnosis and management of any of the post-operative sequelae.
   b) **Teaching Rounds:** Every unit should have grand rounds for teaching clinical methods and preanaesthetic evaluation.
      Entries of (a) and (b) should be made in the logbook.

6. **Mortality & Morbidity Meetings:** Recommended once a month for all postgraduate students. Presentation be done by rotation and by the students who
had conducted/assisted anaesthetic management.

7. **Teaching Skills:** Postgraduate students must teach undergraduate students (e.g. medical, nursing) by taking demonstrations, bedside clinics, tutorials, lectures etc. Assessment is made using a checklist by faculty. Record of their participation should be kept in logbook. Training of postgraduate students in educational technology is recommended.

8. **Continuing Medical Education Programmes (CME):** At least 2 state / national level CME programmes should be attended by each student in 3 years.

9. **Conferences:** Attending conferences is optional. However participation & presentation of scientific paper should be encouraged.

10. **Scientific publications:** Postgraduate students are encouraged to conduct scientific studies and publish the same in scientific journals.

**Dissertation:**

Every candidate pursuing MD degree course in anaesthesiology is required to carry out work on a selected research project under the guidance of a recognised postgraduate teacher. The results of such a work shall be submitted in the form of a dissertation.

a. The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.

b. Every candidate shall submit to University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.

c. Such synopsis will be reviewed and the dissertation topic will be registered by the University. No changes in the dissertation topic or guide shall be made without prior approval of the University.

d. The dissertation should be written under the following headings:

   i. Introduction
   ii. Aims and objectives of study
   iii. Review of literature
   iv. Material and methods
   v. Results
   vi. Discussion
   vii. Conclusion
   viii. Summary
   ix. References
   x. Tables
   xi. Annexure

e. The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other Checklists. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27” x 11.69”) and bound properly. Spiral binding should be avoided.
The dissertation shall be certified by the guide, head of the department and head of the institution.

f. Four copies of dissertation thus prepared shall be submitted to the University, six months before final examination, on or before the dates notified by the University.

g. The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

h. Guide: The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work shall be as per Medical Council of India, Minimum qualifications for Teachers in Medical Institutions regulations, 1998. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as lecturer or Assistant Professor, gained after obtaining postgraduate degree, shall be recognized as postgraduate teachers.

   A co-guide may be included, provided the work requires substantial contribution from a sister department or from another medical institution recognised for teaching/training by the University / Medical Council of India. The co-guide shall be a recognized postgraduate teacher.

i. Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of the guide, guide may be changed with prior permission from the University.

j. For some more details regarding guide etc please see Chapter I and for books on research methodology, ethics, etc see Chapter IV.

Rotation and Posting in other departments
The listed knowledge and skills are to be learnt over a period of 3 years. The process is a continuous one. However the recommended period and timing of training in basic sciences, allied departments and speciality departments are given below. The total duration of postings in allied and subspecialties will be 8 months and the remaining 2 years and 4 months in the parent department.

Basic Sciences: Rotation in other departments like, Anatomy, to be done as concurrent studies during the first year of training. At least two hours may be spent in the first six months of the course. Basic science relevant to anaesthesia can be studied in the respective departments in the afternoons.

Anatomy: Special emphasis for the dissection of larynx, trachea, heart, various nerves & plexuses.

Allied Speciality: Students should be posted in ICU, ICCU, SICU (Trauma unit), RICU, NSICU and pain clinic during second year of training for a total duration of 2 months.

Other Subspecialities of Anaesthesia:
Postings to other subspeciality departments will be, during second year and the duration of postings is as shown below:

Cardiothoracic surgery 4 weeks
Neuro surgery 4 weeks
Paediatric surgery 4 weeks
Cancer surgery 2 weeks
Oromaxillofacial surgery 2 weeks
Plastic surgery 2 weeks
Urology 2 weeks
Laprosocopic and endoscopic surgery 2 weeks
Anaesthesia for investigative procedures like CT scan, lithotripsy, cardiac cath lab 1 week
Transfusion medicine 1 week

Yearwise Structured Training Schedule

First Year:
1. Basic Sciences related to anaesthesiology: theoretical knowledge, frequent visits to anatomy dissection halls & museum, to revise the relevant subjects.
2. Theoretical knowledge of anaesthesiology & resuscitation: special emphasis on clinical examination of patients, learning clinical methods, arriving at correct diagnosis.
3. Basic knowledge about
   a. Computers in anaesthesia, Medline, Internet.
   c. Medical audit.
   d. Medicolegal aspects.
   e. Research methodology.
   f. Evidence based medicine.
   g. Medical ethics, and social responsibilities of anesthesiologists.
4. Learning of communication skills.
5. Anaesthesia Skills
   a. Preanaesthetic evaluation / under supervision.
   b. Monitoring of patients throughout perioperative period.
   c. Assisting, setting up of anaesthesia machine, monitors and ventilator.
   d. Assisting the conduct of anaesthesia for major surgeries; knowledge about the complications of anaesthesia.
   e. Assisting for short anaesthesia initially and later on doing independently under supervision
   f. Conduct of anaesthesia OPD.
   g. CPR training and mastering of BLS & ACLS.

Second Year:
1. Theoretical knowledge of allied subjects, subspecialities of anaesthesia. Assisting senior anaesthesiologists in specialised branches like paediatric surgery, cardiothoracic surgery, critical care trauma etc.
2. Anaesthetic Skills: At the end of second year the student should be capable of;
   a. Anaesthetising patients without assistance but under supervision.
   b. Identifying the complications of anaesthesia and manage them independently but under supervision.
   c. Setting up of anaesthesia machines, monitors and ventilator independently.

3. Conference & Workshops: Attending one state level and one national level conference/CME and presentation of a scientific paper.

4. Dissertation: Carrying out of the dissertation study work, periodic reviews, interaction with guide. Organisation of the data, writing up of the manuscript of dissertation at the end of second year.

5. The student should be actively involved in presentation of seminars, journal clubs, case presentation/discussions.

Third Year:
1. The student should be well versed with basics, allied subjects and recent advances in the respective fields.
2. Anaesthesia Skills: At the end of the third year the candidate should be able to make independent decisions as regards anaesthesia, pain management and post operative care of all kinds of patients.
3. Teaching Activities: Final year student should take a lead in conducting seminars, journal clubs, case discussions, panel discussions with I & II year students. The third year students should also involve in teaching undergraduate students especially in operation theatre. They should also involve in taking classes for Allied health sciences/ BSc. OT technician students.
4. Dissertation: The completed dissertation must be submitted to the University, 6 months before the examination, before the notified date.
5. The student must get expertise in the specialised procedures as noted in the course content table.

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring shall be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

The learning out comes to be assessed should include:

1. Personal attitudes
2. Acquisition of knowledge
3. Clinical and operative skills
4. Teaching skills
5. Dissertation
1. **Personal Attitudes:** The essential items are:
   a. Caring attitude
   b. Initiative
   c. Organizational ability
   d. Potential to cope with stressful situations and undertake responsibility
   e. Trustworthiness and reliability
   f. To understand and communicate intelligibly with patients and others
   g. To behave in a manner which establishes professional relationships with patients and colleagues
   h. Ability to work in a team.
   i. A critical enquiring approach to the acquisition of knowledge.

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. **Acquisition of knowledge:** The methods used comprise of ‘Log Book’ which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

   a. **Journal review meeting (Journal Club):** The ability to do literature search, in-depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)

   b. **Seminars / Symposia:** The topics should be assigned to the student well in advance to facilitate in-depth study. The ability to do literature search, in-depth study, presentation skills and use of audio-visual aids are to assessed using a checklist (see Model Checklist II, Chapter IV)

   c. **Clinico – pathological conferences:** This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presentation(s) are to be assessed using a checklist similar to that used for seminar.

   d. **Medical Audit:** Periodic morbidity and mortality meeting be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. **Clinical Skills:**
   a. **Day to Day work:** Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidate’s sincerity and punctuality, analytical ability and communication skills (see Model Checklist III, Chapter IV)
b. **Clinical Meeting:** Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model Checklist IV, Chapter IV)

c. **Clinical and Procedural skills:** The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No. 3, Chapter IV)

4. **Teaching skills:** Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students. (See Model Checklist V, Chapter IV)

5. **Dissertation in the Department:** Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalization for critical evaluation and another before final submission of the completed work (see Model Checklist IV & VII, Chapter IV)

6. **Periodic tests:** The department may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

7. **Work diary / Look Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

8. **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

**Log Book**

The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

**Format for the log book** for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

**Procedure for defaulters:** Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may
recommended that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

**Scheme of Examination**

**A. Theory:**

Written examination shall consist of four question papers, each of three hours duration. Each paper shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances to be asked in paper IV. Distribution of topics for each paper will be as follows:

**Paper I: Basic Science as applicable to anaesthesia.**

a. Anatomy.
b. Physiology.
c. Pharmacology.
d. Physics.
e. Biochemistry.
f. Pathology.
g. History.
h. Equipments.

**Paper II: Clinical Practice of anaesthesia.**

a. Cardio vascular system.
b. Respiratory system.
c. Neuro surgery.
d. Obstetrics and gynecology
e. Orthopaedics.
f. Ophthalmology.

**Paper III: Clinical Practice of anaesthesia.**

a. Paediatrics.
b. Renal and hepatic system.
c. Endocrines.
d. Haemopoitics.
e. Geriatrics
f. ENT
g. Outpatient anaesthesia and dental anaesthesia.
h. Nerve blocks.

**Paper IV:**

a. Applied medicine in relation to anaesthesia.
b. Theoretical aspects of pain and pain relief including postoperative & cancer pain.
c. ICU, critical care and recent advances
B. Clinical Examination:  200 marks

It should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine & present one long case (carrying 100 marks) and two short cases (each carrying 50 marks). The total marks for clinical examination shall be 200.

C. Viva-Voce:  100 marks

Viva-Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The total marks shall be 100 and the distribution of marks shall be as under:

a. For examination of all components of syllabus ........ 80 marks

All examiners will conduct viva-voce conjointly on candidate’s comprehension, analytical approach expression and interpretation of data. It includes all components of course contents. In addition the candidate may also be given, instruments/equipments, X-ray images, ABG reports, ECG strips, drugs ultrasound/echocardiography reports & specimens. It includes discussion on dissertation also.

a. For teaching skills (Pedagogy)........ 20 marks

A topic to be given to each candidate in the beginning of clinical examination. He / She is asked to make presentation on the topic for 8 to 10 minutes.

<table>
<thead>
<tr>
<th>Maximum marks for</th>
<th>Theory</th>
<th>Practical</th>
<th>Viva</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>M D Anaesthesiology</td>
<td>400</td>
<td>200</td>
<td>100</td>
<td>700</td>
</tr>
</tbody>
</table>
Recommended Books and Journals

Books:
1. Practice of Anaesthesiology - Wylie - Churchill - Davidson.
2. General Anesthesia – Prys Roberts
3. Anaesthesia - Two volumes, Ronald D, Miller.
4. Anatomy for Anaesthetist - Harold Eillis
5. Understanding Anaesthetic Equipments - Dorsch & Dorsch.
6. Emergency Anaesthesia - Thronton
9. Neurosurgical Anaesthesia - Hunter
12. Anaesthesia and co existing diseases - Stoelting.
13. Anaesthesia Equipment - Ehrenwerth and James. B. Eiscnkraft
15. Anaesthesia for infants and children - Smith
16. Obstetrics Anaesthesia - Bonica
17. Regional Anaesthesia - Macintosh series
18. Epidural Analgesia - Bromage
19. Medical problems of Anaesthesia - Kaulman
20. Principles of Anaesthesiology - Collins
21. Anaesthesia for Orthopedic Surgery - Zauder and others
22. Neural Blockade - Cousins
23. Cardiac Anaesthesia – Kaplan
24. Thoracic Anaesthesia - Kaplan and Muschin
25. Regional Anaesthesia - Labot
26. Drugs Interactions & other basic Medical science - Anaesthesia speciality books.
27. Fluids and Electrolytes with clinical applications- 8th edition. Joyyce LeFever Kee
28. Acid-base, Fluids and Electrolytes- Robert F. Reilly
29. Fluid and Electrolytes in Pediatrics- Leonard G. Feld
30. Transfusion Medicine- Rossi 5th edition

Journals
1. Anesthesia and Analgesia
2. Anaesthesiology
3. Anaesthesia I
5. Canadian Journal of Anaesthesia
6. Indian Journal of Anaesthesiology
7. British Journal of Anaesthesia
8. Expert Anaesthesia
9. Recent advances in Anaesthesiology
10. Year Book of Anaesthesia
11. Anesthesia Clinics
12. Clinics in North America in Anaesthesiology
DIPLOMA IN ANAESTHESIOLOGY (DA)

Goals:
The goals of two year diploma course in anaesthesiology would be to train a MBBS doctor who after the satisfactory completion of which shall:
1. Practice independently the art and science of anaesthesiology and resuscitation effectively and ethically, backed by scientific knowledge and skill base.
2. Undertake responsibilities in critical care unit, trauma unit, and respiratory therapy unit of unconscious patients requiring ventilatory support.
3. Undertake acute and chronic pain management.
4. Continue to evince keen interest in continuous professional development irrespective of whether he is in a teaching institution or in private anaesthetic practice.

Objectives:
The following objectives are laid out to achieve the goals of the course. These objectives have to be achieved by the candidates by the time of completion of the course. The objectives may be considered under the following headings.
1. Knowledge (cognitive domain).
2. Skills (psychomotor domain).
3. Attitudes communication skills, human values and ethical practice.

At the end of the training the candidate must be able to:

1. Knowledge:
   a. Demonstrate understanding of basic sciences relevant to anaesthesia.
   b. Describe the anaesthetic management of common and uncommon surgical ailments belonging to various branches of surgery, at all ages requiring operative interventions with a basic knowledge of the aetiology, pathophysiology and the surgical treatment of the conditions.
   c. Describe the underlying theoretical background of mechanism of pain perception and pain management.
   d. Describe the theory of the underlying aetiology, mechanism and management of the conditions requiring resuscitation.
   e. Understanding of the theoretical base of polytrauma and the science of resuscitation.
   f. Recognise the conditions that may be outside the area of his competence and refer them to an appropriate specialist prior to anaesthetising them.
   g. Advice regarding the anaesthetic management of any surgical case and to carry out this management effectively.
   h. Update himself / herself by self-study and by attending courses, conferences and seminars relevant to anaesthesia.
   i. Understanding of medicolegal aspects of anaesthesia.
2. **Skills:**
   a. Perform pre-anaesthetic evaluation of patients undergoing surgery by taking, proper clinical history, examining the patient, ordering relevant investigations and interpreting them to have additional information about the surgical condition, and or the associated medical condition, which warrant the modification of the proposed anaesthetic management.
   b. Administer anaesthesia (general and or regional) to common surgical operations independently and to superspecialities like cardiac surgery, neurosurgery etc. with the help of a senior anaesthesiologist.
   c. Provide basic life support (BLS) and advanced cardiac life support (ACLS).
   d. Manage airway and perform ventilatory care etc., of unconscious and polytrauma cases as a member of trauma team and critical care unit team.
   e. Undertake complete patient monitoring including preoperative, intra-operative and postoperative ventilatory care of the patients.
   f. Perform acute and chronic pain management.

3. **Attitudes and Communication Abilities:**
   a. Adopt ethical principles in all aspects of his anaesthetic practice. Professional honesty and integrity are to be fostered. Anaesthesia care is to be delivered to all in need, irrespective of the social status, caste, creed or religion of the patient.
   b. Develop communication skills, in particular the skill to explain the various options available in the anaesthetic management, critical care, pain management and to obtain a true informed consent from the patient.
   c. Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues when needed.
   d. Respect patient’s rights and privileges including patient’s right to information and right to seek a second opinion.

**Course Contents:**

It includes topics not only of anaesthesiology but also those aspects of all the other branches of medicine relevant to anaesthesia viz., medicine and its allied subjects, surgery and its allied branches, pediatrics, applied anatomy, physiology, pathology, pharmacology, microbiology etc. It is intended as a guide to the candidates and it is not comprehensive. As and when there is newer development, it becomes eligible for inclusion. Hence, the candidates should be familiar with the current content of the scientific journals and reviews of major topics, in anaesthesia.

1. History of anaesthesiology.
2. Basic sciences related to anaesthesia including anatomy, physiology, pharmacology, biochemistry, patho physiology, immunology and genetics.
3. Medicine applied to anaesthesiology.
4. Physics related to anaesthesiology, electronics, computers and lasers, in anaesthesiology. Internet/Medline and its uses and applications
5. Anaesthesiology.
   a. Pre anaesthetic evaluation and preparation.
   b. Principles and practice of anaesthesiology including pre, per and post operative
care, of patients belonging to general surgery and other subspecialities like cardiothoracic surgery, neurosurgery, orthopaedics, plastic surgery and surgical endocrinology, surgical oncology, paediatric, obstetrics and gynaecology, ent, ophthalmology, urology, dental surgery, laproscopic surgery etc.

c. Blood transfusion fluid and electrolyte balance, acid base balance.
d. Fires and explosion in operation theatre.
e. Operation theatre sterilization procedures.


7. Respiratory therapy and management of both acute and chronic respiratory insufficiencies and ventilator commitments in, I.C.U.

8. Critical care anaesthesiology and trauma care unit management.
   a. Different methods of anaesthetic techniques.
   b. Regional anaesthesia including spinal, epidural and caudal etc.
   c. Local anaesthesia including nerve blocks.
   d. Anaesthesia in abnormal environments like high attitude anaesthesia etc.
   e. Complication in anaesthesiology and their management both pre and post operatively.
   f. Anaesthesia for day care surgery.
   g. Anaesthesia for diagnostic procedure like endoscopy CT Scan MRI etc.


10. Communication skills with colleagues teachers, patients, and patients relatives.

11. Principles of anaesthesia audit, understanding the audit process and outcome; methods adopted for the same.


13. Medical ethics/social responsibilities of the anaesthesiologists.

14. Record keeping: Ability to keep records as scientifically as possible; knowledge of computers is beneficial.

**TECHNICAL SKILLS TO BE ACQUIRED:**

The list within the tables indicates the procedures that the student should, by the end of the course, be able to perform independently (PI) by himself / herself, should have performed with assistance (PA) should have observed (O) or assisted (A) during the course. NA - Not Applicable

Skills may be considered under the following headings:

1. Basic graduate skills.
2. Anaesthesia procedures.
3. Critical care procedures.
4. Emergency room procedures.
5. Pain alleviation procedures.
6. Miscellaneous
   a. Disaster management camps
   b. Mass casualties
   c. Safety in Anaesthesia and occupational hazards
d. Planning of operation theatres  
e. Selection and purchase of equipments

**a. Basic Graduate Skills:**
The student should have acquired certain skills during his undergraduation and internship. These skills have to be reinforced at the beginning of the training period. These include:

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Category</th>
<th>Year</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion of IV lines</td>
<td>PI</td>
<td>I</td>
<td>75</td>
</tr>
<tr>
<td>Insertion of nasogastic tubes</td>
<td>PI</td>
<td>I</td>
<td>75</td>
</tr>
<tr>
<td>Recording of vital signs</td>
<td>PI</td>
<td>I</td>
<td>75</td>
</tr>
</tbody>
</table>

**b. Anaesthesia Procedures:**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Category</th>
<th>Year</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orotracheal intubation</td>
<td>PI</td>
<td>I/II</td>
<td>75</td>
</tr>
<tr>
<td>Nasotracheal Intubation</td>
<td>PI</td>
<td>I/II</td>
<td>25</td>
</tr>
<tr>
<td>Supraglottic airway devices</td>
<td>PI</td>
<td>I/II/III</td>
<td>50</td>
</tr>
<tr>
<td>Fibreoptic intubation</td>
<td>PA/PO</td>
<td>II/III</td>
<td>5</td>
</tr>
<tr>
<td>Videolaryngoscope assisted intubation</td>
<td>PA/PO</td>
<td>II/III</td>
<td>5</td>
</tr>
<tr>
<td>Airway (oral/nasal) insertion</td>
<td>PI</td>
<td>I/II</td>
<td>75</td>
</tr>
<tr>
<td>Subarachnoid block</td>
<td>PI</td>
<td>I/II</td>
<td>75</td>
</tr>
<tr>
<td>Epidural block (including caudal)</td>
<td>PI</td>
<td>I/II</td>
<td>5</td>
</tr>
<tr>
<td>Brachial plexus block (ultrasound guidance)</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Intravenous regional analgesia</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Three in one block</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Rectus sheath block</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Hernia block</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Other nerve blocks</td>
<td>PI</td>
<td>II</td>
<td>10</td>
</tr>
<tr>
<td>Major anaesthesia procedures</td>
<td>PA/PI</td>
<td>II* per year</td>
<td>100</td>
</tr>
<tr>
<td>Minor anaesthesia procedures</td>
<td>PA/PI</td>
<td>II* per year</td>
<td>200</td>
</tr>
</tbody>
</table>

*Per year

**c. Critical Care Procedures:**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Category</th>
<th>Year</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion of arterial lines</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Insertion of central venous lines</td>
<td>PI</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Intercostal drainage</td>
<td>O</td>
<td>II</td>
<td>NA</td>
</tr>
<tr>
<td>Tracheostomy</td>
<td>O</td>
<td>II</td>
<td>NA</td>
</tr>
<tr>
<td>Ventilatory management of patients</td>
<td>PI</td>
<td>II</td>
<td>20</td>
</tr>
<tr>
<td>Sampling for &amp; interpretation of ABG</td>
<td>PI</td>
<td>II</td>
<td>20</td>
</tr>
<tr>
<td>Correction of electrolyte imbalance</td>
<td>PI</td>
<td>II</td>
<td>10</td>
</tr>
<tr>
<td>Fiberoptic bronchoscopy</td>
<td>O</td>
<td>II</td>
<td>2</td>
</tr>
<tr>
<td>Minitracheostomy</td>
<td>O</td>
<td>II</td>
<td>NA</td>
</tr>
</tbody>
</table>
c. Emergency Room Procedures:

- Cardiopulmonary resuscitation (BLS & ACLS)  
  PI  I/II  20
- Management of cardiac failure  
  PI  II  2
- Management of respiratory failure  
  PI  II  5
- Management of shock  
  PI  II  2
- Management of airway obstruction  
  PI  I/II  5

**Pain Alleviation Procedures:**

- Stellate ganglion block  
  PA/PO  II  2
- Coeliac ganglion block  
  PA/PO  II  2
- Trigeminal nerve block  
  PA/PO  II  2
- Labour analgesia  
  PI  II
- Post operative pain management  
  PI  II  100
- Neurolysis & other nerve ablation procedures  
  PA  II  2
- TENS  
  PI  II  2

**Teaching and Learning Activities**

A candidate pursuing the course should work in the institution as a full time student. No candidate should be permitted to run a clinic/laboratory/nursing home, while studying postgraduate course. Each year should be taken as a unit for the purpose of calculating attendance.

Every student shall attend teaching and learning activities during each year as prescribed by the department and not absent himself/herself from work without valid reasons.

A list of teaching and learning activities designed to facilitate students acquire essential knowledge and skills outlined is given below.

1. **Lectures:** Lectures are to be kept to a minimum. They may, however, be employed for teaching certain topics. Lectures may be didactic or integrated.
   a. **Didactic Lectures:** Recommended for selected common topics for postgraduate students of all specialities. Few topics are suggested as examples:
      i. Bio-statistics.
      ii. Use of library
      iii. Medical code of Conduct and Medical Ethics.
      iv. National health and Disease Control Programs.
      v. Communication Skills etc.
      vi. Initial introductory lectures about the subject.
   These topics may preferably taken up in the first few weeks of the 1st year.
   c. **Integrated Lectures:** These are recommended to be taken by multidisciplinary teams for selected topics, e.g. jaundice, diabetes mellitus, thyroid etc.
2. **Journal Club:** Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter relevant details in the logbook. Further, every candidate must make a presentation from the allotted journal(s) of selected articles at least four times a year and a total of 8 presentations in two years. The presentations would be evaluated using checklists and would carry weightage for internal assessment (See checklist in chapter IV). A time table with names of the students and the moderator should be announced at the beginning of every year.

3. **Subject seminar:** Recommended to be held once a week. All the PG students are expected to attend and actively participate in discussion and enter relevant details in the logbook. Further, every candidate must make a presentation from the allotted journal(s) of selected articles at least four times a year and a total of 8 presentations in two years. The presentations would be evaluated using checklists and would carry weightage for internal assessment (See checklist in chapter IV). A timetable for the subject, with names of the student and the moderator should be scheduled at the beginning of every year.

4. **Student Symposium:** Recommended as an optional multidisciplinary programme. The evaluation may be similar to that described for subject seminar.

5. **Ward Rounds:** May be service rounds or teaching rounds.
   - a) **Service Rounds:** Postgraduate students should do ward rounds every day.
     - i) For preanaesthetic evaluation of the patients posted for operation.
     - ii) And to do the postanaesthetic follow up of operated patients for alleviation of post-operative pain, fluid management and for diagnosis and management of any of the post-operative sequelae.
   - b) **Teaching Rounds:** Every unit should have grand rounds for teaching clinical methods and preanaesthetic evaluation.
     Entries of (a) and (b) should be made in the logbook

6. **Mortality & Morbidity Meetings:** Recommended once a month for all postgraduate students. Presentation be done by rotation and by the students who had conducted/assisted anaesthetic management.

7. **Continuing Medical Education Programmes (CME):** At least 2 state / national level CME programmes should be attended by each student in 2 years.

8. **Conferences:** Attending conferences is optional. However participation & presentation of scientific paper should be encouraged.

9. **Scientific publications:** Postgraduate students are encouraged to conduct scientific studies and publish the same in scientific journals.

**Rotation and Posting in other departments**

The listed knowledge and skills are to be learnt over a period of 2 years. The process is a continuous one. However the recommended period and timing of training in basic sciences, allied departments and specialty departments are given below. The total duration of postings in allied and subspecialities will be 8 months and the remaining 1 year and 4 months in the parent department.

**Basic Sciences:** Rotation in other departments like, Anatomy, to be done as concurrent
studies during the first year of training. At least two hours may be spent in the first six months of the course. Basic science relevant to anaesthesia can be studied in the respective departments in the afternoons.

**Anatomy:** Special emphasis for the dissection of larynx, trachea, heart, various nerves & plexuses.

**Allied Speciality:** Students should be posted in ICU, ICCU, SICU (Trauma unit), RICU, NSICU and pain clinic during second year of training for a total duration of 2 months.

**Other Subspecialities of Anaesthesia:**

Postings to other subspeciality departments will be, during second year and the duration of postings is as shown below:

- Cardiothoracic surgery: 3 weeks
- Neuro surgery: 3 weeks
- Paediatric surgery: 3 weeks
- Cancer surgery: 2 weeks
- Oromaxillofacial surgery: 2 weeks
- Plastic surgery: 2 weeks
- Urology: 2 weeks
- Laproscopic and endoscopic surgery: 2 weeks
- Anaesthesia for investigative procedures like CT scan, lithotripsy, cardiac cath lab: 1 week
- Transfusion medicine: 1 week

**Yearwise Structured Training Schedule**

**First Year:**

1. Basic Sciences related to anaesthesiology: theoretical knowledge, frequent visits to anatomy dissection halls & museum, to revise the relevant subjects.

2. Theoretical knowledge of anaesthesiology & resuscitation: special emphasis on clinical examination of patients, learning clinical methods, arriving at correct diagnosis.

3. Basic knowledge about
   a. Computers in anaesthesia, Medline, Internet.
   c. Medical audit.
   d. Medicolegal aspects.
   e. Evidence based medicine.
   f. Medical ethics and social responsibilities of anesthesiologists.

4. Learning of communication skills.

5. Anaesthesia Skills
   a. Preanaesthetic evaluation / under supervision.
   b. Monitoring of patients throughout perioperative period.
c. Assisting, setting up of anaesthesia machine, monitors and ventilator.
d. Assisting the conduct of anaesthesia for major surgeries; knowledge about the complications of anaesthesia.
e. Assisting for short anaesthesia initially and later on doing independently under supervision
f. Conduct of anaesthesia OPD.
g. CPR training and mastering of BLS & ACLS.

**Second Year:**

1. Theoretical knowledge of allied subjects, subspecialities of anaesthesia. Assisting senior anaesthesiologists in specialised branches like paediatric surgery, cardiothoracic surgery, critical care trauma etc.

2. Anaesthetic Skills: At the end of second year the student should be capable of;

   a. Anaesthetising patients without assistance but under supervision.
   b. Identifying the complications of anaesthesia and manage them independently but under supervision.
   c. Setting up of anaesthesia machines, monitors and ventilator independently.

3. Conference & Workshops: Attending one state level and one national level conference/CME and presentation of a scientific paper.

4. The student should be actively involved in presentation of seminars, journal clubs, case presentation/discussions.

5. The student should be well versed with basics, allied subjects and recent advances in the respective fields.

6. Anaesthesia Skills: At the end of the second year the candidate should be able to make independent decisions as regards anaesthesia, pain management and post operative care of all kinds of patients.

7. The student must get expertise in the specialised procedures as noted in the course content table.

**Monitoring Learning Progress**

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring shall be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter IV.

The learning outcome to be assessed should include:

1. Personal attitudes
2. Acquisition of knowledge
3. Clinical and operative skills

1. **Personal Attitudes:** The essential items are:

   a. Caring attitude
b. Initiative  
c. Organizational ability  
d. Potential to cope with stressful situations and undertake responsibility.  
e. Trustworthiness and reliability.  
f. To understand and communicate intelligibly with patients and others.  
g. To behave in a manner which establishes professional relationships with patients and colleagues.  
h. Ability to work in a team.  
i. A critical enquiring approach to the acquisition of knowledge.

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Acquisition of knowledge: The methods used comprise of ‘Log Book’ which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

   a. Journal review meeting (Journal Club): The ability to do literature search, in depth study, presentation skills, and use of audio – visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I, Chapter IV)  

   b. Seminars / Symposia: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio – visual aids are to assessed using a checklist (see Model Check List II, Chapter IV)  

   c. Clinico – pathological conferences: This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presentation(s) are to be assessed using a checklist similar to that used for seminar.

3. Clinical Skills:  
   
   a. Day to Day work: Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidate’s sincerity and punctuality, analytical ability and communication skills (see Model Checklist III, Chapter IV)  

   b. Clinical Meeting: Candidates should periodically present cases to his peers and faculty members. This should assessed using a check list (see Model Checklist IV, Chapter IV)  

   c. Clinical and Procedural skills: The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No. 3, Chapter IV)
4. **Periodic tests:** The department may conduct two tests, one at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.

5. **Work diary / Look Book:** Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

6. **Records:** Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

**Log Book**

The log book is a record of the important activities of the candidates during his training. Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

**Format for the log book** for the different activities is given in Tables 1, 2 and 3 of Chapter IV. Copies may be made and used by the institutions.

**Procedure for defaulters:** Every department should have a committee to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommended that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

**Scheme of Examination**

**A. Theory:**

Written examination shall consist of three question papers, each of three hours duration. Each paper shall consist of two long questions carrying 20 marks each and 6 short essay questions each carrying 10 marks. Total marks for each paper will be 100. Questions on recent advances to be asked in any or all the papers. Distribution of topics for each paper will be as follows:

**Paper I: Basic Science as applicable to anaesthesia.**

a. Anatomy.

b. Physiology.

c. Pharmacology.

d. Physics.
e. Biochemistry.
f. History of anaesthesia.

**Paper II: Clinical Practice of anaesthesia.**
- a. Cardio vascular system.
- b. Respiratory system.
- c. Neuro surgery.
- d. Paediatrics.
- e. Obstetrics and gynecology
- f. Orthopaedics.
- g. Renal and hepatic system
- h. Ophthalmology.

**Paper III: Clinical Practice of anaesthesia.**
- a. ENT
- b. Endocrinics.
- c. Geriatrics
- d. Outpatient anaesthesia and dental anaesthesia
- e. Critical care

**B. Clinical Examination:** 150 marks
It should aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate should examine & present one long case (carrying 80 marks) and two short cases (each carrying 35 marks). The total marks for clinical examination shall be 150.

**C. Viva-Voce:** 50 marks
Viva-Voce examination shall aim at assessing depth of knowledge, logical reasoning, confidence and oral communication skills. The total marks shall be 50 and the distribution of marks shall be as under:

- a. For examination of all components of syllabus .......... 50 marks

All examiners will conduct viva-voce jointly on candidate’s comprehension, analytical approach expression and interpretation of data. It includes all components of course contents. In addition the candidate may also be given, instruments/equipments, X-ray images, ABG reports, ECG strips, drugs ultrasound/echocardiography reports & specimens.

<table>
<thead>
<tr>
<th>Maximum marks for Diploma in Anaesthesiology</th>
<th>Theory</th>
<th>Practical</th>
<th>Viva</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>300</td>
<td>150</td>
<td>50</td>
<td>500</td>
</tr>
</tbody>
</table>
**Recommended Books and Journals**

**Books:**

1. Practice of Anaesthesiology - Wylie - Churchill - Davidson.
2. General Anesthesia – Prys Roberts
3. Anaesthesia - Two volumes, Ronald D, Miller.
4. Anatomy for Anaesthetist - Harold Eillis
5. Understanding Anaesthetic Equipments - Dorsch & Dorsch.
6. Emergency Anaesthesia - Thronton
9. Neurosurgical Anaesthesia - Hunter
12. Anaesthesia and co existing diseases - Stoelting.
13. Anaesthesia Equipment - Ehrenwerth and James. B. Eiscnkraft
15. Anaesthesia for infants and children - Smith
16. Obstetrics Anaesthesia - Bonica
17. Regional Anaesthesia - Macintosh series
18. Epidural Analgesia - Bromage
19. Medical problems of Anaesthesia - Kaulman
20. Principles of Anaesthesiology - Collins
21. Anaesthesia for Orthopedic Surgery - Zauder and others
22. Neural Blockade - Cousins
23. Cardiac Anaesthesia – Kaplan
24. Thoracic Anaesthesia - Kaplan and Muschin
25. Regional Anaesthesia - Labot
26. Drugs Interactions & other basic Medical science - Anaesthesia speciality books.

27. Fluids and Electrolytes with clinical applications- 8th edition. Joyyce LeFever Kee
28. Acid-base, Fluids and Electrolytes- Robert F. Reilly
29. Fluid and Electrolytes in Pediatrics- Leonard G. Feld
30. Transfusion Medicine- Rossi 5th edition

**Journals**

1. Anesthesia and Analgesia
2. Anaesthesiology
3. Anaesthesia
5. Canadian Journal of Anaesthesia
6. Indian Journal of Anaesthesiology
7. British Journal of Anaesthesia
8. Expert Anaesthesia
9. Recent advances in Anaesthesiology
10. Year Book of Anaesthesia
11. Anesthesia Clinics
12. Clinics in North America in Anaesthesiology