



MGM INSTITUTE OF HEALTH SCIENCES

Accredited by NAAC with 'A' Grade

(Deemed University w/s 3 of UGC Act, 1956)

Sector-01, Kamothe, Navi Mumbai - 410 209

Tel 022-27432471, 022-27432994, Fax 022 - 27431094

E-mail : registrar@mgsuhs.com ; Website : www.mgsuhs.com

Curriculum for MD Immunohaematology & Blood Transfusion

Approved as per BOM-32/2013 [resolution no. 5.2.2], dated 29/10/2013



Registrar



M.G.M. MEDICAL COLLEGE & HOSPITAL, KAMOTHE
BLOOD BANK, PLOT NO. 1&2, SECTOR-18, KAMOTHE NAVI MUMBAI
Phone Dir-Blood Bank- 022 27863483, Hospital – 022 27427905 /15 Fax: 022 27420320

CURRICULUM FOR POSTGRADUATE COURSE
M.D. (IMMUNOHAEMATOLOGY & BLOOD TRANSFUSION)

The aim of this course is to train the students of Medicine in the field of Immunohaematology & Blood Transfusion (IH & BT). Knowledge and practical skills shall be acquired by the candidates in the field.

GOAL:

The goal of postgraduate medical education in Immunohaematology & Blood Transfusion shall be to produce competent specialist.

- (i) Who shall recognize the health needs of the community and carry out professional obligation ethically and in keeping with the objectives of the national transfusion policy;
- (ii) Who shall have mastered most of the competencies, retaining to the speciality that are required to be practiced at the secondary and tertiary levels of the healthcare delivery system.
- (iii) Who shall be aware of contemporary advances and developments in the discipline of IH & BT.
- (iv) Who shall have acquired a spirit of scientific inquiry and oriented to the principles of research methodology and epidemiology
- (v) Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.
- (vi) Organize health teams / transfusion camps to provide care during natural or man-made calamities

OBJECTIVES:

At the end of the course a candidate must be able to

- (i) Understand and explain about the scientific basis of blood transfusion.
- (ii) Understand the processes of blood collection, processing and component preparation.

- (iii) Understand and explain the basis of pre transfusion testing.
- (iv) Should be able to explain and diagnose the adverse effects of blood transfusion.
- (v) Should be able to perform apheresis technique independently.
- (vi) Should be able to carry out the antenatal and neonatal transfusion practice.
- (vii) Should be able to plan, perform and report specific research projects.
- (viii) Should be able to give advice on haemotherapy including stem cell transplantation and solve the immunohaematological discrepancies in blood transfusion.

COURSE CONTENT (SYLLABUS)

Duration of course:

The minimum period of training shall be three calendar years and the candidates can be admitted to this training after their full registration with the Medical Council. No exemption shall be given from this period of training of three years either for doing housemanship or for any other experience or diploma.

Training program:

The candidates joining the course must work as full time residents during the whole period of their postgraduate training. They will be required to attend a minimum of 80% of training period. Candidate shall be given full time responsibility and assignments and their participation in all facets of the educational process assured. Postgraduate students must maintain a record book of the work carried out by them and the training undergone by them during the period of training. These record books shall be checked and assessed by the faculty.

Teaching /learning methods:

Learning in M. D. (Immunohaematology & Blood Transfusion) will essentially be self-learning. Following teaching-learning methods shall be followed-

Group teaching sessions:

- Journal review
- Subject seminar presentation
- Group discussion
- Clinical case presentations pertaining to transfusion therapy.

- Presentation of the findings of an exercise on any of the sub-specialties
- Participation in CME programs and conferences

Hands on experience (practical training)

Practical training shall be imparted by posting the students in various sub-specialties (sections) as detailed in the intrinsic and extrinsic rotation. Student shall be actively involved in day to day working of all the sections. He/she will be trained under the guidance of teachers in all the aspects of practice of transfusion therapy and basic blood banking techniques including blood collection, processing, storage of blood products, component preparation, pre transfusion testing, apheresis, screening of blood products and haemotherapy, Including stem cell transplantation.

SUGGESTED SCHEDULE OF ROTATION:

Intrinsic rotation:

The candidates will be rotated through various sections of the department as under:

- | | |
|---|-----------------|
| A) Blood donor management | 6 months |
| Donor recruitment & motivation | |
| Blood donor selection | |
| Phlebotomy | |
| Post donation care of donor | |
| Outdoor blood donation camps | |
|
 | |
| B) Component preparation, Apheresis & Quality Management | 6 months |
| Preparation of various blood components | |
| PRBC, FFP, PC, Cryo, Leuco – poor | |
| Irradiation of blood components | |
| Storage & quality control | |
| Apheresis | |
| Donor apheresis | |
| Therapeutic plasma exchange | |
|
 | |
| C) Transfusion transmitted infection screening | 5 months |
| Screening of various markers | |
| HIV, HCV, HBsAg, Syphilis Methodology | |
| ELISA, Spot, Rapid, Automated analyzer | |
| Molecular techniques | |
|
 | |
| D) Immunohematology | 6 months |
| Diagnosis & Transfusion support in | |

AIHA

PNH

Transfusion reaction

Antenatal serology

Multi – transfused patients

Secretor status

Minor red cell antigen typing

Antibody screening

E) Pre transfusion testing & Cross matching

6 months

ABO grouping & Rh typing

Du testing, genotyping

Irregular antibody screening & identification

Cross – matching

F) Quality control / computers / records

6 weeks

G) PBSCT, Umbilical cord stem cells, Bone marrow stem cells

1 month

Harvest

CD 34 counts

Cryopreservation

TOTAL= 31 ½ months

Training in allied departments

3 months

A) Dept of Pathology (Haematology division)

1 month

Complete haemogram

Reading of peripheral smear

Coagulation work up

B) Dept of Virology

2 weeks

Isolation of lymphocytes

CD4 / CD8 counts

Special molecular techniques

C) Dept of Microbiology

2 weeks

Bacterial culture

Grams staining

D) Dept of Anesthesiology

2 weeks

Intra-operative haemodilution

Operation of cell saver

Intra operative transfusion

E) Dept of Clinical Haematology & BMT

2 weeks

F) Institute of Immunohaematology, Mumbai

1 month

HLA typing

Immunophenotyping incl flowcytometry

Immunofluorescence

G) Advanced Immunohematology, NIH, Mumbai

2 weeks

Advanced Immunohematology and coagulation studies

TOTAL= 4 ½ months

GRAND TOTAL: 36 months

Emergency duty:

Student shall be posted for managing emergency transfusion services in the department. He/she will deal with all the emergency investigations in transfusion medicine.

Training in research methodology:

Training in research methodology shall be imparted by planning of a research project by the student under the guidance of a recognized guide to be executed and submitted in the form of a dissertation. The dissertation is aimed at training the candidate in research methods and techniques. It will include identification of a research question, formulation of a hypothesis, search and review of relevant literature, getting acquainted with recent advances, designing of research study, collection of data, critical analysis of the results and drawing conclusions. The topic shall be communicated to the university within six months of registration and at least 12 months should be spent on the research project. The dissertation shall be completed and submitted by the student six months before appearing for the final university examination.

Teaching experience:

Student shall be actively involved in the teaching of undergraduate students /paramedical staff. He/she will be trained in teaching methods and use of audiovisual aids.

BROAD AREAS OF STUDY:**I. HISTORY OF TRANSFUSION MEDICINE**

- 1.1. Scientific landmarks in its development
- 1.2. Impact of world wars on its development
- 1.3. Development of PVC bags

II. SCIENTIFIC BASIS OF TRANSFUSION**A. Biochemistry & Physiology of elements of blood**

2.0 Process of cell production and life span

2.1 Red cells

2.2 White blood cells

2.3 Platelets

3.0 Red cells

3.1 Haemoglobin structure & function

3.2 Metabolic pathways

3.3 Membrane structure & function

4.0 White cells

4.1 Structure, function & kinetics

5.0 Platelets

5.1 Structure, function & kinetics

6.0 Physiology of Haemostasis

6.1 Role of platelets

6.2 Coagulation pathways

6.3 Fibrinolysis

7.0 Hemodynamics of blood flow & volume

8.0 Iron metabolism

9.0 Bilirubin metabolism

10. Immunology

10.0 Principles of Basic Immunology

10.1 Antigen, Antibody, Complement, Immunoglobulin

10.2 Antigen/antibody reaction

10.3 Lymphocytes in Humoral &

Cellular immunity

11.0 Role of Hybridoma technology in Immunology

12.0 Immunology of transplantation

13.0 HLA & genetic control of immune response

1. Genetics

14.0 Principles of basic genetics

15.0 Genetics of Blood groups

15.1 Phenotypes & genotypes

15.2 Principles of blood group inheritance

15.3 Population genetics of blood groups

III ANTIGEN SYSTEMS IN FORMED ELEMENTS OF BLOOD

16.0 Red cell antigens

17.0 Leucocyte antigens

18.0 Platelet antigens

IV BLOOD COLLECTION, PROCESSING,

COMPONENT PREPARATION:

1. Management of blood donation

19.0 Donor recruitment

19.1. Voluntary blood donation system

19.2. Categories of blood donors

19.3. Education & awareness of prospective donors

20.0 Acceptability criteria of blood donor

21.0 Care of blood donors

21.1 Pre-donation

21.2 Mid-donation

21.3 Post-donation

21.4 Prevention & management of complications of blood donation

22.0. Blood collection

22.1. Anticoagulants & preservatives

22.2.1 Procedure

22.2.2 Blood donation camps

2. Blood Components

23.0. Components

23.1 Types

- 23.2 Methods of preparation
- 23.3 Indications, dosage & administration
- 23.4 Leuco-depletion
 - 23.4.1. Various Methods
 - 23.4.2. Quality Control
- 24.0 Storage of blood & components
 - 24.1. Whole blood
 - 24.2. Red cell concentrate
 - 24.3. Plasma
 - 24.4. Granulocyte
 - 24.5. Cryoprecipitate
 - 24.6. Stem cells
 - 24.6.1. Peripheral blood stem cells
 - 24.6.2. Cord blood stem cells
- 25. 0. Plasma fractionation

V PRE-TRANSFUSION TESTING

- 26.0 Compatibility testing
- 26.1 ABO grouping & Rh typing
- 26.2. Antibody screening
- 26.3. Methods of cross matching
- 26.4. Newer methods of cross matching
 - 26.4.1. Solid phase
 - 26.4.2. Gel technology
- 27.0 Screening for Transfusion Transmitted Infections
 - 27.1. Methodology
 - 27.2 Nucleic acid amplification techniques
 - 27.3 Newer emerging pathogens
 - 27.3.1.1 Prions
 - 27.3.1.2 C J disease
 - 27.3.1.3 Lyme disease
 - 27.3.1.4 Others
- 28.0 Selection of blood, components & plasma products for transfusion

VI ADVERSE EFFECTS OF BLOOD TRANSFUSION

- 29.0 Clinical presentation, pathophysiology, investigations, management
 - 29.1. Haemolytic transfusion reaction
 - 29.2. Non haemolytic transfusion Reaction
- 30.0. Transfusion Transmitted Infections
- 31.0. Transfusion Associated- Graft versus Host Disease (TA-GVHD)

32.0. Transfusion Related Acute Lung Injury (TRALI)

33.0 Others

33.1. Haemosiderosis

33.2. Volume overload

VII APHERESIS

34.0. Technology of apheresis and various machines

35.0 Haemapheresis (platelets, granulocytes, plasma)

35.1. Donor selection

35.2. Procedure

35.3. Complications

36.0 Therapeutic apheresis

36.1 Indications, procedure & Complications

36.2 Plasma exchange, red cell Exchange

36.3 Newer methods of Immunoabsorption

VIII AUTOLOGOUS TRANSFUSION

37.0. Basic principles, indications, contra-indications

37.1. Pre-deposit

37.2. Haemodilution

37.3. Intra-operative blood salvage including equipment

37.4. Directed donation

IX ANTENATAL & NEONATAL TRANSFUSION PRACTICE

38.0 Pathophysiology, diagnosis & management

38.1. Rh incompatibility

38.2. ABO & other blood group incompatibility

39.0 Exchange transfusion

39.1. Indications, methodology & complications

39.2. Intrauterine transfusion

40.0. Neonatal transfusion practice

X IMMUNOHEMATOLOGY

41.0 Classification, diagnosis and management

41.1 Immune haemolytic anaemia

41.2 Immune thrombocytopenia

41.3 Immune neutropenia

42.0. Immunohaematological problems in multi-transfused patients

XI HEMOTHERAPY

- 43.0. Pathophysiology, diagnosis and management of anaemia
 - 43.1 Anaemia
 - 43.2 Iron deficiency anaemia
 - 43.3 Megaloblastic anaemia
 - 43.4 Aplastic anaemia
 - 43.5 Haemolytic anaemia including fragmentation syndrome
 - 43.6 Anaemia of chronic diseases – liver disease, uremia, thyroid disease
- 44.0. Haemoglobinopathies
 - 44.1 Thalassaemia
 - 44.2 Sickle cell anaemia
 - 44.3 Other haemoglobinopathies
- 45.0. Pathophysiology, diagnosis and management of haemostatic disorders
 - 45.1 Haemophilia
 - 45.2 Von willebrands disease
 - 45.3 Platelet disorders
 - 45.4 Qualitative disorders
 - 45.5 Quantitative disorders
 - 45.6 DIC
- 46.0. Pathophysiology, diagnosis and transfusion support in acute blood loss
 - 46.1 Shock
 - 46.2 Massive transfusion
- 47.0. Transfusion support in cardiac surgery
- 48.0 Classification & transfusion support in Oncology
 - 48.1 Leukaemia
 - 48.2 Lymphoma
 - 48.3 Marrow failure

XII TRANSPLANTATION

- 46.0 Transfusion support in transplantation
- 48.1 Peripheral blood stem cell transplantation
 - 46.1.1 Harvesting
 - 46.1.2 Cryopreservation
 - 46.1.3 CD34 counting
- 48.2 Bone marrow transplantation
 - 48.2.1 Processing
 - 48.2.2 Harvesting
 - 48.2.3 Immunohaematological problems in ABO mismatched BMT
- 48.3. Transfusion support in specialized conditions
 - 48.3.1. Renal transplantation
 - 48.3.2. Liver transplantation

- 48.3.3. Umbilical cord blood transplantation
- 48.3.3.1. Collection
- 48.3.3.2. Processing
- 48.3.3.3. HLA typing & cross matching
- 49.0 Irradiation of blood products
- 49.1. Indications, dosage, adverse effects 1
- 50.0 Tissue banking

XIII BLOOD SUBSTITUTE & HEMOOOIETIC AGENTS

- 51.0 Crystalloids & colloids
- 52.0 Oxygen carrying compounds
- 53.0 Haemopoietic growth factors
- 54.0 Albumin
- 55.0

XIV MEDICOLEGAL CONSIDERATIONS IN TRANSFUSION

- 55.0 Ethical & legal considerations pertaining to transfusion practice
- 56.0 Identification of blood stains
- 57.0 Paternity testing
- 58.0 Donor notification and counselling
- 59.0 Look back programme
- 60.0 Drugs & Cosmetics act, Accreditation

XV TOTAL QUALITY MANAGEMENT

- 61.0 Development of Standard Operating Procedures (SOP) manual
- 62.0 Quality control
 - 62.1. Reagents
 - 62.2. Instruments
 - 62.3. Personnel
 - 62.4. Blood & Components
- 63.0 Quality assurance
 - 63.1. Internal quality control
 - 63.2. External quality control
- 64.0 Medical audit
- 65.0 Hospital transfusion committee
- 66.0 Good manufacturing practice (GMP)
- 67.0 Turnaround time
- 68.0 ISO 9000

XVI ORGANISATION & MANAGEMENT OF TRANSFUSION SERVICES

69.0 Organisation & function of blood services & hospital transfusion practice

69.1. Donor recruitment & motivation

69.2 Operation of blood mobile units

69.3 Development of transfusion services

69.4 Inventory control

69.5 Development of forms, labels, records etc.

69.6 Reports & Returns

70.0 National Blood Transfusion Policy

XVII BLOOD SAFETY

71.0 Sterilization

72.0 Disposal of bio-hazardous material

XVIII MODERN BIOLOGICAL TECHNIQUES

73.0 Principles, methods, relevance in transfusion medicine

73.1 Western blot

73.2 Polymerase chain reaction

73.2.1 SSCP

73.2.2 SSOP

73.3 Dot blot hybridization

XIX AUTOMATION & COMPUTERIZATION

74.0 Automated blood grouping & processing

75.0 Instrumentation & use of bar codes

76.0 Use of computers in blood banking including Implementation of blood banking software

RECOMMENDED MINIMUM TEXT BOOKS AND JOURNALS

Books:

1. Mollison P.L, Blood transfusion in clinical medicine, published by Oxford, ELBS & Blackwell Scientific Publication.
2. Saran R.K., Transfusion medicine technical manual, published by WHO.
3. Jeffrey McCullough, Transfusion Medicine, published by McGraw-Hill Professional
4. Paul D. Mintz, Transfusion Therapy: Clinical Principles and Practice, published by AABB.
5. Christopher D. Hillyer, Leslie E. Silberstein, Paul M. Ness, Blood Banking and Transfusion Medicine: Basic Principles and Practice, published by Churchill Livingstone.
6. Sally V. Rudmann, Textbook of Blood Banking and Transfusion Medicine, published by Saunders.
7. Denise M, Harmening, Modern Blood Banking and Transfusion Practices, published by Jaypee Brothers.
8. Mary Louise Turgeon, Fundamentals of Immunohematology, Theory and Technique, published by Williams & Wilkins.
9. Lawrence D. Petx, Scott N. Swisher, Steven Kleinman, et al. Clinical Practice of Transfusion Medicine, published by Churchill Livingstone.
10. Technical manual of American Association of Blood Banks, published by AABB.
11. Michael F. Murphy, Derwood H, Pamphillion, Practical Transfusion Medicine, published by Blackwell Publishing.
12. Bruce D. Spiess, Richard K. Spence, Aryeh Shander, Perioperative Transfusion Medicine, published by Lippincott Williams & Wilkins.
13. Robert M. Winslow, Blood Substitutes. Published by Academic Press.
14. Kerry Atkinson, Richard Champlin, Jerome Ritz, Willem E. Fibbe, et al. Clinical Bone marrow and Blood stem cell transplantation, published by Cambridge University Press.
15. Hal E. Broxmeyer, Cellular Characteristics of Cord Blood and Cord Blood Transplantation, published by AABB Press.
16. Harold B. Anstall, Paul M. Urie, A manual of Hemotherapy, published by John Wiley & Sons.
17. A.B.Dutta, Blood Banking and Transfusion, published by CBS Publishers & Distributers.
18. Gundu HR Rao, Ted Eastlund, Latha Jagannathan, Handbook of Blood Banking & Transfusion Medicine, published by Jaypee Brothers.
19. Toby L Simon, Walter N Dzik, Edward L Snyder et al. Rossi's Principles of Transfusion Medicine, published by Lippincott Williams & Wilkins.

20. **The clinical Use of Blood Handbook**, Published by WHO.
21. **Eva D Quinley, Immunohematology: Principles and Practice**, published by Lippincott Williams & Wilkins.
22. **Mark E. Brecher, Larry C. Lasky, Linda A. Issitt, Hematopoietic Progenitor Cells: Processing, Standards and Practice**, published by S Karger Pub.

Journals:

1. **Transfusion**, published by Blackwell Synergy.
2. **Vox Sanguinis**, published by Blackwell Synergy .
3. **Transfusion Medicine**, published by Blackwell Publishing.
4. **Stem Cells**, published by AlphaMed Press.
5. **Immunohematology**, published by American Red Cross.
6. **Current Issues in Transfusion Medicine**, published by The University of Texas M. D. Anderson Cancer Center.
7. **Journal of Clinical Apheresis**, published by Wiley InterScience.
8. **Bone marrow transplantation**, published by Nature publishing group.
9. **Blood**, published by American Society of Haematology.

Janus

I) THEORY EXAMINATION: (TOTAL 400 Marks)

a) PAPER – I (Duration – 3 hours) 100marks

Topics covered

General and Basic Immunohaematology and Blood Transfusion including History of Transfusion Medicine and Scientific basis of Transfusion and Hemotherapy

Q.No.	Nature of Questions	Division of Marks	Total Marks
1.	Long Answer Question	1X25	25 Marks
2.	Long Answer Question	1X25	25 Marks
3.	Attempt any 5 SAQs out of Six (a), (b), (c), (d), (e), (f)	5X10	50 Marks

b) PAPER – II (Duration – 3 hours) 100marks

Topics covered

Systemic Immunohematology and Blood Transfusion including Antigen systems, Blood collection/processing/Component preparation, Pre-Transfusion testing, Adverse effects of Blood Transfusion, Apheresis, Autologous Transfusion, Antenatal and Neonatal Transfusion practice, Immunohematology.

Q.No.	Nature of Questions	Division of Marks	Total Marks
1.	Long Answer Question	1X25	25 Marks
2.	Long Answer Question	1X25	25 Marks
3.	Attempt any 5 SAQs out of Six (a), (b), (c), (d), (e), (f)	5X10	50 Marks

c) PAPER – III (Duration – 3 hours) 100marks

Topics covered

Newer concepts of Immunohaematology and Blood Transfusion including Stem Cell Transplantation, Blood Substitutes & Haemopoietic agents, Total Quality Management, Modern Biological techniques and Automation & Computerisation, Medicolegal Considerations in Transfusion Medicine, Organisation and Management of Transfusion Services, Blood Safety

Q.No.	Nature of Questions	Division of Marks	Total Marks
1.	Long Answer Question	1X25	25 Marks
2.	Long Answer Question	1X25	25 Marks
3.	Attempt any 5 SAQs out of Six (a), (b), (c), (d), (e), (f)	5X10	50 Marks

d) PAPER – IV (Duration – 3 hours) 100marks

Topics covered

Recent advances in Immunohaematology and Blood Transfusion.

Q.No.	Nature of Questions	Division of Marks	Total Marks
1.	Long Answer Question	1X25	25 Marks
2.	Long Answer Question	1X25	25 Marks
3.	Attempt any 5 SAQs out of Six (a), (b), (c), (d), (e), (f)	5X10	50 Marks

II) PRACTICAL EXAMINATION: (Total 200 Marks)

Duration – 1 days (if candidates are more than 6 , then the days of practical examination should be increased proportionately)

1. Long Immunohaematology exercise: (One) – Total 100 marks

Shall include following.

Antenatal serology, Alloantibody & Autoantibody detection & identification,

Transfusion reaction work-up, Massive transfusion and their management.

This will be followed by viva-voce.

2. Short exercises (Two of 50 marks each) – Total 100 marks

Shall consist of the following:

a) Operation of Blood Transfusion Services (Donor management, inventory, apheresis. Transfusion Transmitted Infections Screening)

b) Short exercise (Reagents, Blood group discrepancy, Component Preparation, Quality Control,)

Both exercises will be followed by viva-voce.

3. Clinical cases (Two of 40 marks each): Total 80 marks

Haemotherapy exercises and administrative exercises

4. SPOTS – Total 20 marks

5. Grand Viva – Total 100 marks

Student will be examined by all the examiners together, about students' subject knowledge, comprehension, analytical approach, expression and interpretation of data, and will include discussion related to dissertation.

Note:


The Thesis/ Dissertation evaluation or discussion should be deleted from the marking components of Practical Examination

III) INTERNAL ASSESSMENT OF THE CANDIDATE

Periodic internal assessment of the candidate by the department.

**Final marking scheme for MD examination in
Immunohaematology & Blood Transfusion**

Heads of Passing	Maximum Marks	Minimum marks for passing
Theory	400	200
Practical and viva-voce	400	200
Total Marks	800	400


Associate Prof. & In-charge Blood Bank
Dept. of Immuno Haematology & Blood Transfusion
M. G. M. Medical College Hospital
Kamotha, Navi Mumbai - 410209





MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI
(Deemed University u/s of UGC Act, 1956)

POST GRADUATE UNIVERSITY EXAMINATION- MODEL TEST PAPERS

SUBJECT: MD IHBT

DURATION: 3 hours

PAPER : PAPER I

MARKS : 100

INSTRUCTION:

1. All questions are compulsory except wherever option given.
2. Answer must be specific to the question.
3. Give neat, labelled and schematic diagram wherever applicable.
4. Mobile phones, pagers, Bluetooth or any other such communication devices are not allowed in the Examination premises and in all adjacent area.

Section-A

Long answer questions

2x25=50 marks

1. Discuss anaemia of chronic disease.
2. Immunology of transplantation.

Section -B

Short answer questions (Attempt any FIVE out of SIX)

5x10=50 marks

1. Development of PVC bags
2. Pathophysiology of DIC
3. Platelet antigens
4. Principle of blood group inheritance
5. Pathophysiology of shock
6. Von-Willebrands disease



J. J. J.

Associate Prof. & Incharge Blood Bank
Dert. of Immuno Haematology & Blood Transfusion
M. G. M. Medical College Hospital
Kharolhe, Navi Mumbai - 410209



MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI
(Deemed University u/s of UGC Act, 1956)

POST GRADUATE UNIVERSITY EXAMINATION- MODEL TEST PAPERS

SUBJECT: MD IHBT

DURATION: 3 hours

PAPER : PAPER II

MARKS : 100

INSTRUCTION:

1. All questions are compulsory except wherever option given.
2. Answer must be specific to the question.
3. Give neat, labelled and schematic diagram wherever applicable.
4. Mobile phones, pagers, Bluetooth or any other such communication devices are not allowed in the Examination premises and in all adjacent area.

Section-A

Long answer questions

2x25=50 marks

1. Enumerate components of blood. Write in detail methods of preparation, preservation and its role in day to day practice.
2. Discuss transfusion management in trauma disaster.

Section -B

Short answer questions (Attempt any FIVE out of SIX)

5x10=50 marks

1. Plasma fractionation
2. Transfusion transmitted infections
3. Donor selection in apheresis
4. Intra-operative blood salvage including equipments
5. Immune thrombocytopenia
6. Newer method of immunoadsorption



Associate Prof. & Incharge Blood Bank
Dert. of Immuno Haematology & Blood Transfusion
M. G. M. Medical College & Hospital
Kamothe, Navi Mumbai - 410209


MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI
(Deemed University u/s of UGC Act,1956)

POST GRADUATE UNIVERSITY EXAMINATION- MODEL TEST PAPERS

SUBJECT: MD IHBT

DURATION: 3 hours

PAPER : PAPER III

MARKS : 100

INSTRUCTION:

1. All questions are compulsory except wherever option given.
 2. Answer must be specific to the question.
 3. Give neat, labelled and schematic diagram wherever applicable.
 4. Mobile phones, pagers, Bluetooth or any other such communication devices are not allowed in the Examination premises and in all adjacent area.
-

Section-A

Long answer questions

2x25=50 marks

1. Discuss immunohematological problems in ABO mismatch BMT.
2. Discuss organisation, function of blood transfusion service & hospital transfusion practice.

Section -B

Short answer questions (Attempt any FIVE out of SIX)

5x10=50 marks

1. National Blood Transfusion policy
2. Disposal of bio-hazardous material
3. Crystalloids and colloids
4. Cryopreservation
5. HLA typing & crossmatching
6. Donor notification and counselling



Jeer

Associate Prof. & Incharge Blood Bank
of Immunology & Blood Transfusion
Medical College & Hospital
Navi Mumbai - 410209


MGM INSTITUTE OF HEALTH SCIENCES, NAVI MUMBAI
(Deemed University u/s of UGC Act, 1956)

POST GRADUATE UNIVERSITY EXAMINATION- MODEL TEST PAPERS

SUBJECT: MD IHBT

DURATION: 3 hours

PAPER : PAPER IV

MARKS : 100

INSTRUCTION:

1. All questions are compulsory except wherever option given.
 2. Answer must be specific to the question
 3. Give neat, labelled and schematic diagram wherever applicable.
 4. Mobile phones, pagers, Bluetooth or any other such communication devices are not allowed in the Examination premises and in all adjacent area.
-

Section-A

Long answer questions

2x25=50 marks

1. Discuss principle of flow cytometry and its application in transfusion medicine
2. Pathophysiology of transfusion associated graft versus host disease

Section –B

Short answer questions (Attempt any FIVE out of SIX)

5x10=50 marks

1. Pathogen inactivation
2. Electronic crossmatch and its feasibility in India
3. Chemiluminescence technology in transfusion medicine
4. Multi component collection
5. Intrauterine transfusion
6. Stealth RBC



C2 Dermatology Section (Marks 10)

Question 1 – long question (Marks 4)

Question 2 – Short answer question attempt any 2 (Marks 6)

- a.
- b.
- c.

✓ **Resolution No. 3.3(f):** Resolved to adopt the change in internal assessment pattern of Community Medicine (Annexure-XI) for the batch of Students entering into 2nd MBBS from August 2016 onwards.

✓ **Resolution No. 3.3(g):** Resolved to start Certificate Course and Fellowship in Critical Care Medicine (Annexure-XII) at MGM Medical College, Navi Mumbai from academic year 2016-17. Therefore, Dean, MGM Medical College, Navi Mumbai is requested to work on the feasibility and other regulatory norms to start this course.

✓ **Resolution No. 3.3(h):** Resolved to start Certificate Course and Fellowship in Sleep Medicine (Annexure-XXVIII) at MGM Medical College, Navi Mumbai from academic year 2016-17. Therefore, Dean, MGM Medical College, Navi Mumbai is requested to work on the feasibility and other regulatory norms to start this course.

✓ **Resolution No. 3.3(i):** Resolved to approve the Examination pattern for MD in Immuno Haematology & Blood Transfusion (Annexure-XIII) with immediate effect.

3.4 Surgery and Allied :

Resolution No. 3.4(a): Resolved that :

- (i) Topic of Polytrauma and its management be included in the Orthopedic UG syllabus in consultation with Surgery Department for the batch of Students entering into 3rd MBBS (Part-II) from February 2016 onwards.
- (ii) Following Topics be excluded from the Orthopedic UG syllabus for the batch of Students entering into 3rd MBBS (Part-II) from February 2016 onwards :
 - a) Acute poliomyelitis
 - b) Fungal infection and Leprosy in orthopedic
 - c) Cerebral Palsy and rehabilitation

ANNEXURE - XIII

DEPARTMENT OF IHBT

THEORY PAPERS

- PAPER 1- Basic applied aspects related to Transfusion Medicine
PAPER 2- Immunohematology, Immunogenetics, applied serology
PAPER 3- Blood donor organization, technology of components, clinical hematology
PAPER 4- Recent advances and technology

THEORY PAPER PATTERN


Maximum marks - 100 per paper

Maximum time - 3 hrs per paper

Long answer question - $2 \times 20 = 40$ marks

Short answer question - $6/7 \times 10 = 60$ marks

Total = 100 marks


Dr. Ujwala Maheshwari

HOD and Professor

Dept of IHBT

Resolution passed in BOM – 48/2017, dated 24/01/2017

Resolution No. 5.25: Resolved to institute 6 monthly progress Report for PG Students of all Courses from the batches admitted in 2016-17. **[Annexure-XVII of BOM-48/2017]**



**Mahatma Gandhi Mission's Medical College and Hospital
Navi Mumbai**

Six monthly Progress Report for Postgraduate Students

PART A

Name of the PG student: _____

Department: _____

Admitted in (Month and Year): _____

Name of the PG guide: _____

Report for the period: _____ to _____

Attendance: _____ days (_____ %)

PART B

Grading as per performance

Grade	Percentage
A	80% and above
B	65% to 79%
C	50% to 64%
D	Below 50%

1. OPD work:
2. Ward work:
3. Lab work:
4. OT work:
5. ICU work:
6. Teaching assignments:

PART C

Progress of Thesis

PART D

Activities from serial No. 1 to 5 should be rated on a scale of 0 to 10.

1. Case Presentations

Sr. No.	Topic	Date	Guide	Marks

2. Microteaching

Sr. No.	Topic	Date	Guide	Marks

3. Recent Advances

Sr. No.	Topic	Date	Guide	Marks

4. Seminars

Sr. No.	Topic	Date	Guide	Marks

5. Journal Clubs

Sr. No.	Journal	Title of Paper	Date	Guide	Marks

6. Marks obtained in tests

Sr. No.	Date	Theory / Practical	Marks obtained

7. Any other academic activity conducted:

PART E

1. Papers presented

Sr. No.	Title of Paper	Authors	Event	Date

2. Posters presented

Sr. No.	Title of Poster	Authors	Event	Date

3. Publications

(Note: Mention only those publications that are published or are accepted for publication during the said period only)

Sr. No.	Title of Paper	Authors	Journal	Year/Vol/ Issue	Page Nos	Indexed/ Non-Indexed	Status

Certificate by the PG Guide

This is to certify that Dr. _____, has an attendance of _____% , during the period _____ to _____. His /Her performance during the said period has been **satisfactory/ average / unsatisfactory**.

Overall Grading: _____

Date: _____

Name and Signature of PG guide:

Certificate by the Head of Department

This is to certify that the performance of Dr. _____, during the period _____ to _____, has been **satisfactory/ average / unsatisfactory**.

Overall Grading: _____

Date: _____

Name and Signature of HOD:

Final Remarks

Satisfactory / Average / Unsatisfactory

Director (Academics)

Dean

Date:

Resolution No. 1.3.7.11 (i) of BOM-51/2017: Resolved that the following Bioethics topics in PG Curriculum are to be included for PG students of all specialization and a sensitization of these topics can be done during PG Induction programme:

- Concept of Autonomy
- Informed Consent
- Confidentiality
- Communication Skills
- Patient rights
- Withholding / Withdrawing life-saving treatment
- Palliative Care
- Issues related to Organ Transplantation
- Surgical Research and Surgical Innovation
- Hospital Ethics Committee
- Doctor-Patient relationship

All PG.
& 30 copies

Resolution No. 1.3.23 of BOM-51/2017: Resolved to implement a Structured Induction programme (07 days) for PG students. [Annexure XIIV]



MGM INSTITUTE OF HEALTH SCIENCES
Navi Mumbai

Induction Program for newly admitted Postgraduate students

Day 1	<ul style="list-style-type: none"> • Address by Dean, Medical Suptd, Director (Academics) • Pre-test • Communication Skills • Universal Safety Precautions • Biomedical Waste Management • Infection Control Policy
Day 2	<ul style="list-style-type: none"> • Emergency services • Laboratory services • Blood Bank services • Medicolegal issues • Prescription writing • Adverse Drug Reaction • Handling surgical specimens
Day 3	<ul style="list-style-type: none"> • Principles of Ethics • Professionalism • Research Ethics • Informed Consent • Confidentiality • Doctor-Patient relationship
Day 4	<ul style="list-style-type: none"> • Research Methodology
Day 5	<ul style="list-style-type: none"> • Synopsis writing
Day 6	<ul style="list-style-type: none"> • Dissertation writing
Day 7	<ul style="list-style-type: none"> • Statistics
Day 7	<ul style="list-style-type: none"> • ATLS • Post-test

The Induction Program will be conducted in the first week of June.
Timing: 9.30 am to 3.30 pm

(Prof. Dr. Siddharth P. Dubhashi)
Director (Academics)

Resolution No. 4.5.4.2 of BOM-55/2018: Resolved to have 10 short notes out of 11 (10 marks each) in all the papers in university examination for PG courses including superspeciality. To be implemented from batch appearing in April/May 2019 examination onwards for MD/MS/Diploma and August/September 2019 examination onwards for superspeciality.

Resolution No. 4.13 of BOM-55/2018: Resolved as follows:-

- (i) Slow learners must be re-designated as potential learners.
- (ii) Students scoring less than 35% marks in a particular subjects/course in the 1st formative exam are to be listed as potential learners. These learners must be constantly encouraged to perform better with the help of various remedial measures.
- (iii) Students scoring more than 75% marks in a particular subjects/course in the 1st formative exam are to be listed as advanced learners. These learners must be constantly encouraged to participate in various scholarly activities.

Resolution No. 3.1.4.2 of BOM-57/2019:

- i.** Resolved to include “Gender Sensitization” into UG (from new batch 2019-2020) and PG (from existing batches) curricula. [**Annexure-21**]
- ii.** Resolved to align the module of “Gender Sensitization” with MCI CBME pattern for MBBS students.
- iii.** Resolved that Dr. Swati Shiradkar, Prof., Dept. of OBGY., MGM Medical College, Aurangabad will coordinate this activity at both campuses.

Annexure - 21

Gender sensitization for UG (2nd , 3rd , 8th semesters) and PG (3 hours)

INCLUSION OF “ GENDER SENSATIZATION” IN CURRICULUM

Introduction :

The health care provider should have a healthy gender attitude, so that discrimination, stigmatization, bias while providing health care will be avoided. The health care provider should also be aware of certain medico legal issues related with sex & gender.

Society particularly youth & adolescents need medically accurate, culturally & agewise appropriate knowledge about sex, gender & sexuality. So we can train the trainers for the same. It is need of the hour to prevent sexual harassment & abuse .

To fulfill these objectives, some suggestions are there for approval of BOS.

Outline

1)For undergraduates :- Three sessions of two hours each, one in 2nd term, one in 3rd term & one in 8th term.

2)For Faculties and postgraduates :- One session of two hrs .

3)For those want to be trainers or interested for their ownself, value added course, which is optional about sex, gender, sexuality & related issues.

Responsibility

ICC of MGM, MCHA , with necessary support from IQAC & respective departments.

Details of undergraduate sessions

1)First session in 2nd term

Aim – To make Students aware about the concept of sexuality & gender.

To check accuracy of knowledge they have,

To make them comfortable with their own gender identify & related issues.

To make them aware about ICC & it is functioning.

Mode – Brain storming , Interactive power point presentation experience sharing.

Duration – Around two hours

Evaluation – Feedback from participants.

2)Second session in 3rd / 4th term

Aim – To ensure healthy gender attitude in these students as now they start interacting with patients.

To ensure that the maintain dignity privacy while interacting with patients and relatives, particularly gender related.

To make them aware about importance of confidentiality related with gender issues.

To encourage them to note gender related issues affecting health care & seek solutions.

Mode – focused group discussions on case studies, Role plays & discussion.

--3--

Duration – Around two hours.

Evaluation – Feedback from participants.

Third session in 8th term.

Aim – To understand effect of gender attitudes on health care in various subjects.

To develop healthy gender attitude while dealing with these issues.

Mode – Suggested PBL by departments individually. (In collaboration with ICC till faculty sensitization is complete)

Evaluation – Feedback

FOR POSTGRADUATES

Session of 2-3 hrs preferably in induction program.

Aim – To introduce medically accurate concept of gender, sex, gender role & sex role.

To ensure healthy gender attitude at workplace.

To understand gender associated concepts on health related issues & avoid such bias while providing health care.

To make them aware about ICC & its functioning.

Mode – Interactive PPT

Role plays & discussion

Duration – 2 to 3 hrs

Evaluation – Feedback.

FOR FACULTIES

Session of 2 hours may be during combined activities.

Aim – To ensure clarity of concept about gender & sex.

To discuss effect of these concepts on health-related issues.

To identify such gender & sex-related issues in individual subject specialties.

To discuss methodology like PBL for undergraduate students when they are in 7th-8th semester.

Mode – Role play

 Focused group discussion

 Case studies

Evaluation – Feedback.

Sdp-Pimple/joshi-obgy

Resolution No.3.1.2.8 of BOM-59/2019: The detailed mandatory allied posting schedule for MD Immunohematology and Blood Transfusion (IHBT) which in accordance with Competency Based Medical Education guidelines for PG is approved. This is to be effective from Academic Year 2019-20 onwards. **[Annexure-11]**

Annexure Item 11**Annexure-11****Item 11: Change in Mandatory allied posting schedule for MD Immunohematology and Blood Transfusion (IHBT)****Training in allied departments:**

Students should be sent for training for 8 months in allied laboratory and clinical departments, as below:

Existing	Proposed
Hematology– 1mth	Haematology: 2 months
Bone Marrow Transplantation -2 weeks	Coagulation Laboratory: 1months
Department of Microbiology -2 Weeks	HLA Laboratory: 1 month
Virology –2 weeks	Flow cytometry Lab:15 days
Department of Anesthesia -2 weeks	Microbiology laboratory:1 month
HLA typing & flow cytometry -1 month	Molecular Biology Lab: 1month
Advanced Immunohematology -2 weeks	Clinical departments :6 weeks (Paediatrics, neonatal, medicine,ICU, Anaesthesia)
Total -4 1/2 months	Total – 8 months