

Common ordinance for M P Universities for the PARAMEDICAL COURSES

**Prepared by BARKATULLAH UNIVERSITY BHOPAL in consultation with the Registrar M. P.
Paramedical Council, Bhopal (M.P.)**

ORDINANCE No. - 219

Ordinance for various Degree courses (3 years and above) in paramedical subjects

Objective of the courses -

1. The training of the candidate registering for various degree 3 years and above courses are aimed to develop skill in all diagnostics/ therapeutics tests and their interpretation on the modern hospital laboratory.

The degrees in various courses are of three years or above.

2. Eligibility for admission

(A) B. P. T. and B. O. T. course

The candidate must have passed 10 +2 and should obtain 50% marks in aggregate of Physics, Chemistry and Biology (P. C. B.).

(B) All Paramedical degree courses (other than B. P. T. & B. O. T.)

The candidate must have passed 10 + 2 with at least 45% marks in aggregate of Physics, Chemistry and Biology (P.C. B.).

(C) B. M. L. T.

3. The candidate must have passed 10+2 with at least 45% marks in aggregate of Physics, Chemistry and Biology (P. C. B.) or 10 + 2 vocational (M. L. T.) course with at least 45% marks will also be eligible.
4. In case of S. C. / S. T. / O. B. C. candidate 5% marks relaxation will be given for the admission in above said course.
5. Weightage will be given as per University rules.
6. Number of seats will be 50 in each course.
7. The minimum age for admission shall be 17 years On 31 December of academic year of admission.
8. Selection of candidate will be on the basis of the entrance examination or in the absence of entrance examination purely on merit on the basis of marks obtained in qualifying examination.
9. For degree examination, candidates who have attended 75% in all theory classes and 85% in practical can only appear in university examination.
10. Revaluation & re totaling both shall be allowed as per university rules.
11. In order to pass the examination it is mandatory to obtain 50% marks in theory and practical examination separately. The viva and the sessional marks are to be added to the theory marks.
12. Other rules regarding conduct of examination will be as per Ordinance no. 06.
13. Permission will be given to start the courses after the permission from M P Paramedical Council (Department of Medical Education, Government of M. P.).

14. Syllabus and scheme of the examination shall be decided by the board of studies and Academic council of the university from time to time as per guidelines from M P Paramedical Council.

15. The medium of examination shall be English.

16. The examination pattern.

(A) B. P. T. & B. O. T. (4 years and six months internship)

(1) The pattern for B. P. T. & B. O. T. shall be like M. B. B. S. There will be two exams in each year. Main exam to be held in April/May and supplementary / second exam to be held in July/ August.

(2) Students of B. P. T. & B. O. T. who have failed in first year will not be allowed to attend the classes of second year until and unless he/she has passed in all subjects of first year. But in case of second and third year, student is allowed to attend higher classes, but he/she is eligible to appear in higher class exam only when he/she has passed all the subjects of the previous year.

(B) Other Degree Courses –

There will be two examinations in each year for remaining degree courses the main & supplementary as per University rule. The main examination will be held in April / May & Supplementary examination will be held in July / August & the candidate failing in the main & subsequently in supplementary examination shall not be allowed to go in the higher classes unless clearing all the previous examination.

17. There will be two examiners including one external and internal for both theory and practical examinations.

18. The examiner who evaluates the theory copies preferably should be appointed as external for practical examination for said course.

19. The colleges must conduct sessional exams twice in an academic year (once in a six months period) and send the same marks to the university one week before the commencement of university theory examination.
20. In order to be an examiner, a faculty member should have minimum three years of teaching experience and not below the rank of the Asst. professor and /demonstrator/tutor.
21. The examination papers (Theory) will be evaluated centrally at the university.

22. Various Degree course three years and above -
 1. Physiotherapy.
 2. Occupational therapy.
 3. Speech Therapy.
 4. X-Ray Radiographer.
 5. Human Nutrition.
 6. Pathology.
 7. Medical Lab technology.

All other matter not mentioned here will be applicable as per MPMSU Ordinances

SCHEME OF EXAMINATION

1) Syllabus and Pattern of Examination:

The medium of instruction of the courses should be in English and the medium of examination will also be in English for all the degree courses except BMLT/ BSc Human Nutrition/ BSc X ray Radiography / BASLP in which a moderate relaxation is given where the students can write the medical terms ()in Hindi language as they spell in English. Example – Cubital fossa this can be written in Hindi as **D;wfcVy Qkslk**

In case of diploma courses the medium of instruction will be bilingual (English or Hindi) and the medium of examination will be either English or Hindi as per the convenience of the student.

BMLT 1ST YEAR

S.NO.	SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
1.	Basic Histology (Anatomy & Physiology)	100	100	100	300
2.	Biochemistry-I	100	100	100	300
3.	Microbiology-I	100	100	100	300
4.	Hematology –I	100	100	100	300
Total					1200

All theory papers will be of 100 Max. marks and 3Hours time duration

Pattern of Examination (Theory) if Maximum Marks for a Subject are 100

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

Scheme of Examination : BMLT 2nd Year

S.NO.	SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
1.	Histology	100	100	100	300
2.	Microbiology-II	100	100	100	300
3.	Biochemistry-II	100	100	100	300
4.	Hematology –II	100	100	100	300
Total					1200

All theory papers will be of 100 Max. marks and 3Hours time duration

Pattern of Examination (Theory) if Maximum Marks for a Subject are 100

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

Scheme of Examination : BMLT 3RD Year

S.NO.	SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
1.	Applied Histopathology	100	100	100	300
2.	Microbiology-III	100	100	100	300
3.	Biochemistry-III	100	100	100	300
4.	Hematology –III	100	100	100	300
Total					1200
5.	Instrumentation #	--	50	---	50

The marks of instrumentation paper will not be included in the total result,i.e. for calculation percentage of marks obtained, though the candidate have to obtain minimum 25 marks in instrumentation subject's internal assessment to get pass in BMLT 3rd Year.

All theory papers will be of 100 Max. marks and 3Hours time duration

Pattern of Examination (Theory) if Maximum Marks for a Subject are 100

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

**SYLLABUS & SCHEME OF
EXAMINATION
FOR
FIRST YEAR
BMLT**

BMLT SYLLABUS

SR. NO.	SUBJECTS	PAGE NO.
1.	ANATOMY PHYSIOLOGY & HISTOTECHNOLOGY	10-11
2.	BIOCHEMISTRY	12
3.	MICROBIOLOGY, VIROLOGY & PARASITOLOGY	13-15
4.	HEMATOLOGY	16-17

BMLT 1st Year

Subject - Basic Histology:ANATOMY & PHYSIOLOGY

Scheme of Examination

SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
Anatomy & Physiology and Basic Histology	100	100	100	300

Theory papers will be of 100 Max. marks and 3Hours time duration

- There shall be one paper setter external or internal for theory examination and two examiners, one internal (Chairman) and one external for practical examinations. Recognized teachers who teaching BMLT / MS Anatomy with five years of teaching experience shall be on the panel of examiner. The viva marks shall be added to university theory examination marks and 50% shall be the passing marks for both theory and practical university examination respectively. The pattern of University theory examination will be as under for 100 Max. Marks.

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

Syllabus Contents :-

1. The anatomic and physiological organization of human body and integrated physiology.
2. Cell organization and function.
3. Skeletal system, bones, joints, and muscles.
4. Body fluids and their significance.
5. Blood morphology, chemistry and function.
6. Respiratory system
7. Cardiovascular system viii) Alimentary system, mechanism and physiology of digestion and absorption
8. Liver structure
9. Urinary system.
10. Male genital system
11. Female genital system.
12. Nervous system.
13. Spleen, lymph node and R.E. system.
14. Endocrine glands and their functions.

HISTOTECHNOLOGY

FUNDAMENTALS OF APPLIED HISTOLOGY

INTRODUCTION:

1. Introduction to histopathology and laboratory organization.
2. Laboratory equipment, uses and maintenance.
3. Laboratory hazards and safety precautions.
4. Compound microscope - optical system, magnification and maintenance.

FUNDAMENTALS OF APPLIED HISTOLOGY

1. Reception, recording and labeling of histology specimens.
 2. Fixation and various fixatives.
 3. Processing of histological tissues for paraffin bedding.
 4. Embedding and embedding media.
 5. Decalcification various types, there.
 6. Micro tomes various types, there working principle and maintenance.
 7. Microtome knives and knife sharpening.
 8. Practical section cutting, cutting faults and remedies.
 9. Routine staining procedures, mounting and mounting media.
- Dye chemistry, theory and practice of staining.
Solvents, mordents, accelerators and accentuators.
10. Uses of controls in various staining procedures.

CYTOLOGY LECTURES:

1. Introduction to exfoliative cytology with special emphasis on female genital tract.
2. Collection processing and staining of the Cytologic specimen

BMLT 1st Year

Subject : BIOCHEMISTRY -I

BASIC PRINCIPLES OF BIOCHEMISTRY

Scheme of Examination

SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
Biochemistry-I	100	100	100	300

Theory papers will be of 100 Max. marks and 3Hours time duration

- There shall be one paper setter external or internal for theory examination and two examiners, one internal (Chairman) and one external for practical examinations. Recognized teachers in Biochemistry with five years of teaching experience shall be on the panel of examiner. The viva marks shall be added to university theory examination marks and 50% shall be the passing marks for both theory and practical university examination respectively. The pattern of University theory examination will be as under for 100 Max. Marks.

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

Syllabus Contents :-

1. Introduction to medical technology role of medical laboratory Technologists, ethics, responsibility, safety, measures First aid (accidents).
2. Cleaning and care of general laboratory glassware and equipment, preparation and storage of distilled water analytical balance, preparation of reagents and standard solutions, storage of chemicals .
3. Units of measurement, S.I. Units, measurement of volumetric apparatus, (pipettes, flasks, cylinders) Calibration of volumetric apparatus.
4. Radioisotopes and their use in Biochemistry, mole, molar and normal solutions, pH, buffer solutions, pH and pH measurement, Osmosis, dialysis, surface tension.
5. Urine analysis (qualitative) for sugar, proteins bile pigments, ketone bodies, porpholinogen, faecal of blood.
6. Collection and recording of biological specimens separation of serum plasma, preservation and disposal of biological samples material. Basic statistics (mean, SD, CV, normal distribution, probability).
7. Normal or Reference range. Definition, influencing factors, determination.
8. Volumetric analysis- Preparation of standard acid and base solutions, chloride estimation.

BMLT 1st Year

Subject :MICROBIOLOGY-I

Scheme of Examination

SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
Microbiology -I	100	100	100	300

Theory papers will be of 100 Max. marks and 3Hours time duration

- There shall be one paper setter external or internal for theory examination and two examiners, one internal (Chairman) and one external for practical examinations. Recognized teachers in Microbiology with five years of teaching experience shall be on the panel of examiner. The viva marks shall be added to university theory examination marks and 50% shall be the passing marks for both theory and practical university examination respectively. The pattern of University theory examination will be as under for 100 Max. Marks.

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

Syllabus Contents :-

(A) MEDICAL MICROBIOLOGY

Part – I GENERAL MICROBIOLOGY

- 1 Introduction and brief history of microbiology.
2. Safety measures in microbiology.
3. General characteristics and classification of bacteria and fungi.
4. Growth and nutrition of microbes.
5. Care and maintenance of laboratory equipments.
6. Care and handling of various microscopes – binocular, DGI, phase – contrast, fluorescence and electron microscopes.

7. Principles and methods of sterilization.
8. Uses and mode of action of antiseptics and disinfectants.
9. Handling and cleaning of glassware apparatus. Decontamination and disposal of contaminated material.
10. Preparation, uses and standardization of culture media.
11. Principles of staining methods and preparation of reagents.
12. Aerobic and anaerobic culture methods.
13. General characters and nature of antigens and antibodies.
14. Principles of Antigen Antibody reactions.
15. Collection, transportation and processing of clinical samples for microbiology investigations.
16. Principles and mode of action of antibiotics and chemotherapeutic agents for bacteria and fungi.
17. Care and handling of laboratory animals.
18. Laboratory organization, management, recording of results and quality control in microbiology.

(B) VIROLOGY: Lectures:

1. Introduction to Medical Virology.
2. Nomenclature and classification of viruses.
3. General characteristics of viruses: physical, chemical and biological properties.
4. Collection, transport, processing and storage of sample for viral diagnosis.

Practical: Period of posting: 2 weeks:

1. Introduction to use of different laboratory instruments and their safety precautions.
2. Collection, handling and storage of samples for viral diagnosis.
3. Washing, cleaning and sterilization of media and glassware in virology.
4. Principles of biosafety hoods, use of pipettes, syringes and other virus contaminated instruments in the laboratory.
5. Demonstration of preservation of viruses, viral antigens, infected biological materials and viruses.

(C) PARASITOLOGY: Theory:

1. Introduction to medical and safety.
2. General characters and classification of protozoa.
3. Laboratory procedure collections, preservation and processing of samples for parasites stool/blood/fluids/tissue/biopsy.
4. Morphology and life cycles of intestinal protozoa, Amoeba-Giardia.
5. Laboratory diagnosis of intestinal protozoa infection: - Amoeba-Giardia.
6. Morphology and diagnosis of oral of – trichomonas vaginal flagellates – E. Gingivalia.
7. Morphology and life cycle of Haemopro- malaria protozoa-parasite.
8. Laboratory diagnosis of malarial infection.
9. General characters and classification of medical helminthology.
10. Morphology and life cycles of Nematodes (Intestinal), - Ascaris, - Enterobius, -Ancylostoma, - Strongyloides.
11. Laboratory diagnosis of intestinal Nematode infection.

Practicals:

1. Introduction to operation of laboratory instruments and safety precautions.
2. Macroscopic examination of adult worms, cysts, tissues, and processing of stool sample for routine examination.
3. Saline and I₂ preparation for protozoa cysts and trophozoites.
4. Concentration procedures for protozoa cysts and trophozoites.
5. Concentration procedures for helminthic ova and cyst.
6. Examination and identification of ova and cyst of parasites of medical importance.

BMLT- 1st Year
Subject: HEMATOLOGY
Scheme of Examination

SUBJECT	THEORY	INTERNAL ASSESSMENT	PRACTICAL	Total
Microbiology -I	100	100	100	300

Theory papers will be of 100 Max. marks and 3Hours time duration

- There shall be one paper setter external or internal for theory examination and two examiners, one internal (Chairman) and one external for practical examinations. Recognized teachers in Pathology with five years of teaching experience shall be on the panel of examiner. The viva marks shall be added to university theory examination marks and 50% shall be the passing marks for both theory and practical university examination respectively. The pattern of University theory examination will be as under for 100 Max. Marks.

No. and Type of Questions	Marks for each Question	Total Marks
10 very short answer Questions <i>Answer to be given in 50-60 words</i>	02	20
5 short answer Questions <i>Answer to be given in 250-300 words</i>	10	50
2 essay type Questions <i>Answer to be given in 450-500 words</i>	15	30
Total Marks		100

Syllabus Contents :-

1. Introduction to hematology and Laboratory Organization.
2. Lab.Safety and instrumentation.
3. Formation of blood.
4. Composition and functions of blood.
5. Various anticoagulants, their uses, mode of action and their merits and demerits.
6. Collection & preservation of blood for various hematological investigations.
7. Physiological variations in Hb, PCV, TLC and platelet.
8. Normal and absolute values in hematology. 8. Quality assurance in hematology.
9. Haemoglobinometry, various methods of estimation of Hb, errors involved and standardization of instrument for adaptation for Hb estimation.
10. Hemocytometry, procedures for cell counts visual as well as electronic, red cell, leucocytes and platelet counts. An error involved and means to minimize such errors.
11. Romanowsky dyes, preparation and staining procedure of the blood smears.
12. Morphology of normal blood cells and their identification.
13. Erythrocyte sedimentation rate, factors influencing and various procedures for its estimation with their significance.
14. Haemocrit value by macro and micro methods their merit and demerits.

15. Routine examination of urine.
16. Examination of biological fluids such as CSF, etc.
17. Examination of semen.