2.6.3 The teaching learning and assessment processes of the Institution are aligned with the stated learning outcomes.

Web link to programmed – specific learning outcomes

(i) Goal:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross and microscopic structure and development of human body to provide a basis for understanding the clinical correlation of organs or structures involved and the anatomical basis for the disease presentations.

(ii) Objectives

A-Knowledge:

At the end of the course the student shall be able to

(a)Comprehend the normal disposition, clinically relevant interrelationships, functional and cross sectional anatomy of the various structures in the body

(b)Identify the microscopic structure and correlate elementary ultrastructure of various organs and tissues and correlate the structure with the functions as a pre requisite for understanding the altered state in various disease processes.

(c)Comprehend the basic structure and connections of the central nervous system to analyse the integrative and regulative functions of the organs and systems. He/she shall be able to locate the site of gross lesions according to the deficits encountered.

(d)Demonstrate knowledge of the basic principles and sequential development of the organs and systems, recognize the critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards. He/she shall be able to explain the developmental basis of the major variations and abnormalities.

B-Skills

At the end of the course the student shall be able to;

(a)Identify and locate all the structures of the body and mark the topography of the living anatomy.

(b)Identify the organs and tissues under the microscope.

(c)Understand the principles of karyotyping and identify the gross congenital anomalies.

(d)Understand principles of newer imaging techniques and interpretation of CT scan, sonogram etc.

(e)Understand clinical basis of some common clinical procedures i.e. intramuscular and intravenous injection, lumbar puncture and kidney biopsy etc.

C-Integration

From the integrated teaching of other basic sciences, student shall be able to comprehend and regulation and integration of the functions of the organs and systems in the body and thus interpret the anatomical basis of disease process.

I) GOAL

The broad goal of the teaching of undergraduate students in physiology aims at providing the student comprehensive knowledge of the normal functions of the organ systems of the body to facilitate an understanding of the physiological basis of health and diseases.

II) EDUCATIONAL OBJECTIVES:

1)At the end of the course, the student will be able to: describe the normal functions of all the organ systems, their regulatory mechanisms and interactions of the various systems for well-coordinated total body function.

2)Understand the relative contribution of each organ system in the maintenance of the milieu interior (homeostasis).

3)Explain the physiological aspects of normal growth and development. Analyse the physiological responses and adaptation to environmental stresses.

4)Comprehend the physiological principles underlying pathogenesis and treatment of disease.

5)Correlate knowledge of physiology of human reproductive system in relation to National Family Welfare Program.

III) SKILL :

At the end of the course the student shall be able to :

1) Conduct experiments designed for study of physiological phenomena.

2) Interpret experimental/investigative data.

3) Distinguish between normal & abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.

IV) INTEGRATION :

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.

i) Goal :-

The broad goal of the teaching of undergraduate students in biochemistry is to make them understand the scientific basis of the life processes at the molecular level and to orient them towards the application of the knowledge acquired in solving clinical problems.

ii) Objectives :

a) Knowledge

At the end of the course, the student shall be able to :

1) describe the molecular and functional organization of a cell and list its subcellular components;

2) delineate structure, function and inter-relationships of biomolecules and consequences of deviation from normal;

3) summarize the fundamental aspects of enzymology and clinical application wherein regulation of enzymatic activity is altered;

4) describe digestion and assimilation of nutrients and consequences of malnutrition;

5) integrate the various aspects of metabolism and their regulatory pathways;

6) explain the biochemical basis of inherited disorders with their associated sequelae;

7) describe mechanisms involved in maintenance of body fluid and pH homeostasis;

8) outline the molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application in medicine.

9) Summarize the molecular concept of body defences and their application in medicine;

10) Outline the biochemical basis of environmental health hazards, biochemical basis of cancer and carcinogenesis;

11) familiarize with the principles of various conventional and specialized laboratory investigations and instrumentation analysis and interpretation of given data; 12) suggest experiments to support theoretical concepts and clinical diagnosis;

b) SKILLS

At the end of the course, the student shall be able to :

1) make use of conventional techniques / instruments to perform biochemical analysis relevant to clinical screening and diagnosis;

2) analyze and interpret investigative data;

3) demonstrate the skills of solving scientific and clinical problems and decision making.

c) INTEGRATION

The knowledge acquired in biochemistry shall help the students to integrate molecular events with structure and function of the human body in health and disease.

1.Goal

The broad goal of teaching pharmacology to undergraduate students is to inculcate in them a rational and scientific basis of therapeutics.

2. Educational objectives

(a) Knowledge

At the end of the course, the student shall be able to

i. Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs

Ii. list the indications, contraindications, interactions and adverse reactions of commonly used drugs

iii. Indicate the use of appropriate drug in a particular disease with consideration of its cost, efficacy and safety for - individual needs, and mass therapy under national health programmes

iv describe the pharmacokinetic basis, clinical presentation, diagnosis and management of common poisonings.

v. Integrate the list the drugs of addiction and recommend the management

vi.Classify environmental and occupational pollutants and state the management issues

vii. Explain pharmacological basis of prescribing drugs in special medical situations such as pregnancy, lactation, infancy and old age

vii Explain the concept of rational drug therapy in clinical pharmacology

viii State the principles underlying the concept of `Essential Drugs" ix evaluate the ethics and modalities involved in the development and introduction of new drugs

(b) Skills

At the end of the course, the student shall be able to

i. Prescribe drugs for common ailments

ii. Identify adverse reactions and interactions of commonly used drugs

iii. Interpret the data of experiments designed for the study of effects of drugs and bioassays which are observed during the study

iv. Scan information on common pharmaceutical preparations and critically evaluate drug formulations

v. Be well-conversant with the principles of pharmacy and dispense the medications giving proper instructions

(c) Integration

Practical knowledge of rational use of drugs in clinical practice will be acquired through integrated teaching vertically with pre-clinical & clinical subjects and horizontally with other para-clinical subjects.

3. Total duration of para-clinical teaching 3

1. Goal

The goal of teaching pathology is to provide undergraduate students comprehensive knowledge of the causes and mechanisms of disease, in order to enable them to achieve complete understanding of the natural history and clinical manifestations of the disease.

2. Educational objectives

(a) Knowledge

At the end of one and half years, the student shall be able to

i. Describe the structure and ultrastructure of a sick cell, the mechanisms of the cell degradation, cell death and repair.

ii. Correlate structural and functional alterations in the sick cell.

iii.Explain the Patho physiological processes which governs the maintenance of homeostasis, mechanism of their disturbances and the morphological and clinical manifestation associated with it.

iv. Describe the mechanisms and patterns of tissue response to injury to appreciate the Pathophysiology of disease processes and their clinical manifestations.

v. Correlate the gross and microscopic alterations of different organ systems in common diseases to the extent needed to understand disease processes and their clinical significance.

vi. Develop an understanding of neoplastic change in the body in order to appreciate need for early diagnosis and further management of neoplasia.

vii. Understand mechanisms of common haematological disorders and develop a logical approach in their diagnosis and management.

(b) Skills

At the end of one and half years, the student shall be able to

i. Describe the rationale and principles of technical procedures of diagnostic laboratory tests.

ii. Interpret diagnostic laboratory tests and correlate with clinical and morphological features of diseases.

iii. Perform simple bedside tests on blood, urine and other biological fluid samples.

iv. Draw a rational scheme of investigations aimed at diagnosing and managing common disorders.

v. Recognise morbid anatomical and histopathological changes for the diagnosis of common disorder. Introduction of “Communication Skills, Professionalism & Ethics in Medical Education Modules” in 2 nd Year MBBS Syllabus New Topic in
Syllabus of Pathology (A.Y. 2015-16)

(c) Integration

At the end of one and half years, the student shall be able to,integrate the causes and mechanisms of disease most prevalent in India with their natural history for the understanding of their clinical course and
management.

3. Total duration of teaching 3 Semesters (III, IV and V)

1.Goal

The goal of teaching Microbiology is to provide understanding of the natural history of infectious diseases in order to deal with the etiology, pathogenesis, pathogenicity, laboratory diagnosis, treatment, control and prevention of these infections and infectious diseases.

2. Educational objectives

(a) Knowledge

The student at the end of one and half years should be able to: -

i.state the etiology, pathogenesis and methods of laboratory diagnosis and apply that knowledge in the diagnosis, treatment, prevention and control of communicable diseases caused by microorganisms.

ii.understand commensal, opportunistic and pathogenic organisms of human body and describe host parasite relationship.

iii.know and describe the pathogenesis of diseases caused by microorganisms.

iv.state the sources and modes of transmission of pathogenic and opportunistic micro-organisms including knowledge of insect vectors & their role in transmission of infectious diseases.

v.choose appropriate laboratory investigations required for clinical diagnosis.

(b) Skills

i.Plan and interpret laboratory investigations for diagnosis of infectious diseases and correlate the clinical manifestations with the etiological agent.

ii. Identify common infectious agents with the help of laboratory procedure, acquire knowledge of antimicrobial agents, use of antimicrobial sensitivity tests to select suitable antimicrobial agents for treatment.

iii.Perform simple laboratory tests, which help to arrive at rapid diagnosis.

iv.Be conversant with proper methods of collection, storage & transport of clinical material for microbiological investigations.

v. Understand the principles of immunology and its application in the diagnosis and prevention of infectious diseases including immunization schedule, acquire knowledge of the scope of immunotherapy and different vaccines available for the prevention of communicable diseases.

vi. Understand methods of disinfection and sterilization and their application to control and prevent hospital and community acquired infections including universal biosafety precautions and waste disposal.

vii.Recommend laboratory investigations regarding bacteriological examination of food, water, milk and air.

viii.The student should be well equipped with the knowledge of prevalent communicable diseases of national importance and of the newer emerging pathogens.

(c) Attitude

i. The student will be regular, sincere, punctual and courteous and regular in studies.

ii. The student will follow all the rules laid down by the department and participate in all activities.

iii.The student will understand the importance of, and practice asepsis, waste segregation and appropriate disposal.

iv. The student will understand the importance of, and practice the best methods to prevent the development of infection in self and patient. (E.g. hand washing, using aprons for hospitals in hospitals only, regularly washing the aprons, wearing gloves (as and when required / handling specimens etc.).

v. the student will understand the use of the different antimicrobial agents including antibiotics to use judiciously and prevent misuse, (prescribing attitude).

vi. the student will understand the significance of vaccinations and will receive appropriate vaccines (e.g. TT, Hepatitis B and any other as per needs).

vii. the student will wash his/her hands with soap after each practical class.

viii. the student will leave the area allotted for his practical neat and tidy.

ix. the student will discard the slides in the appropriate container provided for the same. x. the student will report any injury sustained in class, immediately.

xi. the student will report any breakage occurring during class times immediately.

xii. the student may give suggestions to improve teacher student association.

Course Outcome/Learning Objectives

1.Goal

The broad goal of teaching undergraduate students Forensic Medicine is to produce a physician who is well informed about Medico-legal responsibility during his/her practice of Medicine. He/She will also be capable of making observations and inferring conclusions by logical deductions to set enquiries on the right track in criminal matters and associated medico-legal problems. He/She acquires knowledge of law in relation to Medical practice, Medical negligence and respect for codes of Medical ethics.

2. Educational objectives

(a) Knowledge

At the end of the course, the student shall be able to

i. Identify the basic Medico-legal aspects of hospital and general practice

ii. Define the Medico-legal responsibilities of a general physician while rendering community service either in a rural primary health centre or an urban health centre

iii. Appreciate the physician"s responsibilities in criminal matters and respect for the codes of Medical ethics

iv. Diagnose, manage and identify also legal aspect of common acute and chronic poisonings

v. Describe the Medico-legal aspects and findings of post-mortem examination in cases of death due to common unnatural conditions and poisonings

vi. Detect occupational and environmental poisoning, prevention and epidemiology of common poisoning and their legal aspects particularly pertaining to Workmen"s Compensation Act

vii. Describe the general principles of analytical toxicology

(b) Skills

A comprehensive list of skills and attitude recommended by Medical Council of India Regulation, 1997 desirable for Bachelor of Medicine and Bachelor of Surgery (MBBS) Graduate for Forensic Medicine and Toxicology At the end of the course, the student shall be able to

i. Make observations and logical inferences in order to initiate enquiries in criminal matters and Medico-legal problems

a. To be able to carry on proper Medico-legal examination and documentation/Reporting of Injury and Age
b. To be able to conduct examination for sexual offences and intoxication
c. To be able to preserve relevant ancillary materials for medico - legal examination
d. To be able to identify important post-mortem findings in common unnatural deaths

ii. Diagnose and treat common emergencies in poisoning and chronic toxicity

iii. Make observations and interpret findings at post-mortem examination

iv. Observe the principles of medical ethics in the practice of his profession

(c) Integration

Department shall provide an integrated approach towards allied disciplines like Pathology, Radiology, Forensic Sciences, Hospital Administration etc. to impart training regarding Medico-legal responsibilities of physicians at all levels of health care. Integration with relevant disciplines will provide scientific basis of clinical toxicology e.g. Medicine, Pharmacology etc.

These guidelines are based on MCI recommendations. Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

1. GOAL

The basic idea of undergraduate students teaching and training in otolaryngology is that he /she should have acquired adequate knowledge and skills for optimally Dealing with common disorders, emergencies in E.N.T .and basic principles of impaired hearing rehabilitation.

2. OBJECTIVES

(a) KNOWLEDGE

At the end of course the student shall be able to :

(1) Describe the basic pathophysiology and common Ear, Nose, Throat diseases and emergencies.

(2) Adopt the rationale use of commonly used drugs,keeping in mind their side effects

(3) Suggest common investigative methods and their interpretation.

(b) SKILLS

At the end of course ,the student shall be able to:

1. Examine and diagnose common ear ,nose ,throat problems including premalignant and malignant diseases of head and neck.

2. Manage ear ,nose ,throat (E.N.T)problems at the first level of care and be able to refer whenever and wherever necessary.

3.Assist/do independently basic E.N.T. procedures like ear syringing, Ear dressings, nasal packing removal of foreign bodies from nose, ear, throat.

4. Assist in certain procedures like tracheostomy, endoscopies.

5. Conduct CPR (cardiopulmonary resuscitation).

6. Be able to use auroscope, nasal speculum, tongue depressor, tunning fork and head mirror.

INTEGRATION

The undergraduate training in E.N.T. will provide an integrated approach towards other disciplines especially neurosciences, ophthalmology and general surgery.

These guidelines are based on MCI recommendations. Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

(i) GOAL

The broad goal of the teaching of students in ophthalmology is to provide such knowledge and skills to the student that shall enable him/her to practice as a clinical and as a primary eye care physician and also to function effectively as a community health leader to assist in the implementation of National Programme for the prevention of blindness and rehabilitation of the visually impaired.

(II) OBJECTIVES

(a) KNOWLEDGE

At the end of the course, student shall have the knowledge of

1.Common problems affecting the eye,
2. Principles of management of major ophthalmic emergencies,
3.main systemic diseases affecting the eye;
4. Effects of local and systemic diseases on patient"s vision and the necessary action required to minimize the sequelae of such diseases;
5. Adverse drug reactions with special reference to ophthalmic manifestations;
6, Magnitude of blindness in India and its main causes;
7. National programme for control of blindness and its implementation at various levels.
8. Eye care education for prevention of eye problems
9. Role of primary health center in organization of eye camps;
10.organization of primary health care and the functioning of the ophthalmic assistant;
11. Integration of the national programme for control of blindness with the other national health Programmes.
12. Eye bank organization

SKILLS

At the end of the course, the student shall be able to:

1. Elicit a history pertinent to general health and ocularstatus;
2. Assist in diagnostic procedures such as visual acuity testing, examination of eye, Schiotz tonometry, Staining of Corneal pathology, confrontation perimetry, Subjective refraction including correction of presbyopia and aphakia, direct ophthalmoscopy and conjunctival smear examination and Cover test;
3. Diagnose and treat common problems affecting the eye;
4. Interpret ophthalmic signs in relation to common systemic disorders,
5.Assist/observe therapeutic procedures such as subconjunctival injection, corneal conjunctival foreign body removal, carbolic cautery for corneal ulcers, Nasolacrimal duct syringing and tarsorraphy;
6. Provide first aid in major ophthalmic emergencies;
7. Assist to organize community surveys for visual check up;
8. Assist to organize primary eye care service through primary health centers.
9. Use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation.
10. Establish rapport with his seniors, colleagues and paramedical workers, so as to effectively function as a member of the eye care team.

(C) INTEGRATION

The undergraduate training in Ophthalmology will provide an integrated approach towards other disciplines especially Neuro-sciences, ENT, General Surgery and Medicine.

Course Outcome/Learning Objectives

A.The teaching of Social & Preventive Medicine shall place throughout the teaching period.

B. Field experience in rural health is included in pre-clinical as well as during clinical period

C. During the students attendance at various departments which is now required under medicine and surgery, such as infectious diseases. T.B. Leprosy, V.D. etc. emphasis shall be laid as much on the preventive as on the clinical and Therapeutic aspects of these diseases.

D. In addition to the teaching undertaken by the department of Social & Preventive Medicine, a joint programme with other departments is essential in order to give the students a comprehensive picture of man, his health and illness.

E. Stress shall be laid on national programmes, including those of control of communicable diseases and family planning and health education.

F. An epidemiological units as an integrate part of every hospital in order to achieve a comprehensive study disease by the students should be established.

G. The objective of the internship shall be clearly defined and that a proper training programme is oriented for this period. Objectives, and the methods by which the internship could be made into a satisfying and fruitful experience. Sharpening and for planning in this phase of education shall be done.

H. As regards the qualifications of the teachers it is highly important that All teachers in Social and A preventive Medicine should have as far as possible had adequate administrative experience in addition to the teaching experience. They should also be encouraged to acquire skills in clinical subject specially related to community medicine.

I.Practical Skills :

Due stress shall be laid on the students acquiring practical skill in the following procedures.

GOALS :

Community Medicine including Humanities (Preventive and Social Medicine) (Phase I,II and Part 1st of Phase III M.B.B.S.) The broad goal of the teaching of undergraduate students in community medicine is to prepare them to function as community and first level physicians in accordance with the institutional goals. Academic Notification No. 08/2013 Introduction of “WHO New Growth Charts/SAM/IYCF” Topic In MBBS Syllabus

OBJECTIVES :

Knowledge :

At the end of the course the student shall be able Explain the principles of sociology including demographic population dynamics. Identify social factors related to health, disease and disability in the context of urban and rural societies. Appreciate the impact of urbanization on health and disease. Observe and interpret the dynamic of community behaviours. Describe the elements of normal psychology and social psychology. Observe the principles of practice of medicine in hospital and community settings. Describe the health care delivery systems including rehabilitation of the disabled in the country. Describe the National Health Programmes with particular emphasis on maternal and child health programmes, family welfare planning and population control. List the epidemiological methods and techniques. Outline the demographic pattern of the country and appreciate the roles of the individuals, family, community and socio-cultural milieu in health and disease. Describe the health information systems. Enunciate the principles and components of primary health care and the national health policies to achieve the goal of “Health for all”. Identify the

(i) Goal

The broad goal of the teaching of undergraduate students in Medicine is to have the knowledge, skills and behavioral attributes to function effectively as the first contact physician.

(ii) OBJECTIVES :

(a) KNOWLEDGE :

At the end of the course, the student shall be able to :

(1) Diagnose common clinical disorders with special reference to infectious diseases, nutritional disorders, tropical and environmental diseases;

(2) Outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interactions, indications and contra-indications;

(3) Propose diagnostic and investigative procedures and ability to interpret them;

(4) Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required;

(5) Recognize geriatric disorders and their management.

(iii) SKILLS :

At the end of the course, the student shall be able to :

(1) Develop clinical skills (history taking, clinical examination and other instruments of examination to diagnose various common medical disorders and emergencies; Introduction of "Communication Skills, Professionalism & Ethics in Medical Education Modules" TOPIC in 2nd &3rd MBBS Syllabus Introduction of "Palliative Care Medicine" Topic In 3rd MBBS (Part II) in General Medicine Syllabus

(2) Refer a patient to secondary and/or tertiary level of health care after having instituted primary care;

(3) Perform simple routine investigations like hemogram, stool, urine, sputum and biological fluid examinations;

(4) Assist the common bedside investigative procedures like pleural tap, lumber puncture, bone marrow aspiration/ biopsy and liver biopsy. A course of systematic instruction in the principles and practice of medicine, including medical disease of infancy;

a. Lecture - demonstrations, seminars and conferences in clinical medicine during the 3 years shall run concurrently with other clinical subjects.;

b. Instructions in comprehensive medical care;

c. Instructions in applied anatomy and physiology and pathology throughout the period of clinical studies;

d. Instructions in dietetics, nutrition and principles of nursing Medical and in simple ward procedure e.g. should be imparted during clinical concurrently.

iv) Attitude :

a. The teaching and training in clinical medicine must aim at developing the attitude in students to apply the knowledge & skills he/she acquires for benefit and welfare of the patients.

b. It is necessary to develop in students a sense of responsibility towards holistic patient care & prognostic outcomes.

c. Students should develop behavioural skills and humanitarian approach while communicating with patients, as individuals, relatives, society at large & the co- professionals.

(i)GOAL:

The broad goal of the teaching of undergraduate students in Surgery is to produce graduates capable of delivering efficient first contact surgical care.

(i) OBJECTIVES:

The departmental objectives, syllabus and skills to be developed in the department of surgery during undergraduate medical education are presented herewith. These are prepared taking into consideration of various aspects and institutional goals given below:

1. A medical student after graduation may have different avenues of his/her professional career and may work either as a first contact physician in a private, semi-private or public sector or may take up further specialization in surgery or other specialties.
2. He may have to work in different settings such as rural, semi-urban or urban which may have deficient or compromised facilities.
3. These are based on the various health services research data in our community.
4. These are also based on following institutional goals in general; At the end of the teaching/ training the undergraduate will be able to: Diagnose and manage common health problems of the individual and the community appropriate to his/her position as a member of the health team at primary, secondary and tertiary levels. Be competent to practice curative, preventive, promotive and rehabilitative medicine and understand the concepts of primary health care. Understand the importance and implementation of the National Health Programmes in the context of national priorities. Understand the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitude required for professional responsibilities. Develop the ability for continued self-learning with a scientific attitude of mind and acquire further expertise in any chosen area of medicine. Inclusion of the book "Manipal Manual of Surgery" as references book for M.B.B.S. Course

A. KNOWLEDGE

At the end of the course, the student shall be able to:

1. Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
2. Define indications and methods for fluid and electrolyte replacement therapy including blood transfusion.
3. Define asepsis, disinfection and sterilization and recommend judicious use of antibiotics.
4. Describe common malignancies in the country and their management including prevention
5. Enumerate different types of anaesthetic agents, their indications, mode of administration, contraindications and side effects

B. SKILLS

At the end of the course, the student should be able to

1. Diagnose common surgical conditions both acute and chronic, in adult and children.
2. Plan various laboratory tests for surgical conditions and interpret the results;
3. Identify and manage patients of haemorrhagic; septicaemic and other types of shock.
4. Be able to maintain patent air-way and resuscitate:

A A critically injured patient.
B Patient with cardio-respiratory failure;
C A drowning case.

5. Monitor patients of head, chest, spinal and abdominal injuries, both in adults and children
6. Provide primary care for a patient of burns;
7. Acquire principles of operative surgery, including pre-operative, operative and post operative care and monitoring;
8. Treat open wounds including preventive measures against tetanus and gas gangrene. 9. Diagnose neonatal and paediatric surgical emergencies and provide sound primary care before referring the patient to secondary/territory centers;
10. Identify congenital anomalies and refer them for appropriate management In addition to the skills referred above in items (1) to (10), he shall have observed/assisted/performed the following

i. Incision and drainage of abscess;
ii. Debridement and suturing open wound;
iii. Venesection;
iv. Excision of simple cyst and tumours.
v. Biopsy and surface malignancy
vi. Catheterisation and nasogastric intubation;
vii.Circumcision
viii.Meatotomy;
ix. Vasectomy;
x. Peritoneal and pleural aspirations;
xi. Diagnostic proctoscopy
xii. Hydrocoele operation;
xiii.Endotracheal intubation
xiv.Tracheostomy and cricothyroidetomy;
xv. Chest tube insertion. Human values, and Ethical practice .Adopt ethical principles in all aspects of his clinical practice. Professional honesty and integrity are to be fostered. Surgical care is to be delivered irrespective of the social status, caste, creed or religion of the patient. .Develop communication skills, in particular the skill to explain various options available in management .Be humble and accept the limitations in his knowledge and skill and to ask for help from colleagues and specialist in the field when needed. Respect patient's rights and privileges including patient's right to information and right to seek a second opinion

© INTEGRATION

The undergraduate teaching in surgery shall be integrated at various stages with different pre and para and other clinical department.

B) ORTHOPAEDICS

(A) KNOWLEDGE

The student shall be able to:

1. Explain the principles of recognition of bone injuries and dislocation.
2. Apply suitable methods to detect and manage common infections of bones and joints.
3. Identify congenital, skeletal anomalies and their referral for appropriate correction or rehabilitation.
4. Recognize metabolic bone diseases as seen in this country:
5. Explain etiogenesis, manifestations, and diagnosis of neoplasm affecting bones.

(B) SKILLS:

At the end of the course, the student shall be able to:

1.Detect sprains and deliver first aid measures for common fractures and sprains and manage uncomplicated fractures of clavicle, Colles"s forearm, phalanges etc.

2.Use techniques of splinting, plaster, immobilization etc.

3.Manage common bone infections, learn indications for sequestration, amputations and corrective measures for bone deformities;

4. Advise aspects of rehabilitation for Polio, Cerebral Palsyand Amputation.

(C) APPLICATION

Be able to perform certain orthopaedic skills, provide sound advice of skeletal and related conditions at primary or secondary health care level.

(D) INTEGRATION

LEARNING METHODS Lectures, Tutorials bedside clinics and lecture cum demonstrations

(C) ANAESTHESIOLOGY DEPARTMENTAL OBJECTIVES:

At the end of the training, the students should be able to:

Perform cardio-pulmonary resuscitation with the available resources and transferthe patients to a bigger hospital for advanced life support. Set up intravenous infusion.Clear and maintain airway in an unconscious patient.Administer oxygen correctly.

Perform simple nerve block.Exhibit awareness of the principles of administration of general and local anaesthesia.

SKILLS:

1. Start I V line and infusion in adults, children and neonates.
2. Do venous cutdown.
3. Insert, manage a CVP line.
4. Conduct CPR (Cardiopulmonary resuscitation) and first aid in newborns, children and adults including endotracheal intubation.
5. Perform nerve blocks like infiltration, digital and field blocks.
6. Do lumbar puncture.
7. Administer O2 by mask, catheter, and O2 tent and be able to handle O2 cylinder.

D) RADIOLOGY :

Diagnosis & Imaging Goals :

Realisation of the basic need of various radio-diagnostic tools. Radio-diagnostic Techniques to be adopted indifferent clinical situations in diagnosis of ailments.

Objectives : Knowledge: -The student shall be able to

1. Understand basics of X-ray / USG production, its utility and hazards
2. Appreciate and diagnose radiological changes in diseases of Chest, Abdomen, Skeletal system, Gastro-intestinal system, Genito-urinary System & CNS
3. Learn about various Imaging techniques like nuclear medicine, computerised tomography (CT), Ultrasound, magnetic resonance imaging (MRI), conventional & Digital subtraction Angiography (DS

Skills: -

At the end of the course the student shall be able to

1. Interpret various radiological findings and their consequences
2. Use basic protective techniques during various Imaging procedures
3. Advice appropriate Diagnostic procedures to arrive at an appropriate diagnosis.

These guidelines are based on MCI recommendations Teaching has to be done keeping in mind the goals and objectives to be achieved by medical student

(i) GOAL

The broad goal of the teaching of undergraduate students in Obstetrics and Gynaecology is that he/she shall acquire understanding of anatomy, physiology and pathophysiology of the reproductive system & gain the ability to optimally manage common conditions affecting it.

(II) OBJECTIVES

(A) KNOWLEDGE:

At the end of the course, the student shall be able to: Outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it. Detect normal pregnancy, labour puerperium and manage the problems he/she is likely to encounter therein, List the leading causes of maternal perinatal morbidity and mortality. Understand the principles of contraception and various techniques employed, methods of medical termination of pregnancy, sterilization and their complications. Identify the use, abuse and side effects of drugs in pregnancy, pre-menopausal and post-menopausal periods; Describe the national programme of maternal and child health and family welfare and their implementation at various levels. Identify common gynaecological diseases and describe principles of their management. State the indications, techniques and complications of surgeries like Caesarian Section, laparotomy, abdominal and vaginal hysterectomy, Fathe operation and vacuum aspiration for Medical Termination of Pregnancy (MTP)

(B) SKILLS

At the end of the course, the student shall be able to :

1.Examine a pregnant woman; recognize high-risk pregnancies AND make appropriate referrals

2.conduct a normal delivery, recognize complications and provide postnatal care;

3. Resuscitate the newborn and recognize the congenital anomalies

4.advise a couple on the use of various available contraceptive devices and assist in insertion and removal of intra-uterine contraceptive devices.

5.Perform pelvic examination, diagnose and manage common gynaecological problems including early detection of genital malignancies;

6.Make a vaginal cytological smear, perform a post coital test and wet vaginal smear examination for Trichomonas vaginalis, Moniliasis and gram stain for gonorrhoea; 7.interpretation of data of investigations like biochemical, histopathological, radiological ultrasound etc.

(C) INTEGRATION

The student shall be able to integrate clinical skills with other disciplines and bring about coordination of family welfare programme for the national goal of population control.

(D) GENERAL GUIDELINES FOR TRAINING:

1. attendance of a maternity hospital or the maternity wards of a general hospital including

(i) antenatal care the management of the puerperium and a minimum period of 5 months in-patient and out-patient training including family welfare planning

2. of this period of clinical instruction, not less than one month shall be spent as a resident pupil in a maternity ward of a general hospital.

3. during this period, the student shall conduct at least 10 cases of labour under adequate supervision and assist 10 other cases.

4. a certificate showing the number of cases of labour attended by the student in the maternity hospital and/or patient homes respectively, shall be signed by a responsible medical officer on the staff of the hospital and shall state:

(a) that the student has been present during the course of labour and personally conducted each case, making the necessary abdominal and other examinations under the supervision of the certifying officer who shall describe his official position.

(b) That satisfactory written histories of the cases conducted including wherever possible antenatal and postnatal observations, were presented by the student and initialed by the supervising officer

The course includes systematic instructions in growth and development, nutritional needs of a child, immunization schedules and management of common diseases of infancy and childhood including scope for Social Paediatrics and counseling.

(i) GOAL :

The broad goal of the teaching of undergraduate students in Paediatrics is to acquire adequate knowledge and appropriate skills for optimally dealing with major health problems of children to ensure their optimal growth and development.

(ii) OBJECTIVES :

(a)KNOWLEDGE :

At the end of the course, the student shall be able to:

(1) Describe the normal growth and development during foetal life, neonatal period, childhood and adolescence and outline deviations thereof;

(2) Describe the common paediatric disorders and emergencies in terms of Epidemiology, aetiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation;

(3) Age related requirements of calories, nutrients, fluids, drugs etc, in health and disease;

(4) Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisonings, accidents and child abuse;

(5) Outline national Programmes relating to child health including immunization Programmes.

(b) SKILLS :

At the end of the course, the student shall be able to :Academic Notification No. 08/2013 Introduction of "WHO New Growth Charts/SAM/IYCF" Topic In MBBS Syllabus

(2) Take a detailed paediatric history, conduct an appropriate physical examination of children including neonates, make clinical diagnosis, conduct common bedside investigative procedures, interpret common laboratory investigation results and plan and institute therapy.

(3) Take anthropometric measurements, resuscitate newborn infants at birth, prepare oral rehydration solution, perform tuberculin test, administer vaccines available under current national programmes, performvenesection, start an intravenous saline and provide nasogastric feeding :

(4) Conduct diagnostic procedures such as a lumbar puncture, liver and kidney biopsy, bone marrow aspiration, pleural tap and ascitic tap;

(5) Distinguish between normal newborn babies and those requiring special care and institute early care o all new born babies including care of preterm and low birth weight babies, provide correct guidance and counseling in breast feeding ;

(6) Provide ambulatory care to all sick children, identify indications for specialized / inpatient care and ensure timely referral of those who require hospitalization :

(C) INTEGRATION :

The training in paediatrics should prepare the student to deliver preventive, promotive, curative and rehabilitative services for care of children both in the community and at hospital as part of team in an integrated form with other disciplines, e.g. Anatomy, Physiology, Forensic Medici9ne, Community Medicine and Physical Medicine and Rehabilitation.

(i) GOAL :

The aim of teaching of the undergraduate student in Psychiatry is to impart such knowledge and skills that may enable him to diagnose and treat common Psychiatric disorders, handle Psychiatric emergencies and to refer complications/unusual manifestation of common disorders and rare Psychiatric disorders to the specialist.

(ii) OBJECTIVES :

(a) KNOWLEDGE :

At the end of the course, the student shall be able to :

1. Comprehensive nature and development of different aspects of normal human behaviour like learning, memory, motivation, personality and intelligence;
2. Recognize differences between normal and abnormal behaviour;
3. Classify psychiatric disorders;
4. Recognize clinical manifestations of the following common syndromes and plan their appropriate management of organic psychosis, functional psychosis, schizophrenia, affective disorders, neurotic disorders, personality disorders, psychophysiological disorders, drug and alcohol dependence, psychiatric disorders of childhood and adolescence;
5. Describe rational use of different modes of therapy in psychiatric disorders.

(b) SKILLS :

The Student shall be able to :

1) interview the patient and understand different methods of communications in patient-doctor relationship;
2) Elicit detailed psychiatric case history and conduct clinical examination for assessment of mentalstatus;
3) Define, elicit and interpret psycho-pathological symptoms and signs;
4) Diagnose and manage common psychiatric disorders;
5) Identify and manage psychological reactions and psychiatric disorders in medical and surgical patients in clinical practice and in community setting.

(c) INTEGRATION :

Training in Psychiatry shall prepare the students to deliver preventive, promotive, curative and re-habilitative services for the care of patients both in the family and community and to refer advanced cases for a specialized Psychiatry / Mental Hospital. Training should be integrated with the departments of Medicine, Neuro-Anatomy, Behavioral and Forensic Medicine.

(i)Goal :

The aim of teaching the undergraduate student in Tuberculosis and Chest Diseases is to impart such knowledge and skills that may enable him/her to diagnose and manage common ailments affecting the chest with the special emphasis on management and prevention of Tuberculosis and especially National Tuberculosis control programme.

(ii) OBJECTIVES :

(a) KNOWLEDGE :

At the end of the course of Tuberculosis and Chest diseases, the student shall be able to:

1) Demonstrate sound knowledge of common chest diseases, their clinical manifestations, including emergent situations and of investigative procedures to confirm their diagnosis"

2) Demonstrate comprehensive knowledge of various modes of therapy used in treatment of respiratory diseases;

3) Describe the mode of action of commonly used drugs, their doses, sideeffects/toxicity, indications and contra-indications and interactions.;

4) Describe commonly used modes of management including medical and surgical procedures available for treatment of various diseases and to offer a comprehensive plan of management inclusive of National Tuberculosis Control Programme.

(b) SKILLS :

The student shall be able to :

1) Interview the patient, elicit relevant and correct information and describe the history in chronological order;

2) Conduct clinical exami9nation, elicit and interpret clinical findings and diagnose common respiratory disorders and emergencies;

3) Perform simple, routine investigative and office procedures required for making the bed side diagnosis, especially sputum collection and examination for etiologic organisms especially Acid Fast Bacilli (AFB),interpretation of the chest x-rays and respiratory function tests;

4) Interpret and manage various blood gase4s and PH abnormalities in various respiratory diseases.

5) Manage common diseases recognizing need for referral for specialized care, in case of inappropriateness of therapeutic response;

6) Assist in the performance of common procedures, like laryngoscopic examination, pleural aspiration, respiratory physiotherapy, laryngeal intubation and pneumo-thoracic drainage/aspiration

(a) INTEGRATION:

The broad goal of effective teaching can be obtained through integration with departments of Medicine, Surgery, Microbiology, Pathology, Pharmacology and Preventive and Social Medicine

Goals :

The aim of teaching the Under graduate students in Dermatology, S.T.D. and Leprosy is to impart such knowledge and skills that may enable him to diagnose and treat common ailments and to refer rare diseases or complications and unusual manifestations of common diseases to the specialist.

OBJECTIVES :

Knowledge :

At the end of the course of Dermatology, Sexually Transmitted Diseases & Leprosy the student shall be able to :

1. Demonstrate sound knowledge of common diseases, their clinical manifestations including emergent situations and of investigative procedures to confirm their diagnosis.

2. Demonstrate comparative knowledge of various modes of topical therapy.

3.Demonstrate the mode of action of commonly used drugs, their doses, side effects / toxicity, indications and contraindication & interactions.

4.Describe commonly used modes of management including the medical & Surgical procedures available for the treatment of various diseases and to offer a comparative plan of management for a given disorder.

Skills :

The student shall be able to

1. Interview the patient, elicit relevant and correct information and describe the history in a chronological order :
2. Conduct clinical examination, elicit and interpret physical findings and diagnose common disorders and emergencies :
3. Perform simple, routine investigative and laboratory procedures required for making the bed-side diagnosis, especially the examination of scrapings for fungus, preparation of slit smears and staining for AFB for leprosy patients and for STD cases :
4. Take a skin biopsy for diagnostic purposes ;
5. Manage common diseases recognizing the need for referral for specialized care, in case of

LINKS FOR POSTGRADUATE COURSE OUTCOME/LEARNING OBJECTIVES

1	http://www.vspmahe.in/nkpsims2/criteria 1/MCh_ped_Surgery_final_29_09_2021.pdf
2	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Anatomy.pdf
3	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Anesthesia.pdf
4	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Biochemistry.pdf
5	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Community-Medicine.pdf
6	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Dermatology.pdf
7	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Forensic-Medicine.pdf
8	http://www.vspmahe.in/nkpsims2/criteria 1/MD-in-General-Medicine-(revised).pdf
9	http://www.vspmahe.in/nkpsims2/criteria 1/MD-in-Pharmacology-(revised).pdf
10	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Microbiology-revisedGuidelines.pdf
11	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Radiodiagnosis.pdf
12	http://www.vspmahe.in/nkpsims2/criteria 1/MD_Pathology_(revised).pdf
13	http://www.vspmahe.in/nkpsims2/criteria 1/MD_Peadiatrics_(revised).pdf
14	http://www.vspmahe.in/nkpsims2/criteria 1/MD_Physiology_(revised).pdf
15	http://www.vspmahe.in/nkpsims2/criteria 1/MD_Psychiatry_(revised).pdf
16	http://www.vspmahe.in/nkpsims2/criteria 1/MS-ENT.pdf
17	http://www.vspmahe.in/nkpsims2/criteria 1/MS-Ophthamology.pdf
18	http://www.vspmahe.in/nkpsims2/criteria 1/MS-Surgery.pdf
19	http://www.vspmahe.in/nkpsims2/criteria 1/MS_Orthopedics_(revised).pdf
20	http://www.vspmahe.in/nkpsims2/criteria 1/MD-Pulmonary-Medicine.pdf
21	http://www.vspmahe.in/nkpsims2/criteria 1/MS-OBGY.pdf

Specimen Question Paper, Answer Sheet and Result
to show alignment with Lesson plan and Learning outcome given below.

WORKSHEET FOR LESSON PLAN

Topic: **Enzymes**

Duration: **50 minutes**

Components	**Time**	**Example/ activity**
Warm up or opening	2 min	Previous knowledge of 12th standard regarding Enzyme
Introduction/ objective	5 min	Enlist the enzymes and their diagnostic significance with normal value Discuss the concept of isoenzyme and write the importance
Teaching method and AV Aid used	35 min	Questioning technique LCD Black Board
Summary / Conclusion	7 min	MCQ test Question answers
References	1 min	• Text book of Biochemistry.- Vasudevan • Text book of Biochemistry. Pankaja Naik • Text book of Biochemistry.- Dr. Rafi

N. K. P. SALVE INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE AND LATA MANGESHKAR HOSPITAL DIGDOH HILLS, HINGNA ROAD, NAGPUR

SUBJECT :- BIOCHEMISTRY

Ist MBBS 2021 Batch

Total Duration 3 hrs **Time: 10.30 to 1.30**

Terminal Exam **Date:- 13/07/2022**

Section A - MCQ20 Marks (20 x1 Marks = 20)

1) A disaccharide of glucose linked by β (1-4) glycosidic linkage is
a) Isomaltose b) Maltose c) Sucrose d) Cellibiose

2) In which disease, M band is found in electrophoresis of proteins
a) Kwashiorkar b) renal failure c) Cushing Syndrome d) Multiple Myeloma

3) Concentration of spingomycin is increased in which disease:
a) Gauchers b) Fabey's c) Niamann pick d) Ber's

4) Conversion of a pro-carcinogen to a carcinogen often requires
a) proteolysis b) microsomal hydroxylation
c) exposure to ultraviolet radiation d) exposure to X-rays

5) Casein is which type of protein
a) Simple Protein b) Glycoprotein c) Phosphoprotein d) Derived Protein

6) Repeating unit of hyaluronic acid is:
a) Glucuronic acid - N-Acetyl- Glucosamine b) N- Acetyl glucosamine –galactosamine
c) Glucuronic acid – lactose d) Galactosamine -Glucuronic acid

7) Respiratory acidosis may be caused by:
a) Hyperventilation b) Pneumonia c) Vomiting d) Starvation

8) All of following are inhibitors of ETC **EXCEPT**
a) rotenone b) amytal c) antimycin d) atractyloside

9) Uronic acid pathway is concerned with the formation of:
a) Glucuronic acid b) Pentoses c) Vitamin C d) All of the above

10) Which of the following Amino acid is only ketogenic:
a) Leucine b) Methionine c) Histidine d) Glycine

11) Which of the following amino acid is semi-essential:
a) Phenylalaine b) Cystine c) Tryptophan d) Histidine

12) In krebs cycle, which step involves substrate level phosphorylation:
a) Conversion of oxalosuccinate to KG b) Conversion of KG to succinyl CoA
c) Conversion of succinyl CoA to succinate d) Conversion of succinate to fumarate

13) Uncouplers of oxidative phosphorylation
a) inhibit F_0 component b) inhibit F_1 component
c) make the inner mitochondrial membrane permeable to H^+ d) inactivate cytochromes

14) When palmitoyl CoA is oxidized completely to CO_2, the following number of ATPS are produced:
a) 35 b) 98 c) 106 d) 121

15) Which of the following antibody first appear in blood after infection
a) IgA b) IgG c) IgM d) IgE

16) Which of the following affected in non-competitive inhibition :
a) km increase V max decreases
b) km constant V max decrease
c) km decrease V max decrease
d) km decrease V max increase

17) Which enzyme is blocked by fluoride in glycolysis
a) hexokinase b) phospho-fructokinase c) enolase d) pyruvate kinase

18) Digestive enzymes belong to the class of:
a) Isomerases b) hydrolases c) oxido reduclase d) Teanferases

19) LDL contains the apoprotein:
a) C – I b) C – II c) C – III d) B

20) Chromatography is used to separate
a) Protein b) lipid c) Carbohydrate d) All of the above

Section B

Q. 2Brief Answer Questions (Any Ten out of Eleven) **(10x2=20)**

1) Two differences between colorimeter and spectrophotometer.
2) Explain symport and antiport transport system with one example for each.
3) Explain why NADH transferred through glycerol phosphate shuttle generates 1.5 ATPs?
4) What is Alkall reserve? List two causes of metabolic acidosis.
5) Define Km. What is the significance of Km?
6) What is transamination reaction? Give two examples.
7) Write types and functions of endoplasmic reticulum.
8) Urea vs creatinine vs inulin clearance test.
9) Draw the diagram of t-RNA with label.
10) Enlist amino acids involved in one carbon metabolism.
11) Name Type II & Type III glycogen storage disease with enzyme defect.

Q. 3 Short Answer Questions (Any Eight out of Nine) **(8x5=40)**

1) A 60 year old obese man, who underwent master health check-up was found to have mild hepatomegaly with fatty liver changes.

a. What is fatty liver? (1 Mark)

b. Enumerate the causes of fatty liver. (2 Mark)

c. Explain the role of lipotropic factors in preventing fatty liver. (2 Mark)

2) Tumor Markers.

3) 2 Year old baby came to OPD with chief complaint of Vomiting, Diarrhea. Blood Galactose levels were found to be elevated . Galactose was also detected in the urine.

i) Name the disease.

ii) Give the biochemical step(s) related to the disease and point the metabolic defect.

iii) What are the clinical manifestations of the disease?

4) Name and Functions of Phospholipids.

5) Illustrate urea cycle. Write note on associated diseases.

6) Primary and Secondary Structure of Proteins.

7) Complexes of electron transport chain.

8) Enzymes in Myocardial infarction with its time course.

9) A five-year old, fair, chubby boy was brought to the hospital with complaints of delayed developmental milestones, mental retardation, seizures and eczema. He exhibits light-colored hair, skin and eyes. Blood phenylalanine levels were more than 30 mg/dl (normal 1-2 mg/dl). Guthrie bacterial inhibition assay and ferric chloride test showed blue-green color. What is your probable diagnosis? What is the possible cause of this disorder?

i) What can be probable diagnosis?

ii) Name the deficient pigment

iii) Name the enzyme responsible for the defect.

iv) Write biochemical reaction catalyzed by the enzyme?

v) Name the diagnostic test and interpretation used in above condition.

Section C

Q. 4 Long Answer Questions (Any Two out of Three) **(2x10=20)**

1) Define isoenzymes. Describe various isoenzymes with their clinical significance.

2) Discuss hormonal regulation of blood glucose. Add a note on HbA1C.

3) Explain the pathway for synthesis of ketone bodies. Give reason for ketosis in starvation and uncontrolled diabetes mellitus.

Section - C

Q4) (1) → • **Isoenzymes:-** Enzymes that catalyse same chemical reaction but have different physical and chemical properties like:- Km value, electrophoric mobility, etc.

• This is so because :-

a) Synthesis by same gene in different places like in mitochondria and in cytoplasm

b) Oligomeric units - ex:- LDH

c) Can sometime function as monomeric unit Sometimes oligomeric

• **Lactate Dehydrogenase - 5 isoenzymes**

Isoenzyme	Subunits	Tissue	
LDH_1	H_4	Heart	⬜⬜ ⬜⬜
LDH_2	H_3M	Heart & Muscle	⬜⬜ ⚫⬜
LDH_3	H_2M_2	Heart & Liver	⬜⬜ ⚫⚫
LDH_4	HM_3	Muscle & Liver	⬜⚫ ⚫⚫
LDH_5	M_4	Liver & Muscle	⚫⚫ ⚫⚫

Clinical significance

- LDH_1 levels are normally less than LDH_2 in normal conditions
  LDH_1 levels increases in myocardial Infraction
- LDH_5 levels increases in liver diseases.

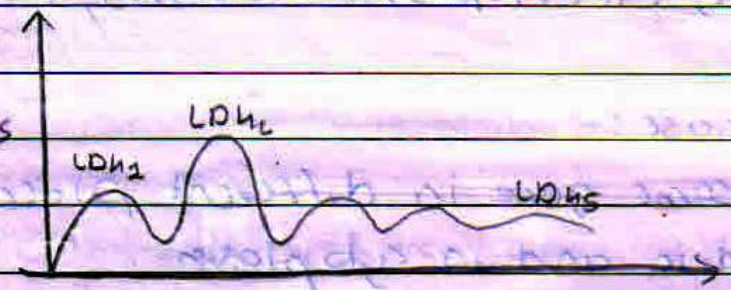


Fig :- Normal condition

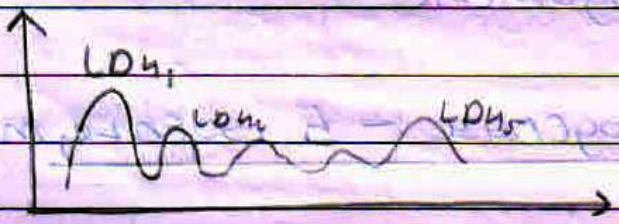


Fig :- Myocardial Infraction (Heart disease)
(or) CHD

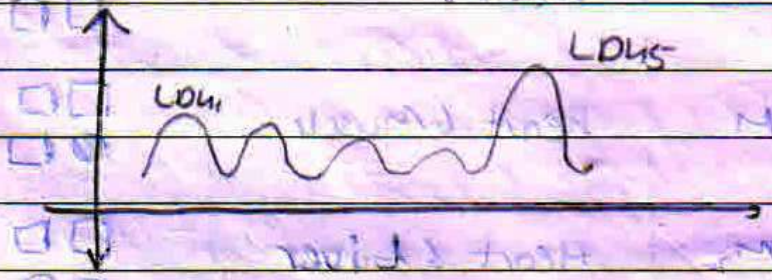


Fig :- Liver disease

- LDH_1 - marker enzyme for heart disorders Coronary heart disease.
- LDH_5 - marker enzyme for hepatic cirrhosis and other liver diseases.

- LDH_1 has less affinity towards pyruvate thus high K_m value → no lactic acid formed in heart

- LDH_5 has low K_m - high affinity towards pyruvate - lactic acid formation occurs in muscle cells

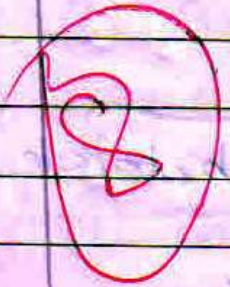
- Creatine Phosphokinase (CPK) - 3 isoenzymes

CPK_1	MM
CPK_2	MB
CPK_3	BB

- CPK_1 is a marker for heart disease and the fastest enzyme marker

- Alanine Transferase (ALT)
  - α_1, α_2, β } 3 isoenzymes present

- Alcohol dehydrogenase also has isoenzymes present



NKP SALVE INSTITUTE OF MEDICAL SCIENCES AND RESERCH CENTRE, NAGPUR.

DEPARTMENT OF PATHOLOGY

II MBBS

WORKSHEET FOR LESSON PLAN

Professor:- Dr. S.D. Mahore

LRM No. 75

Topic: Diabetes Mellitus.

Duration:- 55 minutes

Components	Time	Example/ activity
Warm up or opening	2 min	Revise glucose metabolism & causes of increase glucose level including DM.
Introduction/ objective	5 min	Definition, Pathogenesis pathology Laboratory findings. Progression & complications.
Teaching and AV Aid used	40 min	LCD projector & black board. Arrow diagram for Pathogenesis. All Complications on one page.
Summary / Conclusion	7min	MCQ & Question Answers
References	1 min	• 1. Robbins & Cotran. Pathologic Basis of Disease, Kumar V, Abbas A, Aster J, 10 th edition • 2.Textbook of Pathology by Harsh Mohan, 7th ed. 2015

o/c

NKP SALVE INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE, NAGPUR

DEPARTMENT OF PATHOLOGY

II MBBS (Preliminary Exam- Paper II)

(2019 Batch due for MUHS Univ. Exam. In 2022)

Date:-1/12/2021 **Time 3:00 hours** **Total marks-100**

Name: - _____ **Roll No.** _____

SECTION – "A" MCQ's –

Q.1. For each of the following numbered items select the single best response and write the letter in the box provided.

(1 x 20 = 20 Marks)

1.Which of the following conditions is the most frequent cause of subarachnoid hemorrhage?
A. Ruptured secular aneurysm. B Blood dyscrasias
C. Angiomas D. Hypertensive vascular disease. **A**

2. Granular contracted kidney is seen in all EXCEPT:-
A. Chronic glomerulonephritis. B. Acute Glomeruphritis
C. Chronic pyelonephritis. D. Benign hypertension. **B**

3. Emphysema pathologically involves beyond the-
A. Bronchi B. Terminal bronchiole
C. Respiratory bronchiole D. Alveolar sac **B**

4. A 6 yr. old boy after suffering from sore throat developed pain in knee joint & fever. On examination the boy had a rapid pulse & subcutaneous nodules. The probable diagnosis is:
A. Infective endocarditis. B Rheumatic fever.
C. B. Juvenile rheumatoid arthritis. D. Enteric fever. **B**

5. Onion Skin Lesion in blood vessels is seen In?
A .Malignant Hypertension B. Benign Hypertension Pattern
C. Peripheral Vascular Disease D. None **A**

6. The most common route of spread of infection to the brain is:
A. Via venous route B. Via arterial route C. Via lymphatics D. Along nerves **B**

7. A female patient presented with a firm mass of 2x2cm in the upper outer quadrant of the breast. She gives a history of ovarian carcinoma. The investigation that needs to be done to assess for mutation is –
A. P53 B. BRCA-2 C. Her2/Neu gene D. C-myc gene. **B**

8. Classic osteosarcoma has the following features except:
A. It occurs in age range of 10-20 years B. There is role of mutation in Rb gene in its etiology
C. It is a highly malignant tumour D. Serum alkaline phosphatase levels are generally lowered **D**

9. Amyloidoisis is seen in which type of diabetes –
A. Type I DM B. Type II DM C. Gestational diabetes D. MODY **B**

10. Acute viral hepatitis by the following hepatotropic virus is characterised by fatty change in liver:
A. HAV **B.** HBV **C.** HCV **D.** HDV

C

11. High risk HPV types implicated in cervical intraepithelial lesions:
A. 6 and 11 B. 5 and 8 C. 16 and 18 D. 19 and 22

C

12. Which of the following testicular tumor is not a germ cell neoplasm?
A) Seminoma B) Yolk Sac Tumor C) Sertoli Cell Tumor D) Teratoma

C

13. A 50-year-old man has had persistent nausea for 5 years with occasional vomiting. On physical examination there are no abnormal findings. He undergoes upper GI endoscopy, and a small area of gastric fundal mucosa has loss of rugal folds. Biopsies are taken and microscopically reveal well-differentiated adenocarcinoma confined to the mucosa. An upper GI endoscopy performed 5 years previously showed a pattern of gastritis and microscopically there was chronic inflammation with the presence of which of the following is the most likely risk factor for his neoplasm?

A. Inherited APC gene mutation *B. Helicobacter pylori* infection
C. Chronic alcohol abuse D. Vitamin B12 deficiency

B

14. Subepithelial humps are characterstics of
A] Minimal change Disease B] Membranous glomerulonephritis
C] Membranoproliferative glomerulonephritis D] Post streptococcal glomerulonephritis

D

15. The following complication is almost exclusive for type 1 diabetes mellitus (IDDM):
A. Hyperosmolar nonketotic coma B. Diabetic ketoacidosis
C. Atherosclerosis D. Diabetic nephropathy

B

16. During physical examination a 45 yrs old man is noted to have a 3cm palpable nodule in one lobe thyroid gland. Needle aspiration of the nodule demonstrates polygonal tumor cells & amyloid, scanty colloid & few normal follicular cells. Which of the following is most likely diagnosis?
A. Follicular thyroid Carcinoma B. Hashimotos disease.
C. Medullary thyroid Ca D. papillary thyroid Ca

C

17.The most frequent anatomic site for squamous cell carcinoma of the oesophagus is:
A. Upper third B. Middle third C. Lower third D. Gastro-oesophageal junction

B

18. Krukenberg tumor is bilateral metastatic tumor from the following primary sites EXCEPT:
A. Stomach B. Colon C. Breast D. Endometrium

D

19. A women with metastatic lung carcinoma develops profound weakness with alternating diarrhea and constipation. Physical examination shows hyperpigmentation of skin even in the areas protected from sun. Which endocrine organ is involved in the tumor-
A.Pituitary gland B. Adrenal gland C. Endocrine pancreas D. Thyroid gland.

B

20. In hepatic failure, the following occur due to hyperoestrogenism:
A. Palmar erythema B. Spider naevi C. Testicular atrophy D. All of the above

D

o/c

NKP SALVE INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE, NAGPUR
DEPARTMENT OF PATHOLOGY
II MBBS (Preliminary Exam- Paper II)
(2019 Batch due for MUHS Univ. Exam. In 2022)

Date:- 1/12/2021 **Time 3:00 hours** **Total marks-100**

SECTION "A" MCQs **(1 x20 =20 Marks)**

SECTION "B & C"

Q. 2. SAQ

Answer any four out of five questions briefly **(7 x 4 = 28 marks)**

1) Papillary carcinoma of thyroid
2) Cervical intraepithelial neoplasia
3) Dysgerminoma
4) Phaeochromocytoma
5) Enzymes in myocardial infraction

Q. 3. (LAQ) **(12 x 1=12 marks)**

Define meningitis & classify it . What are various organisms that can possibly be involved in causing the disease? What should be the Clinical history focus when meningitis is suspected? How will you differentiate between various types of meningitis by the CSF examination? (2+2+2+6= 12)

Q.4. (SAQ's) **(7 x 4 = 28 marks)**

Answer any four out of five questions briefly

1) Describe the pathology of Seminoma
2) Etiology and pathology of Squamous cell carcinoma of lung
3) Hepatitis B infection
4) Adenomas of the large intestine
5) Rapidly progressive glomerulonephritis

Q. 5. (LAQ) **(12 x 1=12 marks)**

1) Define and classify Diabetes Mellitus. Describe the pathogenesis and complications of Diabetes mellitus. Discuss the laboratory diagnosis of Diabetes Mellitus. (2 + 5 + 5= 12)

Q5. LAQ

Diabetes mellitus

It is - metabolic disorder characterized by hyperglycemia causing alteration in carbohydrate, fat and protein metabolism.

Classification

1) Type I diabetes mellitus
2) Type II diabetes mellitus
3) Gestational Diabetes mellitus
4) Diabetes mellitus due to ~~environment~~ other specific causes.

Pathogenesis

Type I DM

It occurs due to -

1) Genetic susceptibity for the inheritance of gene causing destruction of β-cells in islets of pancreas.

2) Presence of other autoimmune disease like -
   1) Systemic lupus erythematosus.
   2) Grave's disease
   3) Hashimoto's thyroiditis.

The Antibody formed ~~eg~~ in these diseases cross reacts with the β-cell in pancreas leading to their destruction.

3) Presence of Antibody against insulin.
4) Selective β_2 destruction by T cells.
5) Destruction of pancreas by surrounding ~~Helper~~ T-cells.

~~Patho~~

Risk for Type II DM

1) Genetic susceptibility
2) Obesity
3) Decreased physical activity.
4) consumption of Alcohol, smoke.

Pathogenesis for Type II DM

For eg: in Obesity

↓

~~The~~ Increase in CRP and decrease in adiponectin

↓

∴ lipolysis and formation of free fatty acid

↓

free fatty acid enters liver via portal circulation.

↓

① causes formation of VLDL, TG

② Acts as precursor for gluconeogenesis

↓

① Enters cytoplasm of liver

↓

PROMOTES RESISTANCE to insulin

→ Initially insulin levels are adequate but due to insulin resistance the secretion of insulin from pancreas decreases gradually.

→ Also, due to hyperglycemia → glucose toxicity occurs which stimulates destruction of β-cells in islets of pancreas.

In this way insulin resistance & decreased insulin secretion is promoted in Type II DM.

Laboratory diagnosis

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Diagnostic criteria for Diabetes Mellitus

1) Fasting blood glucose ≥ 126 mg/dL

2) Random blood glucose ≥ 200 mg/dL with symptoms of DM.

3) Post prandial glucose ≥ 200 mg/dL

4) HbA1C → ≥ 6.5 %.

1 Different tests are -

(1) Urine test
- Done to detect

glucosuria
↓
→ By Benedicts test / Dip stick test
↓
⇒ It is used for diagnosis of DM.

ketonuria
↓
- By Rothera's test
- This test is done to know the disease progress and not for diagnosis.

→ Renal glycosuria
This occurs when glucose Renal threshold has decreased and therefore glucose appears in sugar.

→ Alimentary glucosuria
Just after food, the urine glucose level increases and after 2 hr comes to normal.

(2) Blood test
→ Done by Glucose - Oxidase and peroxidase method
⇒

(3) Fasting blood test
→ Screening test in patient with high glucose but are assymptomatic.

Normal FBS (Adult) = < 100 mg/dL

(4) Glucose tolerance test

Indication : In borderline FBS level ie (100-125 mg/dL)

Procedure : Patient is kept on high carbohydrate diet for 3 days and prior to examination overnight fasting is recommended.

↓

Next day morning ~~FBS sample~~ fasting blood and urine samples collected

↓

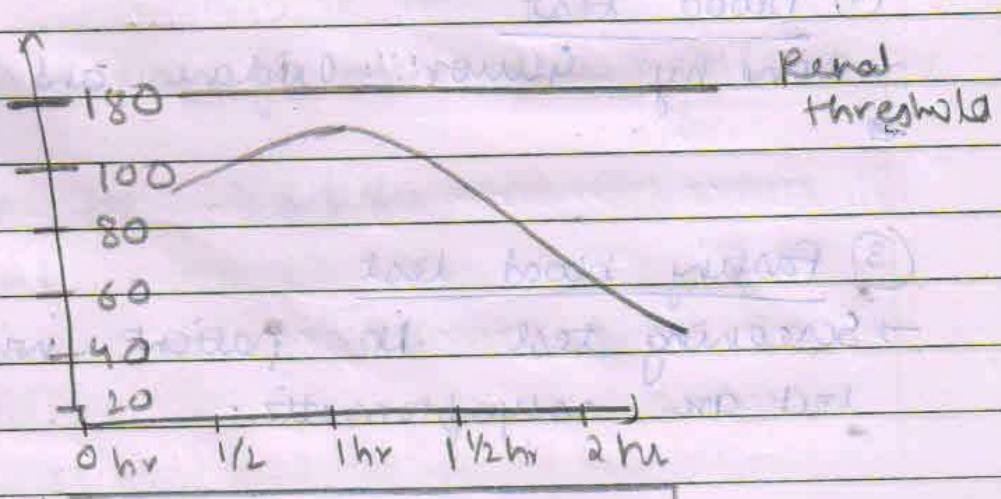
Later patient is given 75 mg of glucose in 300 mg of water

↓

now Blood & urine samples collected every 1/2 hr for 2 hrs.

Interpretation

Normal GTT



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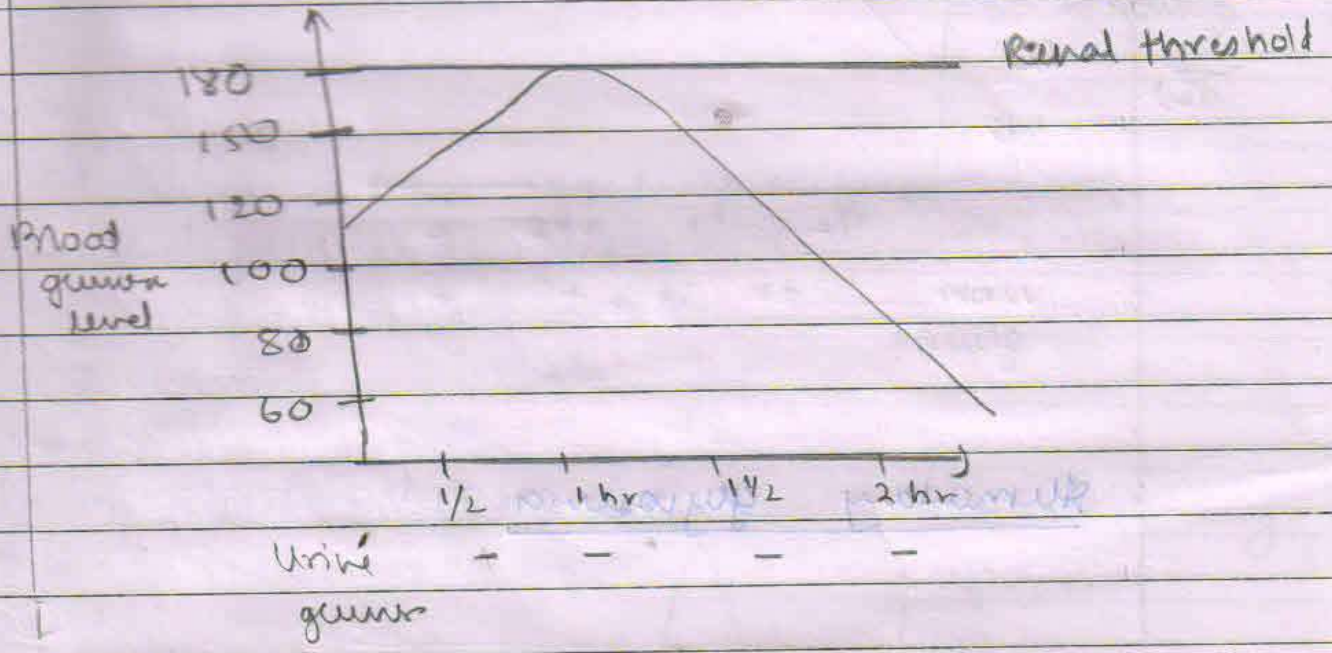
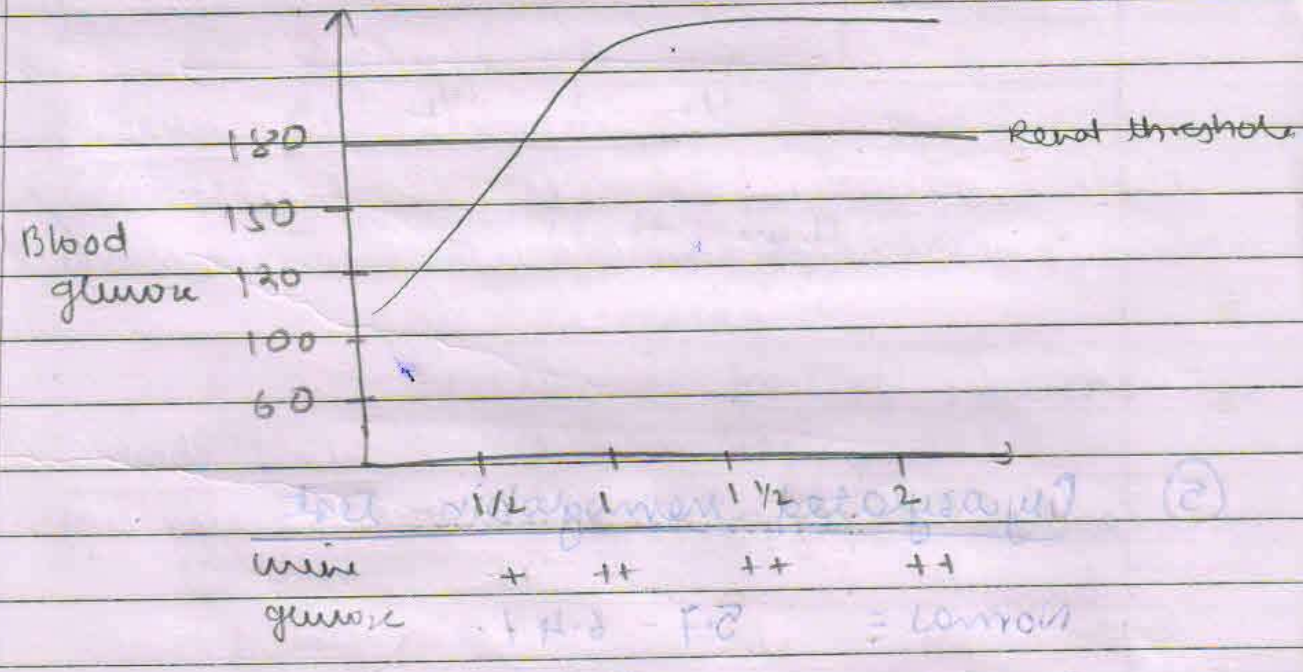
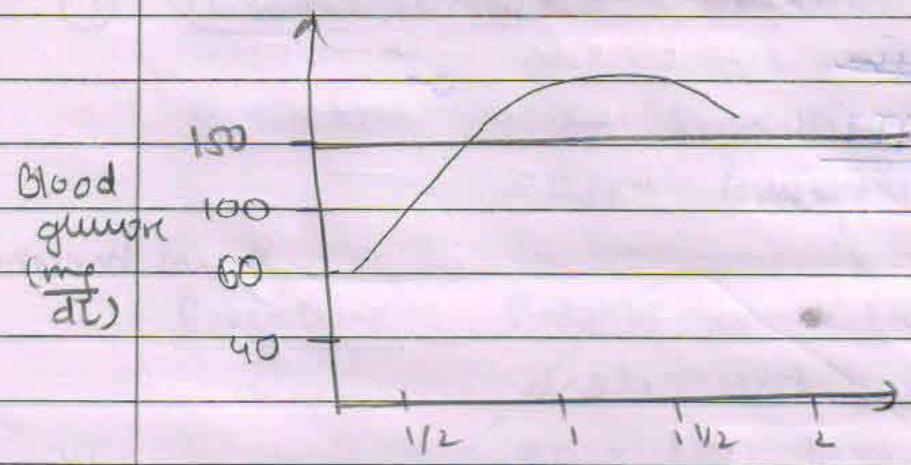


(3) Diabetes mellitus

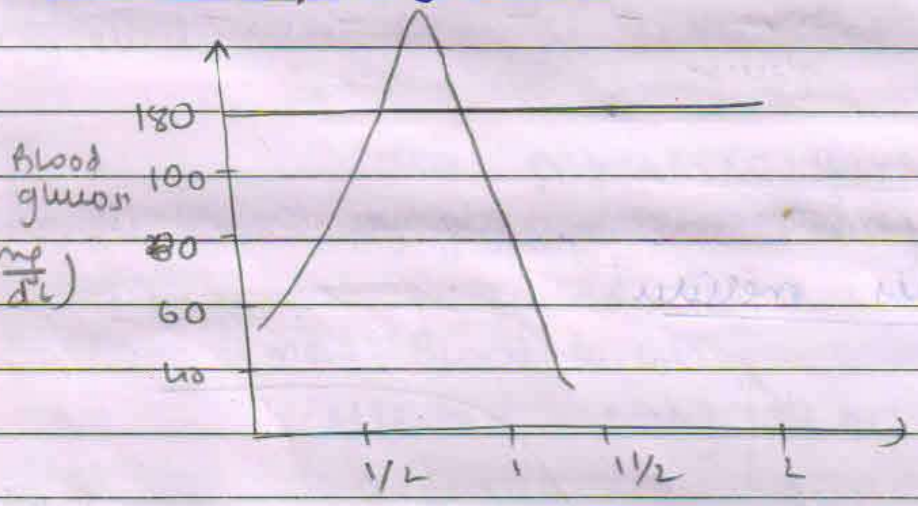


(4) Renal glycosuria



Urine glucose ++ ++ + +

Alimentary glycosuria



Urine glucose ++ ++ − −

(5) Glycosylated hemoglobin test

Normal = 5.7 - 6.4 %.

Borderline = around 6.5 %.

Diabetis = > 6.5 %.

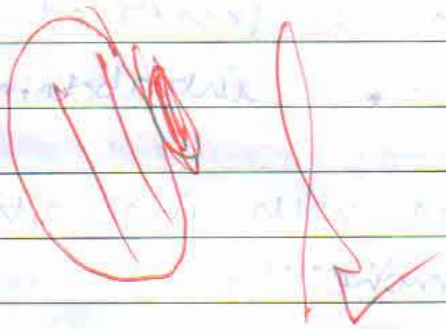
→ This is preffered test because -

1) there is no alteration in findings

2) Accurate findings seen
3) Gives measure for 3-4 months of diabetes control if HbA1C > 6.5%. then poor diabetes control.

Other tests are -

1) # Glycosylated Albumin
2) Insulin assay.



WORKSHEET FOR LESSON PLAN

Topic: **Enzymes**

Duration: **50 minutes**

Components	**Time**	**Example/ activity**
Warm up or opening	2 min	Previous knowledge of 12th standard regarding Enzyme
Introduction/ objective	5 min	Enlist the enzymes and their diagnostic significance with normal value Discuss the concept of isoenzyme and write the importance
Teaching method and AV Aid used	35 min	Questioning technique LCD Black Board
Summary / Conclusion	7 min	MCQ test Question answers
References	1 min	• Text book of Biochemistry.- Vasudevan • Text book of Biochemistry. Pankaja Naik • Text book of Biochemistry.- Dr. Rafi

N. K. P. SALVE INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE AND LATA MANGESHKAR HOSPITAL DIGDOH HILLS, HINGNA ROAD, NAGPUR

SUBJECT :- BIOCHEMISTRY

Ist MBBS 2021 Batch

Total Duration 3 hrs **Time: 10.30 to 1.30**

Terminal Exam **Date:- 13/07/2022**

Section A - MCQ20 Marks (20 x1 Marks = 20)

1) A disaccharide of glucose linked by β (1-4) glycosidic linkage is
a) Isomaltose b) Maltose c) Sucrose d) Cellibiose

2) In which disease, M band is found in electrophoresis of proteins
a) Kwashiorkar b) renal failure c) Cushing Syndrome d) Multiple Myeloma

3) Concentration of spingomycin is increased in which disease:
a) Gauchers b) Fabey's c) Niamann pick d) Ber's

4) Conversion of a pro-carcinogen to a carcinogen often requires
a) proteolysis b) microsomal hydroxylation
c) exposure to ultraviolet radiation d) exposure to X-rays

5) Casein is which type of protein
a) Simple Protein b) Glycoprotein c) Phosphoprotein d) Derived Protein

6) Repeating unit of hyaluronic acid is:
a) Glucuronic acid - N-Acetyl- Glucosamine b) N- Acetyl glucosamine –galactosamine
c) Glucuronic acid – lactose d) Galactosamine -Glucuronic acid

7) Respiratory acidosis may be caused by:
a) Hyperventilation b) Pneumonia c) Vomiting d) Starvation

8) All of following are inhibitors of ETC **EXCEPT**
a) rotenone b) amytal c) antimycin d) atractyloside

9) Uronic acid pathway is concerned with the formation of:
a) Glucuronic acid b) Pentoses c) Vitamin C d) All of the above

10) Which of the following Amino acid is only ketogenic:
a) Leucine b) Methionine c) Histidine d) Glycine

11) Which of the following amino acid is semi-essential:
a) Phenylalaine b) Cystine c) Tryptophan d) Histidine

12) In krebs cycle, which step involves substrate level phosphorylation:
a) Conversion of oxalosuccinate to KG b) Conversion of KG to succinyl CoA
c) Conversion of succinyl CoA to succinate d) Conversion of succinate to fumarate

13) Uncouplers of oxidative phosphorylation
a) inhibit F_0 component b) inhibit F_1 component
c) make the inner mitochondrial membrane permeable to H^+ d) inactivate cytochromes

14) When palmitoyl CoA is oxidized completely to CO_2, the following number of ATPS are produced:
a) 35 b) 98 c) 106 d) 121

15) Which of the following antibody first appear in blood after infection
a) IgA b) IgG c) IgM d) IgE

16) Which of the following affected in non-competitive inhibition :
a) km increase V max decreases
b) km constant V max decrease
c) km decrease V max decrease
d) km decrease V max increase

17) Which enzyme is blocked by fluoride in glycolysis
a) hexokinase b) phospho-fructokinase c) enolase d) pyruvate kinase

18) Digestive enzymes belong to the class of:
a) Isomerases b) hydrolases c) oxido reduclase d) Teanferases

19) LDL contains the apoprotein:
a) C – I b) C – II c) C – III d) B

20) Chromatography is used to separate
a) Protein b) lipid c) Carbohydrate d) All of the above

Section B

Q. 2Brief Answer Questions (Any Ten out of Eleven) **(10x2=20)**

1) Two differences between colorimeter and spectrophotometer.
2) Explain symport and antiport transport system with one example for each.
3) Explain why NADH transferred through glycerol phosphate shuttle generates 1.5 ATPs?
4) What is Alkall reserve? List two causes of metabolic acidosis.
5) Define Km. What is the significance of Km?
6) What is transamination reaction? Give two examples.
7) Write types and functions of endoplasmic reticulum.
8) Urea vs creatinine vs inulin clearance test.
9) Draw the diagram of t-RNA with label.
10) Enlist amino acids involved in one carbon metabolism.
11) Name Type II & Type III glycogen storage disease with enzyme defect.

Q. 3 Short Answer Questions (Any Eight out of Nine) **(8x5=40)**

1) A 60 year old obese man, who underwent master health check-up was found to have mild hepatomegaly with fatty liver changes.

a. What is fatty liver? (1 Mark)

b. Enumerate the causes of fatty liver. (2 Mark)

c. Explain the role of lipotropic factors in preventing fatty liver. (2 Mark)

2) Tumor Markers.

3) 2 Year old baby came to OPD with chief complaint of Vomiting, Diarrhea. Blood Galactose levels were found to be elevated . Galactose was also detected in the urine.

i) Name the disease.

ii) Give the biochemical step(s) related to the disease and point the metabolic defect.

iii) What are the clinical manifestations of the disease?

4) Name and Functions of Phospholipids.

5) Illustrate urea cycle. Write note on associated diseases.

6) Primary and Secondary Structure of Proteins.

7) Complexes of electron transport chain.

8) Enzymes in Myocardial infarction with its time course.

9) A five-year old, fair, chubby boy was brought to the hospital with complaints of delayed developmental milestones, mental retardation, seizures and eczema. He exhibits light-colored hair, skin and eyes. Blood phenylalanine levels were more than 30 mg/dl (normal 1-2 mg/dl). Guthrie bacterial inhibition assay and ferric chloride test showed blue-green color. What is your probable diagnosis? What is the possible cause of this disorder?

i) What can be probable diagnosis?

ii) Name the deficient pigment

iii) Name the enzyme responsible for the defect.

iv) Write biochemical reaction catalyzed by the enzyme?

v) Name the diagnostic test and interpretation used in above condition.

Section C

Q. 4 Long Answer Questions (Any Two out of Three) **(2x10=20)**

1) Define isoenzymes. Describe various isoenzymes with their clinical significance.

2) Discuss hormonal regulation of blood glucose. Add a note on HbA1C.

3) Explain the pathway for synthesis of ketone bodies. Give reason for ketosis in starvation and uncontrolled diabetes mellitus.

Section - C

Q4) (1) → • **Isoenzymes:-** Enzymes that catalyse same chemical reaction but have different physical and chemical properties like:- Km value, electrophoric mobility, etc.

• This is so because :-

a) Synthesis by same gene in different places like in mitochondria and in cytoplasm

b) Oligomeric units - ex:- LDH

c) Can sometime function as monomeric unit Sometimes oligomeric

• **Lactate Dehydrogenase - 5 isoenzymes**

Isoenzyme	Subunits	Tissue	
LDH_1	H_4	Heart	⬜⬜ ⬜⬜
LDH_2	H_3M	Heart & Muscle	⬜⬜ ⚫⬜
LDH_3	H_2M_2	Heart & Liver	⬜⬜ ⚫⚫
LDH_4	HM_3	Muscle & Liver	⬜⚫ ⚫⚫
LDH_5	M_4	Liver & Muscle	⚫⚫ ⚫⚫

Clinical significance

- LDH_1 levels are normally less than LDH_2 in normal conditions
  LDH_1 levels increases in myocardial Infraction
- LDH_5 levels increases in liver diseases.

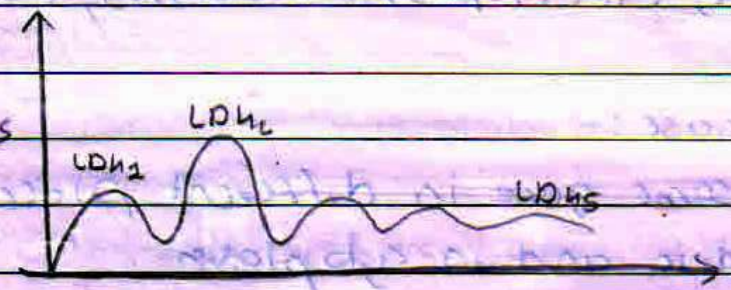


Fig :- Normal condition

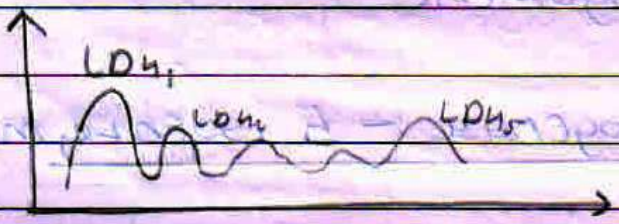


Fig :- Myocardial Infraction (Heart disease)
(or) CHD

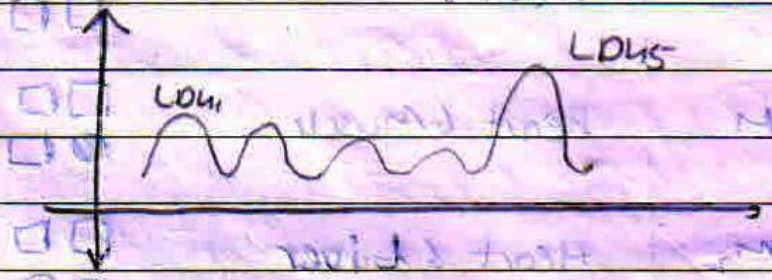


Fig :- Liver disease

- LDH_1 - marker enzyme for heart disorders Coronary heart disease.
- LDH_5 - marker enzyme for hepatic cirrhosis and other liver diseases.

- LDH_1 has less affinity towards pyruvate thus high K_m value → no lactic acid formed in heart

- LDH_5 has low K_m - high affinity towards pyruvate - lactic acid formation occurs in muscle cells

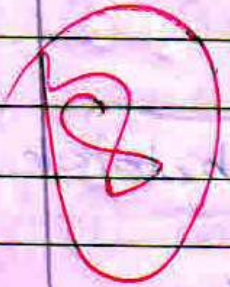
- Creatine Phosphokinase (CPK) - 3 isoenzymes

CPK_1	MM
CPK_2	MB
CPK_3	BB

- CPK_1 is a marker for heart disease and the fastest enzyme marker

- Alanine Transferase (ALT)
  - α_1, α_2, β } 3 isoenzymes present

- Alcohol dehydrogenase also has isoenzymes present



NKP SALVE INSTITUTE OF MEDICAL SCIENCES AND RESERCH CENTRE, NAGPUR.

DEPARTMENT OF PATHOLOGY

II MBBS

WORKSHEET FOR LESSON PLAN

Professor:- Dr. S.D. Mahore

LRM No. 75

Topic: Diabetes Mellitus.

Duration:- 55 minutes

Components	Time	Example/ activity
Warm up or opening	2 min	Revise glucose metabolism & causes of increase glucose level including DM.
Introduction/ objective	5 min	Definition, Pathogenesis pathology Laboratory findings. Progression & complications.
Teaching and AV Aid used	40 min	LCD projector & black board. Arrow diagram for Pathogenesis. All Complications on one page.
Summary / Conclusion	7min	MCQ & Question Answers
References	1 min	• 1. Robbins & Cotran. Pathologic Basis of Disease, Kumar V, Abbas A, Aster J, 10 th edition • 2.Textbook of Pathology by Harsh Mohan, 7th ed. 2015

o/c

NKP SALVE INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE, NAGPUR

DEPARTMENT OF PATHOLOGY

II MBBS (Preliminary Exam- Paper II)

(2019 Batch due for MUHS Univ. Exam. In 2022)

Date:-1/12/2021 **Time 3:00 hours** **Total marks-100**

Name: - _____ **Roll No.** _____

SECTION – "A" MCQ's –

Q.1. For each of the following numbered items select the single best response and write the letter in the box provided.

(1 x 20 = 20 Marks)

1.Which of the following conditions is the most frequent cause of subarachnoid hemorrhage?
A. Ruptured secular aneurysm. B Blood dyscrasias
C. Angiomas D. Hypertensive vascular disease. **A**

2. Granular contracted kidney is seen in all EXCEPT:-
A. Chronic glomerulonephritis. B. Acute Glomeruphritis
C. Chronic pyelonephritis. D. Benign hypertension. **B**

3. Emphysema pathologically involves beyond the-
A. Bronchi B. Terminal bronchiole
C. Respiratory bronchiole D. Alveolar sac **B**

4. A 6 yr. old boy after suffering from sore throat developed pain in knee joint & fever. On examination the boy had a rapid pulse & subcutaneous nodules. The probable diagnosis is:
A. Infective endocarditis. B Rheumatic fever.
C. B. Juvenile rheumatoid arthritis. D. Enteric fever. **B**

5. Onion Skin Lesion in blood vessels is seen In?
A .Malignant Hypertension B. Benign Hypertension Pattern
C. Peripheral Vascular Disease D. None **A**

6. The most common route of spread of infection to the brain is:
A. Via venous route B. Via arterial route C. Via lymphatics D. Along nerves **B**

7. A female patient presented with a firm mass of 2x2cm in the upper outer quadrant of the breast. She gives a history of ovarian carcinoma. The investigation that needs to be done to assess for mutation is –
A. P53 B. BRCA-2 C. Her2/Neu gene D. C-myc gene. **B**

8. Classic osteosarcoma has the following features except:
A. It occurs in age range of 10-20 years B. There is role of mutation in Rb gene in its etiology
C. It is a highly malignant tumour D. Serum alkaline phosphatase levels are generally lowered **D**

9. Amyloidoisis is seen in which type of diabetes –
A. Type I DM B. Type II DM C. Gestational diabetes D. MODY **B**

10. Acute viral hepatitis by the following hepatotropic virus is characterised by fatty change in liver:
A. HAV **B.** HBV **C.** HCV **D.** HDV

C

11. High risk HPV types implicated in cervical intraepithelial lesions:
A. 6 and 11 B. 5 and 8 C. 16 and 18 D. 19 and 22

C

12. Which of the following testicular tumor is not a germ cell neoplasm?
A) Seminoma B) Yolk Sac Tumor C) Sertoli Cell Tumor D) Teratoma

C

13. A 50-year-old man has had persistent nausea for 5 years with occasional vomiting. On physical examination there are no abnormal findings. He undergoes upper GI endoscopy, and a small area of gastric fundal mucosa has loss of rugal folds. Biopsies are taken and microscopically reveal well-differentiated adenocarcinoma confined to the mucosa. An upper GI endoscopy performed 5 years previously showed a pattern of gastritis and microscopically there was chronic inflammation with the presence of which of the following is the most likely risk factor for his neoplasm?

A. Inherited APC gene mutation *B. Helicobacter pylori* infection
C. Chronic alcohol abuse D. Vitamin B12 deficiency

B

14. Subepithelial humps are characterstics of
A] Minimal change Disease B] Membranous glomerulonephritis
C] Membranoproliferative glomerulonephritis D] Post streptococcal glomerulonephritis

D

15. The following complication is almost exclusive for type 1 diabetes mellitus (IDDM):
A. Hyperosmolar nonketotic coma B. Diabetic ketoacidosis
C. Atherosclerosis D. Diabetic nephropathy

B

16. During physical examination a 45 yrs old man is noted to have a 3cm palpable nodule in one lobe thyroid gland. Needle aspiration of the nodule demonstrates polygonal tumor cells & amyloid, scanty colloid & few normal follicular cells. Which of the following is most likely diagnosis?
A. Follicular thyroid Carcinoma B. Hashimotos disease.
C. Medullary thyroid Ca D. papillary thyroid Ca

C

17.The most frequent anatomic site for squamous cell carcinoma of the oesophagus is:
A. Upper third B. Middle third C. Lower third D. Gastro-oesophageal junction

B

18. Krukenberg tumor is bilateral metastatic tumor from the following primary sites EXCEPT:
A. Stomach B. Colon C. Breast D. Endometrium

D

19. A women with metastatic lung carcinoma develops profound weakness with alternating diarrhea and constipation. Physical examination shows hyperpigmentation of skin even in the areas protected from sun. Which endocrine organ is involved in the tumor-
A.Pituitary gland B. Adrenal gland C. Endocrine pancreas D. Thyroid gland.

B

20. In hepatic failure, the following occur due to hyperoestrogenism:
A. Palmar erythema B. Spider naevi C. Testicular atrophy D. All of the above

D

o/c

NKP SALVE INSTITUTE OF MEDICAL SCIENCES & RESEARCH CENTRE, NAGPUR
DEPARTMENT OF PATHOLOGY
II MBBS (Preliminary Exam- Paper II)
(2019 Batch due for MUHS Univ. Exam. In 2022)

Date:- 1/12/2021 **Time 3:00 hours** **Total marks-100**

SECTION "A" MCQs **(1 x20 =20 Marks)**

SECTION "B & C"

Q. 2. SAQ

Answer any four out of five questions briefly **(7 x 4 = 28 marks)**

1) Papillary carcinoma of thyroid
2) Cervical intraepithelial neoplasia
3) Dysgerminoma
4) Phaeochromocytoma
5) Enzymes in myocardial infraction

Q. 3. (LAQ) **(12 x 1=12 marks)**

Define meningitis & classify it . What are various organisms that can possibly be involved in causing the disease? What should be the Clinical history focus when meningitis is suspected? How will you differentiate between various types of meningitis by the CSF examination? (2+2+2+6= 12)

Q.4. (SAQ's) **(7 x 4 = 28 marks)**

Answer any four out of five questions briefly

1) Describe the pathology of Seminoma
2) Etiology and pathology of Squamous cell carcinoma of lung
3) Hepatitis B infection
4) Adenomas of the large intestine
5) Rapidly progressive glomerulonephritis

Q. 5. (LAQ) **(12 x 1=12 marks)**

1) Define and classify Diabetes Mellitus. Describe the pathogenesis and complications of Diabetes mellitus. Discuss the laboratory diagnosis of Diabetes Mellitus. (2 + 5 + 5= 12)

Q5. LAQ

Diabetes mellitus

It is - metabolic disorder characterized by hyperglycemia causing alteration in carbohydrate, fat and protein metabolism.

Classification

1) Type I diabetes mellitus
2) Type II diabetes mellitus
3) Gestational Diabetes mellitus
4) Diabetes mellitus due to ~~environment~~ other specific causes.

Pathogenesis

Type I DM

It occurs due to -

1) Genetic susceptibity for the inheritance of gene causing destruction of β-cells in islets of pancreas.

2) Presence of other autoimmune disease like -
   1) Systemic lupus erythematosus.
   2) Grave's disease
   3) Hashimoto's thyroiditis.

The Antibody formed ~~eg~~ in these diseases cross reacts with the β-cell in pancreas leading to their destruction.

3) Presence of Antibody against insulin.
4) Selective β_2 destruction by T cells.
5) Destruction of pancreas by surrounding ~~Helper~~ T-cells.

~~Patho~~

Risk for Type II DM

1) Genetic susceptibility
2) Obesity
3) Decreased physical activity.
4) consumption of Alcohol, smoke.

Pathogenesis for Type II DM

For eg: in Obesity

↓

~~The~~ Increase in CRP and decrease in adiponectin

↓

∴ lipolysis and formation of free fatty acid

↓

free fatty acid enters liver via portal circulation.

↓

① causes formation of VLDL, TG

② Acts as precursor for gluconeogenesis

↓

① Enters cytoplasm of liver

↓

PROMOTES RESISTANCE to insulin

→ Initially insulin levels are adequate but due to insulin resistance the secretion of insulin from pancreas decreases gradually.

→ Also, due to hyperglycemia → glucose toxicity occurs which stimulates destruction of β-cells in islets of pancreas.

In this way insulin resistance & decreased insulin secretion is promoted in Type II DM.

Laboratory diagnosis

I) ~~Urin~~

Diagnostic criteria for Diabetes Mellitus

1) Fasting blood glucose ≥ 126 mg/dL

2) Random blood glucose ≥ 200 mg/dL with symptoms of DM.

3) Post prandial glucose ≥ 200 mg/dL

4) HbA1C → ≥ 6.5 %.

1 Different tests are -

(1) Urine test
- Done to detect

glucosuria
↓
→ By Benedicts test / Dip stick test
↓
⇒ It is used for diagnosis of DM.

ketonuria
↓
- By Rothera's test
- This test is done to know the disease progress and not for diagnosis.

→ Renal glycosuria
This occurs when glucose Renal threshold has decreased and therefore glucose appears in sugar.

→ Alimentary glucosuria
Just after food, the urine glucose level increases and after 2 hr comes to normal.

(2) Blood test
→ Done by Glucose - Oxidase and peroxidase method
⇒

(3) Fasting blood test
→ Screening test in patient with high glucose but are assymptomatic.

Normal FBS (Adult) = < 100 mg/dL

(4) Glucose tolerance test

Indication : In borderline FBS level ie (100-125 mg/dL)

Procedure : Patient is kept on high carbohydrate diet for 3 days and prior to examination overnight fasting is recommended.

↓

Next day morning ~~FBS sample~~ fasting blood and urine samples collected

↓

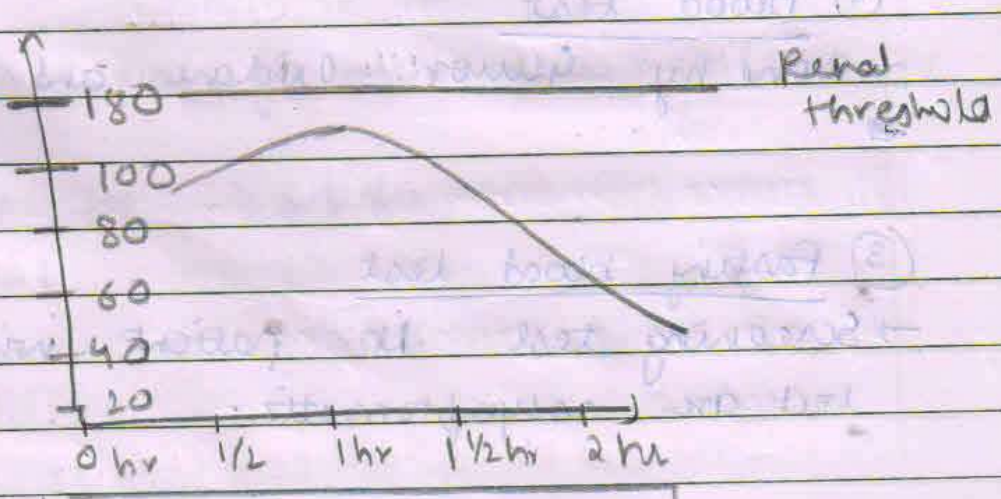
Later patient is given 75 mg of glucose in 300 mg of water

↓

now Blood & urine samples collected every 1/2 hr for 2 hrs.

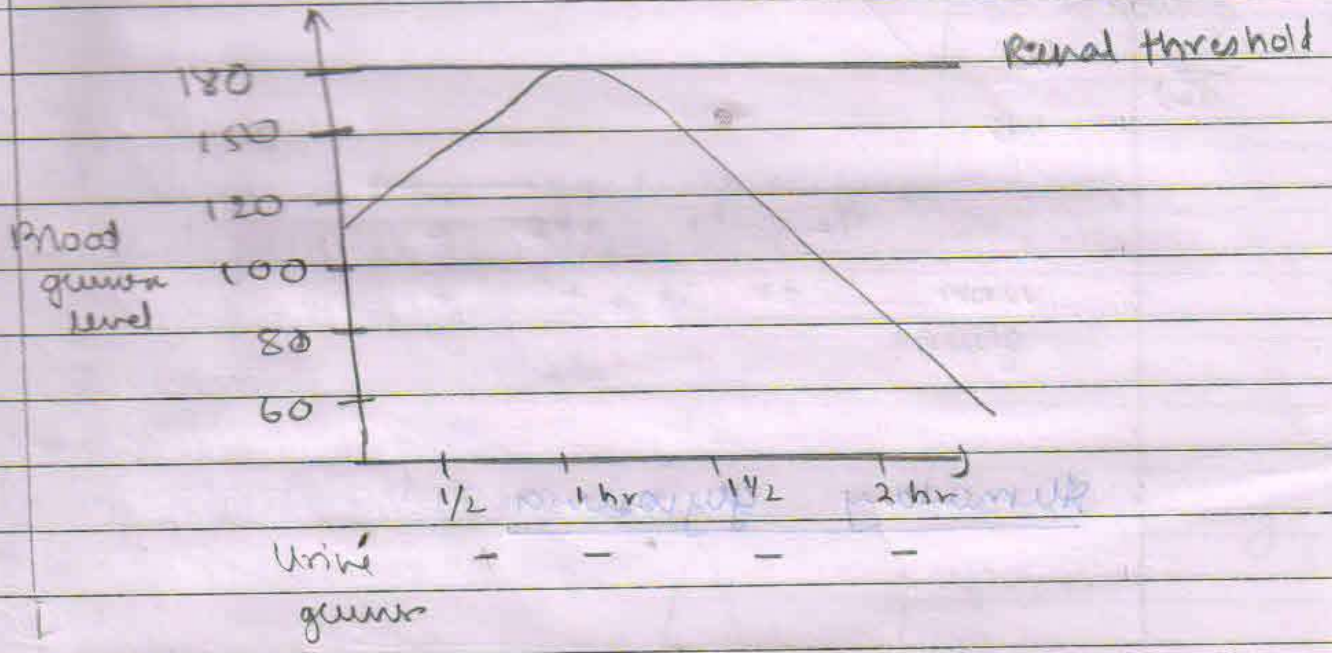
Interpretation

Normal GTT

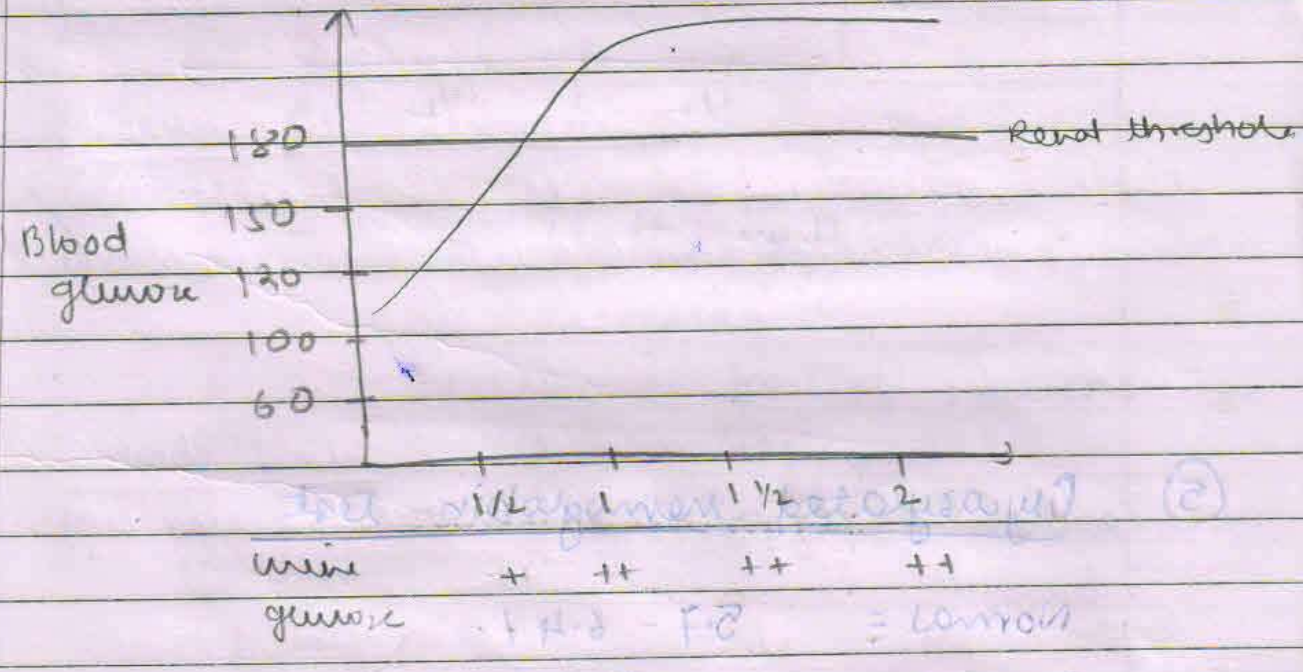


(2) ~~Bode Borderline~~

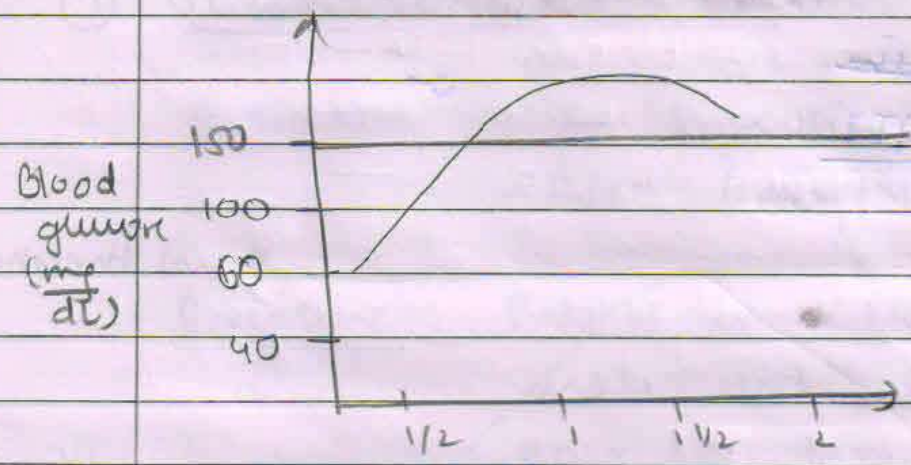
Impaired GTT



(3) Diabetes mellitus

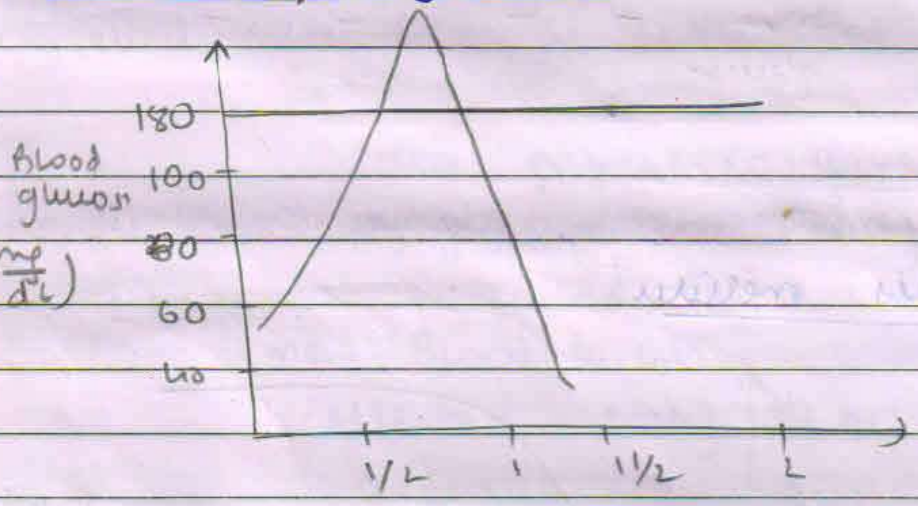


(4) Renal glycosuria



Urine glucose ++ ++ + +

Alimentary glycosuria



Urine glucose ++ ++ − −

(5) Glycosylated hemoglobin test

Normal = 5.7 - 6.4 %.

Borderline = around 6.5 %.

Diabetis = > 6.5 %.

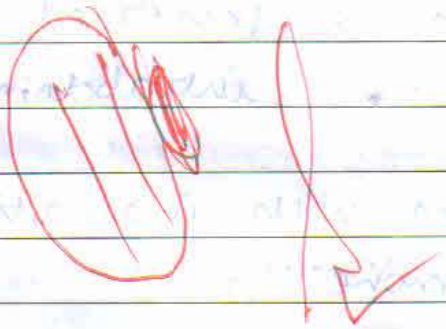
→ This is preffered test because -

1) there is no alteration in findings

2) Accurate findings seen
3) Gives measure for 3-4 months of diabetes control if HbA1C > 6.5%. then poor diabetes control.

Other tests are -

1) # Glycosylated Albumin
2) Insulin assay.



INTERNAL ASSESSMENT EXAMINATION MARKS TABULATION

NKP SALVE INSTITUTE OF MEDICAL SCIENCES AND RESERCH CENTRE, NAGPUR.
DEPARTMENT OF PATHOLOGY (Batch due for Uni. Exam. In winter 2022)
II MBBS (Batch -2019)- Theory

SN	Roll No	Name of Students	I	II	III	Total	Reduced	Total	Round of
			100	100	200	400	10	40	40
1	2019-01	AMBATKAR AVANI RAJHANS	72.5	69.5	122.5	264.5	10	26.45	26
2	2019-02	ADMANE SHRUTIKA VASANTRAO	64.5	59.5	116	240	10	24	24
3	2019-03	AGRAWAL SIDDHESH RAJU	65	57	100.5	222.5	10	22.25	22
4	2019-04	AMBATKAR SIDDHESH SANJAY	71.5	69.5	117	258	10	25.8	26
5	2019-05	AMBHORE KULDEEP SURESH	66	49.5	87.5	203	10	20.3	20
6	2019-06	ANDHALE MAYUR PANDHARINATH	72	56.5	123.5	252	10	25.2	25
7	2019-07	AWASTHI SAUMYA ANANT	72	55.5	100	227.5	10	22.75	23
8	2019-08	BAGDE DIKSHA SEVAKRAM	64	67.5	122	253.5	10	25.35	25
9	2019-09	BAGDE MANASVI SUCHIT	66	43	95.5	204.5	10	20.45	20
10	2019-10	BAHETI RISHABH SACHIN	66.5	57.5	128.5	252.5	10	25.25	25
11	2019-11	BALANKHE PARIMAL PRASHANTH	64.5	61	102.5	228	10	22.8	23
12	2019-12	BARBADE JAYSHREE JAGANNATH	68	57	101	226	10	22.6	23
13	2019-13	BAWANKULE JANVI JAGDISH	69.5	79	123.5	272	10	27.2	27
14	2019-14	BHAISARE ANISHA YASHWANT	69	58.5	111	238.5	10	23.85	24
15	2019-15	BHAISWAR SRUSHTEE PRAVEEN	71	65	107	243	10	24.3	24
16	2019-16	BHAKADE NIKHIL SUGDEV	72	33	115	220	10	22	22
17	2019-17	BHAWALKAR PRATIKSHA RAMESH	69	60	112.5	241.5	10	24.15	24
18	2019-18	BHORKAR ADITI BHASKAR	73.5	68.5	136.5	278.5	10	27.85	28
19	2019-19	BHOSKAR SAMEER KISHOR	69	57	111	237	10	23.7	24
20	2019-20	BHUDE SHREYASH SATISH	67	33	85.5	185.5	10	18.55	19
21	2019-21	BOPALE RUSHIKESH SAMADHAN	63.5	66	124.5	254	10	25.4	25
22	2019-22	BUDHWAT SHIWANI ASHOK	63.5	67	115	245.5	10	24.55	25
23	2019-23	CHARPE KHUSHI VINOD	70	59.5	125.5	255	10	25.5	26
24	2019-24	CHAWARE MUKUL RAJKAMAL	72	49	109.5	230.5	10	23.05	23
25	2019-25	CHIRANIA RIYA JUGAL	68.5	69	142	279.5	10	27.95	28
26	2019-26	DALANE KRUTIK VASANT	70.5	64.5	124.5	259.5	10	25.95	26
27	2019-27	DARVEKAR KANISHKA VITTHALRAO	68	54	116.5	238.5	10	23.85	24
28	2019-28	DASHOTTAR MIHIR KISHORE	64	58	118.5	240.5	10	24.05	24
29	2019-30	DESAI MITALI SANJAY	68	62	117.5	247.5	10	24.75	25
30	2019-31	DESHMUKH HRIDAY ASHISH	68.5	60.5	114.5	243.5	10	24.35	24
31	2019-32	DESHMUKH PRACHI RAJESH	70	50	110	230	10	23	23
32	2019-33	DESHMUKH PRAJWAL ANANDRAO	67	42	79.5	188.5	10	18.85	19
33	2019-34	DHALE SAMYAK SANJAY	58.5	65	44	167.5	10	16.75	17
34	2019-36	DHODARE SAIL PRAMOD	59.5	61	99	219.5	10	21.95	22
35	2019-37	DIGHE ANIKET SURYABHAN	71	61.5	144.5	277	10	27.7	28
36	2019-38	DONGRE NISHANT NARENDRA	69	68	133	270	10	27	27
37	2019-39	DONGRE SAMARTHYA SANJAY	72	52	114	238	10	23.8	24