

SECTION A

General Intelligence and Reasoning	
	Arithmetical reasoning
	Arithmetic number series and Operations
	Non-verbal series
	coding and decoding
	Statement conclusion
	Syllogistic reasoning
	Analogies
	Similarities and differences
	Relationship concepts,
	Figural Pattern-folding and completion
Quantitative Aptitude and Mathematics	
	Number systems
	Percentage, Ratio & Proportion
	Interest, Profit and Loss, Discount,
	Time and distance, Time & Work
	Square roots, Averages
	Bar diagram & Pie chart, Histogram
	algebraic identities
	Trigonometric ratio, Degree and Radian Measures, Standard Identities
	Partnership Business, Mixture and Alligation
	Congruence and similarity of triangles, Circle and its chords, tangents,
General English	
	Preposition
	Correction of sentences
	Change active to passive/ passive to active voice
	Change direct to indirect/indirect to direct
	Verbs/Tense/Non Finites
	Punctuation
	Synonyms and Antonyms
	Meanings of difficult words
	Articles, jumbled letters
	Use of pronouns
General Knowledge and current affairs	
	Current Affairs
	Art and Indian Culture
	History
	Geography
	Politics
Computer Skills	
	Characteristics of computers, Evolution of computers, Generation of Computers
	Classification of Computers, The Computer System, Applications of Computers
	Input / Output devices and Memory
	Introduction, Keyboard, Pointing Devices, Speech Recognition, Digital Camera, Scanners
	Optical Scanners, Classification of Output, Printers, Plotters, Computer Output Microfilm (COM)
	Optical Disk, Magneto Optical Disk

	Monitors, Audio Output, Projectors. Random Access Memory (RAM), Read Only Memory (ROM)
	Classification of Secondary Storage Devices, Magnetic Tape,
	MS-Office (MS-Word, MS-Excel, MS-Power Point)
	Net Surfing, Internet Services, Case Study, Intranet
About ICMR	
	History of ICMR Leadership of ICMR Institutes and its Location Mandate, scope IJMR- Indian journal of medical research About Going Viral Book Landmark achievements in past Fellowships Programs by ICMR Outbreak investigations Test tube baby landmark achievement Covid-19 related information ICMR Health Communication Ecosystem Major work of ICMR Institutes DG/ Directors of ICMR

SECTION B

<p>MICROBIOLOGY</p> <p>GENERAL MICROBIOLOGY: History of Microbiology, Working principle, construction, operation and maintenance of microscopes. Principles and methods of sterilization by physical and chemical agents. Morphology of Bacteria and staining methods. Growth and nutrition of bacteria, culture media and culture methods. Antimicrobial susceptibility tests.</p> <p>BACTERIOLOGY: Classification: Occurrence, host pathogen relationship, pathogenic and laboratory diagnosis of Staphylococcus, Streptococcus, Pneumococcus, Neisseria, Corynebacterium, Mycobacterium, Enterobacteria, salmonella, Shigella, E.coli, Klebsiella, Pseudomonas, Proteus, vibrio, Spirochetes.</p> <p>VIROLOGY: Classification: General properties of viruses mode of infection, spread and lab diagnosis of common human viral diseases - Polio, Influenza, Para influenza, Dengue, Japanese encephalitis, Chicken pox, Herpes, HIV, Hepatitis.</p> <p>PARASITOLOGY: Nomenclature, morphology, life cycle, pathogenicity and lab diagnosis and mode of infection of plasmodium, Entamoeba, Giardia, Trichomonas, Hookworm, Roundworm, Tapeworm and Whipworm.</p> <p>MYCOLOGY: Morphology, pathogenesis and lab diagnosis of fungi</p> <p>IMMUNOLOGY: Immunity classification, Antigen- Ab reactions and their application in the diagnosis of the diseases.</p> <p>PATHOLOGY:-</p> <p>HAEMATOLOGY Composition of Blood: Components of the blood (Plasma and Cellular elements) and their functions - Haemopoietic system of the body (Leucopoiesis, erythropoiesis and thrombopoiesis). Haemostasis - disorders and regulation - Types of Anaemia (deficiency of iron, B12 and folic acid, haemolytic, aplastic and genetic disorders), Bleeding disorders of man. Coagulation of blood: Coagulation system- recalcification time activated partial thromboplastin time and thrombin time, Clotting time, bleeding time, Prothrombin time, Partial Prothrombin time, Mechanism of coagulation of blood.</p>
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Haemogram

Haemogram - Haemoglobin, PCV, ESR, RBC count, WBC count, Platelet count, Calculations of Anaemia using MCH, MCV & MCHC, Reticulocyte count, Absolute Eosinophil count, Differential count.

Special Haematological tests: Osmotic fragility - Heinz body preparation, Blood parasites – Lupus Erythematosus (LE) Cell preparation - Cytochemical tests, Quality control and quality assessment.

BLOOD BANKING

Blood Bank:-

Basic principle involved in Immuno haematology as prior to blood transfusion, Blood collection procedure, Blood grouping (Slide method, tube method), Rh typing, Forward and Reverse grouping techniques, Cross matching(Major and Minor types), Separation of Blood components, Coombs test

Screening Test:-

HbsAg, HCV, HIV (ELISA, Western Blot tests), TPHA (Treponemapallidum haemagglutination), Malarial parasites.

HISTOPATHOLOGY AND CYTOLOGY

General introduction of histopathology, Reception, recording, handling and labelling of histology specimens, fixation and various fixatives and their preparation.

Tissue processing-processing of histological tissues, dehydration, clearing, wax preparation, paraffin embedding and embedding media, decalcification and block preparation.

Microtomes- various types, their working principle and maintenance.

Microtomes knives and knife sharpening procedure, practical section cutting, cutting fault and remedies

Staining preparation-preparation of slide, deparaffinization and routine staining procedures, Identification and Demonstration of different metabolic compounds, mounting and mounting media.

Exfoliate Cytology - Preparations of Pap smear, stain, cell blocks.

CLINICAL BIOCHEMISTRY

Basic principles and practices of clinical chemistry

Patient management, prognosis and diagnosis. Laboratory safety – toxic chemicals and biohazards - computers in the clinical chemistry lab for a reliable report.

Instrumentation

Description of certain important instruments e.g. balance, centrifuge colorimeter, spectrophotometer, flame photometer etc., principle & instrument.

Blood Chemistry

Methods of collection and preservation of blood; Use of selective anticoagulants; Separation of serum and plasma, different protein precipitation agents, preparation of pff and its preservation.

Blood sugar and G.T.T

Normal levels, abnormal levels associated with various pathological conditions; different methods of sugar estimation- principle reagents, procedure precautions to be observed. Renal threshold importance of G.T.T, Methods of G. T. T.

Urea:-

Normal level, pathological conditions associated with abnormal levels. Principles and procedure of different methods of urea estimated.

Plasma and serum proteins:-

Separation of different proteins. Normal and abnormal levels. Clinical significance of plasma and serum protein estimation. Different methods of protein estimation including principle and procedure.

Fibrinogen and prothrombin time:-

Significance of fibrinogen and prothrombin time determinations, principle and procedure of the method applied.

Liver functions test

Liver and its functions. Detoxication of bile pigments. Normal and abnormal estimation of conjugated and unconjugated bilirubin in relation to differential diagnosis of jaundice. Principles and procedures for different L.F tests index.

Cholesterol

Significance of cholesterol estimation. Normal and abnormal values. Principles and procedures of cholesterol estimation.

Renal function test

Kidneys and their physiological role laboratory test to assess detect and monitor renal diseases.

Urine Chemistry

Physical characteristics of urine, chemical composition. Clinical importance of Urine analysis. Presence of

abnormal constituents like protein, sugar, bile salts and bile pigments occult blood etc. qualitative estimation of protein and sugar. Identification of sugar, glycosuria and albuminuria, ketone bodies.

Stool Chemistry

Physical characteristics and chemical composition of stool. Formation of stercobilinogen. Significance of presence of blood and excess fat in stool. Principle of stercobilinogen and fat estimation.

Cerebro spinal fluid

Composition and function of C.S.F. normal levels of chloride sugar and protein in C.S.F. Abnormal levels in relating to different pathological conditions. Methods determination of chlorides, sugar and protein in C.S.F.

Enzymes

Importance of acid and alkaline phosphates, amylase, SGOT, LDH & CPK, their normal levels. Abnormal levels in relation to pathological conditions. Iso-enzymes. Principle and procedure of different methods of assaying the above mentioned enzymes.

Electrolytes

Function of electrolytes like Na^+ K^+ and Cl^- . other essential trace elements like P, Ca^{++} iron etc. Normal levels. Abnormal levels associated with different pathological conditions. Principle and procedure for determining their concentrations.

Electrophoresis and Chromatography

Principle and procedure of Agar gel electrophoresis, TLC and paper Chromatography. Application in clinical biochemistry.