



# PUNJAB TECHNICAL UNIVERSITY JALANDHAR

Max. Marks: 90

Time: 90 Mins.

## Entrance Test for Enrollment in Ph.D. Programme

### Important Instructions

- Fill all the information in various columns, in capital letters, with blue/black ball point pen.
- Use of calculators is not allowed. Use Blue/Black ball point pen for attempting the questions.
- All questions are compulsory. No negative marking for wrong answers.
- To attempt a question, make a tick mark (✓) at the right option/answer.
- Each question has only one right answer.
- Questions attempted with two or more options/answers will not be evaluated.

Stream (Engg./Arch./Pharm./Mgmt./App.Sci./Life Sci.)

**Life Sciences**

Discipline

**Medical Laboratory Technology (MLT)**

Name

Father's Name

Roll No.

Date: **15-01-2011**

Signature of Candidate

Signature of Invigilator

Q. 1 Language is a

- (a) Instinctive development
- (b) System of symbols for effective communication
- (c) Medium to express experiences
- (d) Medium for self enhancement

Q. 2 The process not needed in experimental research is

- (a) Controlling
- (b) Observation
- (c) Manipulation and replication
- (d) Reference collection

Q. 3 Bibliography given in a research report

- (a) helps those interested in further research and studying the problem from another angle
- (b) shows the vast knowledge of the researcher
- (c) makes the report authentic
- (d) none of the above

Q. 4 The per capita income of India from 1950-90 is four times. This study is

- (a) Social
- (b) Factorial
- (c) Longitudinal
- (d) Horizontal

Q. 5 Attributes of objects, events or things which can be measured are called

- (a) Data
- (b) Qualitative measures
- (c) Variables
- (d) None of the above

Q. 6 Which one of the following is a product of learning?

- (a) Intelligence
- (b) Maturation
- (c) Skills
- (d) Forgetness

Q. 7 Verbal guidance is most effective in

- (a) Concepts
- (b) Attitudes
- (c) Relationships
- (d) All of above

Q. 8 All causes non sampling errors except

- (a) Faulty tools of measurements
- (b) Inadequate samples
- (c) Defect in the data collection
- (d) Non response

Q. 9 There are so many definitions of learning. Which of the following is most adequate?

- (a) The modification of behavior
- (b) Acquisition and organis
- (c) The development of skills
- (d) All of above

Q. 10 For doing external criticism (for establishing the authenticity of data) a researcher must verify

- (a) The signature and handwriting of the author
- (b) The paper and ink used in that period which is under study
- (c) Style of prose writing of that period
- (d) All of the above

Q. 11 The validity and reliability of a research will be at stake when

- (a) the incident was reported after a long period of time from that of its occurrence
- (b) the author who is the source of information is biased, incompetent or dishonest
- (c) Researcher himself is not competent enough to draw logical conclusion
- (d) All of above

Q. 12 A researcher divides his population into certain groups and fixes the size of the sample from each group. It is called

- (a) Stratified sample
- (b) Quota sample
- (c) Cluster sample
- (d) All of above

Q. 13 Emotional development is as much effected by maturation and learning as the sensory processes, muscular growth and intellectual functions. Parlor's experiment showed emotional responses could be learnt through

- (a) Conditioning
- (b) Knowledge and skill
- (c) Imitation
- (d) Non of the above

Q. 14 A researcher selects a probability sample of 100 out of the total population. It is

- (a) A cluster sample
- (b) A random sample
- (c) A systematic sample
- (d) A stratified sample

Q. 15 Which of the following is a primary source of data?

- (a) Official record - Government documents, information preserved by social religious organizations etc.
- (b) Personal records, letters, diaries, autobiographies, wills etc.
- (c) Oral testimony of tradition and customs
- (d) All of above

Q. 16 Which of the following is not a product of learning?

- (a) Attitudes
- (b) Maturation
- (c) Knowledge
- (d) Concepts

Q. 17 Who said that members of the same species are not alike?

- (a) Darwin
- (b) Good
- (c) Best
- (d) Herbert Spencer

Q. 18 A statistical measure based upon the entire population is called parameter. While measure based upon a sample is known as

- (a) Sample parameter
- (b) Inference
- (c) Statistics
- (d) Non of the above

Q. 19 Validity of a research can be improved by

- (a) taking the true representative sample of the population
- (b) Eliminating extraneous factors
- (c) Both of the above measures
- (d) Non of the above

Q. 20 Which of the following is not an aspect of learning?

- (a) Modification of perceptions
- (b) Accumulation of knowledge
- (c) The sensitization of nerve fiber
- (d) The elimination of errors

Q. 21 The time taken by blood to flow from one site to any other specific site is known as

- (a) Circulation time
- (b) Blood pressure
- (c) Cardiac output time
- (d) None option

Q. 22 What is normal coronary blood flow?

- (a) 100 ml/minute
- (b) 300 ml/minute
- (c) 200 ml/minute
- (d) 400ml/minute

Q. 23 The quantity of air taken in and given out at each normal quite inspiration and expiration is known as

- (a) Complemental volume
- (b) Residual volume
- (c) Tidal volume
- (d) None of the above

Q. 24 The amount of air left behind in the lungs at the end of deep expiration is called

- (a) Supplement volume
- (b) Residual volume
- (c) Complementary volume
- (d) Minimal volume

Q. 25 The process of resolving the various food constituents into simpler units which can be absorbed in the body through bloodstream is known as

- (a) Absorption
- (b) Assimilation
- (c) Digestion
- (d) Excretion

Q. 26 The amount of heat required to raise the temperature of one kg of water from 15°C to 16°C is called

- (a) 1 Calorie
- (b) 1 Kilojoule
- (c) 1 Joule
- (d) None of the above

Q. 27 If the energy is liberated during metabolism, then it is called

- (a) Exothermic reaction
- (b) Endothermic reaction
- (c) Both 1 & 2
- (d) Dynamic reaction

Q. 28 What is the main source of energy for cardiac muscle?

- (a) Glucose
- (b) Protein
- (c) Fat
- (d) Lactic acid

Q. 29 Which is the site of insulin formation?

- (a) Parenchymal cell
- (b) a cell
- (c) Islets of Langerhans
- (d) All of above

Q. 30 Vitamin D is associated with which type of metabolism?

- (a) Calcium
- (b) Potassium
- (c) Sodium
- (d) None of above

Q. 31 What is the renal threshold value of glucose?

- (a) 100 mgm%
- (b) 120 mgm%
- (c) 160 mgm%
- (d) 200 mgm%

Q. 32 What is the average daily requirement of insulin?

- (a) 30-50 units/day
- (b) 50-70 units/day
- (c) 70-90 units/day
- (d) 90-110 units/day

Q.33 Which instrument is used for determination of BMR?

- (a) Thermometer
- (b) Spectrophotometer
- (c) Photometer
- (d) Spirometer

Q. 34 Microscopic study of normal tissues of the body is known as

- (a) Histopathology
- (b) Histology
- (c) Cytology
- (d) None option

Q. 35 The portion of cell lying between the plasma membrane & nuclear membrane is called

- (a) Nucleus
- (b) Cytoplasm
- (c) Protoplasm
- (d) None option

Q. 36 The cell membrane is composed of

- (a) One layer
- (b) Three-layers
- (c) Five layered
- (d) Eight-layered

Q. 37 Rupture of the lysosome is called

- (a) Haemolysis
- (b) Autolysis
- (c) Both 1 & 2
- (d) None of above

Q. 38 The short cylindrical bodies present in cell which is visible during cell division is called?

- (a) Centriole
- (b) Lysosomes
- (c) Both 1 & 2
- (d) None of above

Q. 39 Non-living substance present in cytoplasm of cell is called

- (a) Mitochondria
- (b) Lysosome
- (c) Inclusion
- (d) None of above

Q. 40 Which inclusion are demonstrated by using frozen section?

- (a) Secretory granules
- (b) Glycogen
- (c) Lipid
- (d) Pigments

Q. 41 Which of the following is endogenous pigment?

- (a) Melanin
- (b) Haemosiderin
- (c) Both above
- (d) None of above

Q. 42 The chief nucleic acid present in chromatin is called

- (a) DNA
- (b) RNA
- (c) Both
- (d) None of above

Q. 43 How many chromosomes are there in human cell

- (a) 43
- (b) 44
- (c) 45
- (d) 46

Q. 44 Which precipitates are left by Mercuric chloride on the tissue?

- (a) Black
- (b) Yellow
- (c) Green
- (d) White

Q. 45 Which fixative permanently fixes lipid?

- (a) Mercuric chloride
- (b) Picric acid
- (c) Osmium tetroxide
- (d) Bovin's fluid

Q. 46 What should be the minimum volume of fixative for adequate fixation of tissue?

- (a) 2 times
- (b) 20 times
- (c) 50 times
- (d) 75 times

Q. 47 At which temperature acetic acid solidifies?

- (a) 40°C
- (b) 50°C
- (c) 17°C
- (d) 25°C

Q. 48 Ethyl alcohol should not be mixed with the following

- (a) Chromic acid
- (b) Potassium Dichromate
- (c) Osmium tetroxide
- (d) All above

Q. 49 Which of these is a type of vacuum embedding oven?

- (a) Gas bath
- (b) Electric bath
- (c) Both 1 & 2
- (d) None of above

Q. 50 The process of oxidation is known as

- (a) Ropening
- (b) Ripening
- (c) Ultraoxidation
- (d) None of above

Q. 51 What is the normal value of WBC?

- (a) 2000-6000/cumm of blood
- (b) 4000-11000 / cumm of blood
- (c) 11000-14000/cumm of blood
- (d) 15000-17000/ cumm of blood

Q. 52 Cells of myeloid series of leucocytes are produced in which part of the body?

- (a) Spleen
- (b) Bone marrow
- (c) Liver
- (d) Lymphoid tissue

Q. 53 A fall in leucocyte count below 4000/cumm of blood is called

- (a) Leucocytosis
- (b) Thrombocytosis
- (c) Leucopenia
- (d) Leukemia

Q. 54 In which pathological condition, leucopenia occur?

- (a) Typhoid
- (b) Influenza
- (c) Both 1&2
- (d) None of above

Q. 55 Leucocytosis occurs in all condition except

- (a) Myocardial infarction
- (b) Aplastic anemia
- (c) Burns
- (d) Hemorrhage

Q. 56 By which test, percentage distribution of normal leucocyte is observed?

- (a) Total leucocyte count
- (b) Differential leucocyte count
- (c) Both 1 & 2
- (d) None of above

Q. 57 Which supravital stain mark living DNA and RNA?

- (a) Trypan blue
- (b) Acridine orange
- (c) Janus green
- (d) Pinacynol stain

Q. 58 Which stain is routinely used for differential leucocyte count?

- (a) Leishman stain
- (b) Albert stain
- (c) Gram stain
- (d) Acridine orange stain

Q. 59 Production of lymphocyte is called as

- (a) Leucopoiesis
- (b) Monopoiesis
- (c) Lymphopoiesis
- (d) Non of above

Q. 60 Extrinsic clotting pathway is initiated by

- (a) Hageman factor
- (b) Christmas factor
- (c) Tissue thromboplastin
- (d) Fibrinogen

Q. 61 Which type of Microscope is mostly used for routine microbiological work?

- (a) Phase-contrast Microscope
- (b) Brightfield Microscope
- (c) Electron Microscope
- (d) Fluorescence Microscope

Q. 62 The construction of Simple Microscope is attributed to

- (a) Louis Pasteur
- (b) Haeckel
- (c) Antony Van Leeuwenhoek
- (d) Robert Koch

Q. 63 Manual of which is mostly used for International publication

- (a) Vergey's Manual
- (b) Lergey's Manual
- (c) Bergey's Manual
- (d) Sergey's Manual

Q. 64 In which type of stain, the organism is stained a different shade of colour from that of the stain?

- (a) Indirect staining
- (b) Negative staining
- (c) Metachromatic staining
- (d) Spore staining

Q. 65 Which reagent is used as a Primary stain in Gram Stain?

- (a) Lugol's iodine
- (b) Acetone
- (c) Crystal violet
- (d) Safranin

Q. 66 Mycolic acid is present in cell wall of

- (a) Staphylococcus
- (b) Mycobacteria
- (c) Mycoplasma
- (d) Proteus

Q. 67 Nocardia species are acid fast only with

- (a) 1% sulphuric acid
- (b) 3% sulphuric acid
- (c) 2% sulphuric acid
- (d) 4% sulphuric acid

Q. 68 In Kinyoun's method which solution is used as a counter stain?

- (a) Kinyoun's carbol fuchsin
- (b) Malachite Green
- (c) Methylene blue
- (d) Both 2 & 3

Q. 69 In which method of Spirochaetes staining, Spirochaetes takes brownish black colour?

- (a) Fontana's method
- (b) Fuchsin-Nigrosin Method
- (c) Loeffler's Silver method
- (d) None of above

Q. 70 Which alcohol is fat solvent, bactericidal & less volatile?

- (a) Methyl alcohol
- (b) Industrial alcohol
- (c) Isopropyl alcohol
- (d) Methanol

Q. 71 Which aldehyde is effective against tubercle bacilli, fungi & viruses?

- (a) Gluteraldehyde
- (b) Formaldehyde
- (c) Both 1&2
- (d) None of above

Q. 72 In Sabouraud Dextrose agar, which antibiotic inhibit the growth of Cryptococcus neoformans & aspergillus

- (a) Penicillin
- (b) Amikacin
- (c) Cyclohexamide
- (d) Gentamycin

Q. 73 Modified Thayer-Martin medium is most widely used for the isolation of

- (a) Neisseria Gonorrhoea
- (b) Neisseria Meningitidis
- (c) Vibrio
- (d) None of the above

Q. 74 In which Disc-diffusion method, control organism are tested against the same disc on the same plate?

- (a) Stoke's method
- (b) Kirby-Bauer's method
- (c) Both of above
- (d) None of above

Q. 75 The entire genetic capability of an organism as found in its DNA is called

- (a) Phenotype
- (b) Genotype
- (c) Genesis
- (d) None of above

Q. 76 The process in which there is genetic transfer between two homologous chromosome is known as

- (a) Transformation
- (b) Mutation
- (c) Translation
- (d) Recombination

Q. 77 Transposons are segments of

- (a) RNA
- (b) DNA
- (c) Genes
- (d) Chromosomes

Q. 78 Which class of Protozoan parasite possess organs of locomotion called? flagella

- (a) Class ciliata
- (b) Sarcodina
- (c) mastigophora
- (d) Coccidia

Q. 79 Which helminth is cylindrical, non-segmented worms that taper at both ends?

- (a) Nematodes
- (b) Trematodes
- (c) Cestodes
- (d) None of above

Q. 80 In chemical test for occult blood, when colour of stool is changed to blue-black then result is interpreted by which sign?

- (a) +
- (b) ++
- (c) +++
- (d) Trace

Q. 81 Nuclei of amoebic cyst is well seen in

- (a) Wet mount
- (b) Iodine wet mount
- (c) Saline preparation
- (d) Using fixatives

Q. 82 Acridine orange Fluorescence technique is used for demonstration of which blood parasite

- (a) Malarial parasite
- (b) Leishmania
- (c) Microfilaria
- (d) Trypanosomes

Q. 83 Which herpes virus causes oral infection or keratitis?

- (a) Herpes simplex virus
- (b) Epstein-Barr virus
- (c) Varicella virus
- (d) All above

Q. 84 Epstein-Barr virus causes

- (a) carcinoma
- (b) Keratitis
- (c) Infectious mononucleosis
- (d) Conjunctivitis

Q. 85 In virology which type of filter is used for sterilization of culture media

- (a) Membrane filter
- (b) Sintered glass filter
- (c) Seitz filter
- (d) All of above

Q. 86 Which enzyme convert lactic acid to pyruvic acid?

- (a) Creatine Phosphokinase
- (b) Acid phosphatase
- (c) Alkaline phosphatase
- (d) Lactate dehydrogenas

Q. 87 Elevated level of CPK occurs in which condition

- (a) Muscular dystrophy
- (b) Alcoholic myopathy
- (c) Myocardial infarction
- (d) All options

Q. 88 Chromatography on DEAE-cellulose is used for which enzyme

- (a) Alkaline phosphatase
- (b) Acid phosphatase
- (c) Creatine kinase
- (d) None of Above

Q. 89 What is the cause of respiratory acidosis?

- (a) Excess carbonic acid
- (b) Excess bicarbonate
- (c) Low carbonic acid
- (d) Low bicarbonate

Q. 90 What is the normal value of Triglyceride?

- (a) 20-80 mg/dl
- (b) 80-150 mg/dl
- (c) 160-220 mg/dl
- (d) 240-280 mg/dl