

PART A - GENERAL LABORATORY PRINCIPLES, EQUIPMENT & INSTRUMENTS MARKS:50

1. Tick (☐) the most appropriate answers.

Each question carries ONE mark.

15x1=15

- (i) Unit most commonly used in laboratory for measurement of volume is
- (a) Liter
 - (b) Milliliter
 - (c) Microliter
 - (d) All of the above
- (ii) Phenolphthalein indicator is prepared by dissolving
- (a) 0.1 gm of phenolphthalein in 100 ml of distilled water
 - (b) 1 gm of phenolphthalein in 100 ml of 95% ethanol
 - (c) 1 gm of phenolphthalein in 1000 ml of 95% ethanol
 - (d) None of the above.
- (iii) The following are removed in the process of de-ionization
- (a) Organic substances
 - (b) Substances which can ionize
 - (c) Substances which cannot ionize
 - (d) None of the above
- (iv) Pasteur pipettes are cleaned by
- (a) Boiling in water
 - (b) Rinsing with spirit**
 - (c) Soaking in 3% Lysol
 - (d) All of the above
- (v) Alkali should be stored in
- (a) Plastic bottles
 - (b) Glass bottles
 - (c) Both of the above
 - (d) None of the above
- (vi) Acetic acid is incompatible with
- (a) Sulphuric acid
 - (b) Chromic acid
 - (c) Acetone
 - (d) Sodium azide
- (vii) Deionized water must be filled in an autoclave, because
- (a) It is sterile
 - (b) It is clean
 - (c) It can tolerate high temperature and pressure
 - (d) It leaves less salt residue on the inner walls of the autoclave

- (viii) How much salt will you weigh to prepare 500 ml of saline (0.85%) ?
- (a) 2.45 gms
 - (b) 4.25 gms
 - (c) 4.52 gms
 - (d) 5.42 gams
- (ix) In a colorimeter the relationship between optical density (OD) and percentage transmission (T) is given by
- (a) $OD = 2 - \log T$
 - (b) $T = 2 - \log OD$
 - (c) $OD = \log T - 2$
 - (d) $T = \log OD - 2$
- (x) 50° Centigrade is equivalent
- (a) 102° Fahrenheit
 - (b) 112° Fahrenheit
 - (c) 122° Fahrenheit
 - (d) 132° Fahrenheit
- (xi) The best method of sterilizing disposable syringe is
- (a) Boiling
 - (b) Gamma rays
 - (c) Hot air oven
 - (d) Ultra violet rays
- (xii) In case acid splashes on the eye, the solution used after washing with water is
- (a) 3% acid
 - (b) 2% aqueous sodium hydroxide
 - (c) 2% aqueous sodium bicarbonate
 - (d) none of the above.
- (xiii) The adjustment system in microscope comprises of
- (a) Mechanical tube
 - (b) Coarse knob
 - (c) Fine Knob
 - (d) All of the above
- (xiv) Boiling water baths are needed in
- (a) Chemical reactions
 - (b) Preparing solutions
 - (c) Both of the above
 - (d) None of the above
- (xv) Test tubes are used to
- (a) Heat reagents
 - (b) Hold reagents
 - (c) Heat and hold reagents
 - (d) none of the above.

2. Write TRUE / FALSE to the following statements.

Each question carries ONE mark.

5x1=5

- (i) Vaccines are sterilized by autoclaving. []
- (ii) One microgram is equal to 0.001 mg. []
- (iii) Acids turn red litmus blue. []
- (iv) The microscope should never be stored in wooden box. []
- (v) Ether has a flash-point of 45°C. []

3. Fill in the blanks with appropriate options given in brackets.

Each question carries ONE mark.

5 x 1 = 5

- (i) The pH value of a solution above 7 indicates.....
[Acidic / alkaline]
- (ii) Virus particles can be visualized by microscope.
[Light / electron]
- (iii) The beaker is used for.....
[Cooling / heating]
- (iv) The workbench inventory is done.....
[Daily / weekly]
- (v) Tantalization is used to sterilize.....
[Gelatin / nutrient agar]

4. Answer in A FEW words. Each question carries ONE mark.

5x1=5

- (i) What is the capacity of the Winchester quart bottle?
- (ii) What happens when picric acid and perchloric acid dehydrate?
- (iii) Why do Wintrobe tubes pose a special problem in cleaning?
- (iv) Extend EDTA.
- (v) Why do dark shadows in the field of microscopic view suggest?

5. Answer ANY TWO of the following in not more than FIVE lines.

Each question carries 2½ marks.

2x5=10

- (i) What are the common causes of fires in the laboratory?
- (ii) Why do technicians require constant updating of knowledge?
- (iii) What is quality control?
- (iv) What precautions should be taken in immunological/ serological works?
- (v) What is quality control?

6. Write short notes on ANY TWO of the following.

Each question carries FIVE marks.

2x5=10

- (i) Safety regulation in health laboratories
- (ii) Preparation and cleaning of new and used glassware
- (iii) Preservation of microbial cultures

P.T.O.

PART B - HUMAN ANATOMY AND PHYSIOLOGY

MARKS : 50

1. Tick (☐) the most appropriate answers.

Each question carries ONE mark.

10x1=10

- (i) Sweat gland is present in
 - (a) Skin
 - (b) Ovary
 - (c) Deep fascia
 - (d) Superficial fascia

- (ii) The smallest bone of human body is
 - (a) Talus
 - (b) Femur
 - (c) Stapes
 - (d) Patella

- (iii) The joint is also known as
 - (a) Facet
 - (b) Septum
 - (c) Condyle
 - (d) Articulation

- (iv) The exposed part of tooth is covered with
 - (a) Pulp
 - (b) Enamel
 - (c) Dentine**
 - (d) Momentum

- (v) Each eye has two eyelids consisting of
 - (a) Skin
 - (b) Muscle
 - (c) Connective tissue
 - (d) All of the above

- (vi) The total number of bones in the skull is
 - (a) 8
 - (b) 14
 - (c) 22
 - (d) 29

- (vii) The prostate gland is a
 - (a) Male organ
 - (b) Female organ
 - (c) Both of the above
 - (d) None of the above

- (viii) Which of the following is called "Graveyard of RBCs?"
- (a) Liver
 - (b) Spleen
 - (c) Pancreas
 - (d) Gall bladder
- (ix) Average adult human body contains
- (a) 1000 ml of blood
 - (b) 2000 ml of blood
 - (c) 4000 ml of blood
 - (d) 5000 ml of blood
- (x) Glucagon is secreted by
- (a) Liver
 - (b) Spleen
 - (c) Kidney
 - (d) Pancreas
- (xi) The main cause of anaemia is
- (a) Deficiency of Ca
 - (b) Deficiency of Fe
 - (c) Deficiency of Na
 - (d) Deficiency of Mg
- (xii) Gamma globulins are synthesized inside
- (a) Liver
 - (b) Kidney
 - (c) Bone marrow
 - (d) Lymph and lymphoid tissue
- (xiii) The cerebellum controls vital functions of
- (a) Respiration
 - (b) Circulation
 - (c) Coordination
 - (d) All of the above
- (xiv) Which of the following amino acids is not essential ?
- (a) Lysine
 - (b) Glycine
 - (c) Leucine
 - (d) Isoleucine
- (xv) Which one is involved in DNA synthesis and cell division ?
- (a) Vit-D
 - (b) Vit-E
 - (c) Vit-K
 - (d) Folic acid

2. Write TRUE / FALSE to the following statements.

Each question carries ONE mark.

5x1=5

- (i) Matrix is composed of a protein called ossein. []
- (ii) Mammary glands are modified sweat glands. []
- (i) Cardiac muscles never get fatigued. []
- (ii) Platelets bud off from megakaryocytes. []
- (iii) HCG is secreted by cervical cells. []

3. Fill in the blanks with appropriate options given in brackets.

Each question carries ONE mark.

5x1=5

- (i) The colour of ovary is.....
[Pale / while]
- (ii) The number of ribs in our body is.....
[12 / 24]
- (iii) C-reactive protein is synthesized in the.....
[Kidney / liver]
- (iv) The pH of normal sweat is.....
[4.5 / 7.4]
- (v) The cholesterol which is beneficial to human body is.....
[LDL / HDL]

4. Fill in the blanks. Each question carries ONE mark.

5x1=5

- (i) What is the length of ureter?
- (ii) In which part of the body the trapezius muscle is found?
- (iii) What is the breathing time of man?
- (iv) Why are red blood cells red in colour?
- (v) What is the function of serous membranes?

5. Answer the following in not more than FIVE lines.

Each question carries TWO marks.

5x2=10

- (i) Which hormone promotes male secondary sexual characteristics?(Androgen)
- (ii) Extend CNS.(Central nervous system)
- (iii) Name different types of granulocytes.(Neutrophils, eosinophils & basophils)
- (iv) When does thyroid hormone secretion begin?(4th month of foetal life)
- (v) Why are red blood cells red in colour?(Presence of red coloured pigment Hb)

6. Write short notes on ANY TWO of the following.

Each question carries FIVE marks.

2x5=10

- (i) Mechanism of micturition
- (ii) Functions of RBCs
- (iii) Functions of plasma proteins