

Sikkim Public Service Commission

Main Written Examination for the Post of Lab Technician under Sikkim State
Subordinate Allied and Healthcare Service

PAPER -II

Time allowed: 3.00 Hrs

Maximum Marks: 100

INSTRUCTIONS TO CANDIDATES

Read the instructions carefully before answering the questions: -

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Use only Black Ball Point Pen to fill the OMR Sheet.
3. Do not write anything else on the OMR Answer Sheet except the required information.
4. This Test Booklet contains 50 questions in MCQ Mode in Part I to be marked in OMR Sheet. Part II and Part III are Subjective Questions which have to be written on separate answer sheet provided to you.
5. Before you proceed to mark in the Answer Sheet (OMR), you have to fill in some particulars in the Answer Sheet (OMR) as per given instructions.
6. After you have completed filling in all your responses on the Answer Sheet (OMR) and the examination has concluded, you should hand over the Answer Sheet (OMR) and separate answer sheet to the Invigilator only. You are permitted to take with you the Test Booklet.
7. **Marking Scheme**
THERE WIL BE NEGATIVE MARKING FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBOECTVE TYPE QUESTION PAPERS
 - i. There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to the question will be deducted as penalty.
 - ii. If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to the question.
 - iii. If a question is left blank. i.e., no answer is given by the candidate; there will be no penalty for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

PART -I

Choose the correct answer for the following questions:

(1x50=50)

- 1) **At which of the following locations does bile enter the digestive tract?**
 - A. Gastroesophageal sphincter
 - B. Duodenum
 - C. Pyloric sphincter
 - D. Jejunum

- 2) **Which of the following terms refers to pain?**
 - A. Arthralgia
 - B. Urticaria
 - C. Dysplasia
 - D. Hemiplegia

- 3) **Calcitonin responsible for calcium metabolism is secreted by**
 - A. Adrenal gland
 - B. Parathyroid gland
 - C. Pineal gland
 - D. Thyroid gland

- 4) **Formalin is employed in some reticulum silver stain as**
 - A. Oxidizing agent
 - B. Developer
 - C. Bleaching agent
 - D. Toning agent

- 5) **Blotting technique to detect DNA is**
 - A. Western blotting
 - B. Northern blotting
 - C. Eastern blotting
 - D. Southern blotting

- 6) **For identification of DNA & RNA which is the method used**
 - A. Methyl green – pyronin method
 - B. Periodic acid Schiff's method
 - C. Phosphotungstic acid Haematoxylin
 - D. Von Kossa method

- 7) **GOD-POD method is used for the estimation of serum**
 - A. Glucose
 - B. Urea
 - C. Creatinine
 - D. Calcium

- 8) **Sodium fluoride used for collecting blood for glucose estimation inhibits which enzyme**
 - A. Hexokinase
 - B. Pyruvate kinase
 - C. Phosphofructo kinase
 - D. Enolase

- 9) In which stage of erythroblast hemoglobin appears first
- A. Late erythroblast/ intermediate normoblast
 - B. Late normoblast
 - C. Early erythroblast
 - D. Early normoblast
- 10) Mode of action of heparin is
- A. Ca chelation
 - B. Antithrombin
 - C. Thrombin activation
 - D. Ca neutralization
- 11) Testosterone is secreted by
- A. Leydig cells
 - B. Oxyntic cells
 - C. Chief Cells
 - D. Sertoli cells
- 12) Classical hemophilia is due to the deficiency of
- A. Christmas factor/ IX
 - B. AHG/ VIII
 - C. Stable factor/ VII
 - D. Prothrombin/ II
- 13) The bacterial structure that mediates adherence
- A. Pili
 - B. Cell wall
 - C. Flagella
 - D. Mesosome
- 14) Extra-chromosomal material in bacteria that can replicate autonomously
- A. Plasmid
 - B. Nucleus
 - C. Episome
 - D. None
- 15) Which of the forms of Plasmodium escapes digestion in the gut of mosquito?
- A. Sporozoites
 - B. Gametocytes
 - C. Trophozoites
 - D. Merozoites
- 16) Haem is synthesized by
- A. Succinyl CoA and Glycine
 - B. Succinyl CoA and methinine
 - C. Methonine and Glycine
 - D. Succinyl CoA and valine
- 17) Which of the following is not present in normal blood?
- A. Fibrinogen
 - B. Thrombin
 - C. Prothrombin
 - D. Albumin

18) Darting motility is related to

- A. Staphylococcus
- B. Streptococcus
- C. Klebsiella
- D. Vibrio

19) Which of the following is egg based medium

- A. Loeffler's medium
- B. Hiss's medium
- C. LJ medium
- D. Blood agar

20) Capillary fragility is assessed by _____ test

- A. Hess
- B. Frei's
- C. Gardon's
- D. Schilling

21) Auer bodies are a characteristic feature of

- A. Plasma cells
- B. Monocytes
- C. Myeloblasts
- D. Reticulocytes

22) Prozone phenomenon is seen in excess of

- A. Antigen
- B. Antibody
- C. Hapten
- D. Complement

23) TPHA is a specific for

- A. Tuberculosis
- B. Syphilis
- C. Gonorrhoea
- D. AIDS

24) The pH of SDA to grow fungi is

- A. 5.6
- B. 6.8
- C. 7.0
- D. 8.2

25) HCl is secreted by

- A. Goblet cells
- B. Oxyntic cells
- C. Chief Cells
- D. G cells

26) The haemoglobin which has diagnostic value in diabetes mellitus is

- A. HbA1C
- B. HbA2
- C. HbF
- D. HbE

27) Antibody is produced by

- A. B cell
- B. T cell
- C. Macrophages
- D. NK cells

28) Function of glycerol in LCB is

- A. Acts as disinfectant
- B. Gives density to stain
- C. Acts as hygroscopic agent
- D. Acts as antifungal

29) Which of the following antibiotics is inhibitor of cell wall synthesis?

- A. Penicillin
- B. Streptomycin
- C. Nystatin
- D. Amphotericin B

30) Viruses can be cultured in all except

- A. Tissue culture
- B. Bacterial lawn
- C. Nutrient media
- D. Embryonated eggs

31) Virus sensitive to ether must have

- A. Envelope
- B. No envelope
- C. DNA
- D. ds DNA

32) Koilocyte is a feature of which infection?

- A. HSV infection
- B. HPV infection
- C. T vaginalis infection
- D. Candida infection

33) Scurvy is due to the deficiency of

- A. Vitamin A
- B. Vitamin B
- C. Vitamin C
- D. Vitamin E

34) Levinthal's medium is specific for

- A. Pseudomonas
- B. Vibrio
- C. Neisseria
- D. Haemophilus

- 35) Blood for transfusion should be stored at
- A. 2-4°C
 - B. 22-24°C
 - C. 0°C
 - D. 37°C
- 36) Virulence of staphylococcus species can be characterized by
- A. Coagulase+mannitol
 - B. Coagulase+lactose
 - C. Coagulase+glucose
 - D. Lactose+mannitol
- 37) Cold sterilization is generally done by using
- A. Non-ionizing radiations
 - B. Ionizing radiations
 - C. Sun light
 - D. Infra-Red light
- 38) All of them are computer data storage devices except
- A. Pen drive
 - B. Hard Disk
 - C. RAM
 - D. Compact Disc
- 39) Best sampling technique is
- A. Random sampling
 - B. Convenience sample
 - C. Voluntary response sample
 - D. Quota sampling
- 40) In a standard normal curve, mean ± 2 standard deviation covers
- A. 60%
 - B. 65%
 - C. 95%
 - D. 99%
- 41) Enzymes which cut double stranded DNA at specific site are known as
- A. Taq Polymerase
 - B. Ligase
 - C. Restriction endonuclease
 - D. Topoisomerase
- 42) Rapid urease test is done for
- A. Cr. neoformans
 - B. Strept. pneumoniae
 - C. C. albicans
 - D. H. capsulatum
- 43) If pharmacologic effect is plotted versus drug concentration for most agents, the shape of the graph is
- A. Linear
 - B. Trapezoidal
 - C. Parabolic
 - D. Hyperbolic

44) Reabsorption of water in the kidneys is under the control of

- A. STH
- B. ACTH
- C. LH
- D. ADH

45) Acid phosphatase is a diagnostic marker of

- A. Pancreatic cancer
- B. Prostate cancer
- C. Lung cancer
- D. Hepatic cancer

46) Heparin is released from

- A. Mast cell
- B. Macrophage
- C. Eosinophil
- D. Neutrophil

47) Refractive index of glycerin jelly mostly is

- A. 1.47
- B. 1.82
- C. 1.2
- D. 1.52

48) Highest content of triglycerides is seen in

- A. Chylomicrons
- B. VLDL
- C. LDL
- D. HDL

49) End product of glycolysis is

- A. Lactate
- B. Acetyl CoA
- C. $\text{CO}_2 + \text{H}_2\text{O}$
- D. Pyruvate

50) Which organelle is involved in protein synthesis?

- A. Ribosome
- B. Mitochondria
- C. Nucleus
- D. Lysosome

PART – II

Answer ANY FOUR of the following:

(5x4= 20)

- 1) a) Write a detailed note on biomedical waste management.
b) Write a short note on recombinant technology.
- 2) a) Discuss the purpose of fixation. Classify various fixatives.
b) Discuss the clinical significance or importance of pH.
- 3) What is ABO blood grouping? What is the biochemistry of ABO antigens?
- 4) Discuss in detail pentose phosphate pathway. Write down the various steps of the process and also comment on the importance of this cycle.
- 5) a) What is coagulase test? Give its principle procedure and interpretation.
b) Describe TCA cycle along with regulation and its energetic. Add a note on its amphibolic role.
- 6) Describe the various ways of analysis of data averages. Explain them with examples.

PART - III

Attempt ANY TWO of the following questions:

(15x2= 30)

- 1) a) Give a brief account of the pathogenesis of *S. typhi*. What are the different tests conducted to establish its diagnosis?
b) Give a detailed note on laboratory errors.
 - 2) How are hormones different from enzymes? What are the different hormones produced by adrenal and pituitary gland and what are their functions?
 - 3) Review the specific course of proteins, carbohydrates and fat digestion in the intestine. Discuss enzymes that are involved in each case. Name the end products of digestion of the three categories of food.
 - 4) a) What is haemoglobinopathy? Discuss the mechanism and various tests conducted for the diagnosis of sickle cell anemia.
b) What are immunoglobulins? Classify them and discuss their properties.
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