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Subject Code: MMLT-101 B (SVSU:2021-22/R)

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M.Sc. Medical Laboratory Technology (MMLT) Ist Semester Ist Year**Subject: General Pathology****Time: 3 Hours****University Examination****Max. Marks: 70***Note: All questions are compulsory. Make diagrams wherever required.***Q1. Attempt any five MCQs. Select the correct choice as applicable. 2 Mark each (2x5=10)**

- Change of one type of cells in to other is called:
 - Hyperplasia
 - Metaplasia
 - Atrophy
 - Hypertrophy
- Granulomas are seen in:
 - Malaria
 - Typhoid
 - Tuberculosis
 - Ac Appendicitis
- Which of the following is a cancer causing agent:
 - Mucor
 - Alkylating agents
 - Embolus
 - Rhinosporidium
- In surgical wounds healing takes place by:
 - Primary intension
 - Both Primary & secondary intension
 - Secondary intension
 - None of above
- Causative agent of leprosy is :
 - M tuberculosis
 - M leprae
 - H pylori
 - S typhi
- Which of the following is responsible for pain in Ac Inflammation:
 - Leukotriene B4
 - Prostaglandin
 - C5a
 - Nitric acid

Q2. Fill in the blanks. Attempt all. 2 Marks Each (2x5=10)

- Migration of leucocytes through endothelium is called.....
-are involved in septic shock.
- Spread of malignant tumors to distance tissues is called.....
-stain is used to demonstrate Acid fast bacilli.
- Genes which promote autonomous growth of cancer cells are called.....

Q3. Write True or False. Attempt all. 2 Marks Each (2x5=10)

- Epitheloid cells are modified macrophages.
- Fat embolism can occur following bone surgeries.
- Dissolution can be a fate of thrombus.
- Licomyoma can cause frequent metastasis.
- HIV cause immune compromised state in a patient.

Q4. Attempt any four of the following (short notes): 5 Marks Each (5x4=20)

- Pathogenesis of oedema.
- Differences between Hyperemia and congestion
- Outcomes of Ac Inflammation.
- Characteristics of a malignant tumor.
- Factors affecting wound healing.

Q5. Attempt any two of the following: 10 Marks Each (10x2=20)

- Write in brief about pathogenesis of tuberculosis.
- Write in brief about Metastasis, its types and process of metastasis.
- Write in brief about mechanism of cell injury.

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M.Sc. Medical Laboratory Technology (MMLT) Ist Sem Ist Year**Subject: General Microbiology****Time: 3 Hours****University Examination****Max. Marks: 70****Note: All questions are compulsory. Make diagrams wherever required.****Q1. Attempt all MCQs. Select the correct choice as applicable. 2 Mark each (2x5=10)**

- Father of Microbiology regarded as?
 - Robert Koch
 - Louis Pasteur
 - John Needham
 - All of the above
- Anaerobic media used to cultivate
 - Anaerobic bacteria
 - Aerobic bacteria
 - Facultative bacteria
 - All of the above
- Centres of protein synthesis.
 - Ribosomes
 - Mitochondria
 - Cytoplasm
 - Nucleoid
- Transfer of genetic material (plasmid) by which organ?
 - Pili
 - Flagella
 - Ribosome
 - Nucleoid
- Destruction of all pathogens capable of producing infections.
 - Streptomycin
 - Amoxclav
 - Penicillin
 - Autoclave

Q2. Fill in the blanks. Attempt all. 2 Marks Each (2x5=10)

- Thicker peptidoglycan layer present in.....bacteria.
- Nutrient broth is an example of.....media.
- Provides protection to the cell against osmotic damage
- When Coccus arranged in chains is called as
- Inoculated wire loop is made up of.....

Q3. Write True or False. Attempt all. 2 Marks Each (2x5=10)

- Sterilization of operation theatre is done by formaldehyde ()
- Endotoxin only present in Gram negative bacteria. ()
- Basal medium + Blood = Blood agar ()
- Peritrichous bacteria having arrangement of flagella all around the body ()
- Gram staining originally discovered by Han Christian gram. ()

Q4. Attempt any four of the following: 5 Marks Each (5x4=20)

- Difference between Gram positive cell wall and Gram Negative cell wall with well labeled diagram.
- Hot air oven.
- Normal flora of human body.
- Anaerobic culture methods.
- Various culture methods

Q5. Attempt any two of the following: 10 Marks Each (10x2=20)

- Describe principle and procedure of moist heat sterilization?
- Handling and disposal of Biomedical Waste.
- Describe various Culture Media to determine total and viable count?

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Subject Code: MMLT-103 C (SVSU:2021-22/R)

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M.Sc Medical Laboratory Technology (MMLT)-Ist Sem Ist Year**Subject: General Biochemistry****Time: 3 Hours****University Examination****Max. Marks: 70****Q.1: Multiple Choice Questions. Select the correct choice:-****(2x5=10)**

- a. Which one of the following is suitable for the formation of ketone bodies:-
i. Acetyl CoA ii. Citrate iii. Oxaloacetate iv. None of these.
- b. Which one of the following is a end product for the metabolism of carbohydrate:-
i. Uric acid ii. Lactate iii. Urea iv. None of these.
- c. Which one of the following test can be used for the estimation of ketone bodies:-
i. Benedict test ii. Rothera's test iii. Jaffe's test iv. None of these.
- d. Which organ is involved in the formation of glucose from non-carbohydrate precursor:-
i. Liver ii. Heart iii. Lungs iv. None of these.
- e. Which one of the following chemical substance exhibits epimerisation:-
i. Carbohydrate ii. Protein iii. Cholesterol iv. None of these.

Q.2: Fill in the blanks. Attempt all.**(2x5=10)**

- (a) is a phospholipid.
- (b) is a sulphur containing amino acid.
- (c) is the end product of gluconeogenesis.
- (d) The breakdown of glycogen is called
- (e) NADPH generates in pathway.

Q.3: Write True or False. Attempt all.**(2x5=10)**

- a. Pyruvate is formed in aerobic glycolysis.
- b. Sucrose is invert and non-reducing sugar.
- c. Glycogen is a homopolysaccharide.
- d. The formation of DNA synthesis is called replication.
- e. Pyruvate dehydrogenase is a regulatory enzyme in glycolysis.

Q.4: Attempt short notes on any four of the following:**(4x5=20)**

- a. What are Ketone bodies? Describe Ketogenesis.
- b. Describe Gluconeogenesis.
- c. Write the steps of urea cycle.
- d. Secondary and Tertiary structure of proteins.
- e. Describe Replication in prokaryotes.

Q.5: Attempt any two of the following:**(10x2=20)**

- a. What are amino acids? Explain classification and Properties of Amino acid.
- b. Explain beta oxidation of fatty acid.
- c. What do you mean by enzymes? Explain factors affecting enzyme activity.

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M.Sc. Medical Laboratory Technology (MMLT-104) Ist Semester Ist Year

Time: 3 Hours

Max. Marks: 70

Note: All questions are compulsory. Make diagrams wherever required.

Subject: Physiology

Q1. MCQs. Attempt all. Select the correct choice as applicable.

2 Mark each (2x2=4)

- a. In cross matching before blood transfusion:
 - i. Donor's RBCs are mixed with recipient plasma
 - ii. Donor's RBCs are mixed with recipient RBCs
 - iii. Donor's plasma is mixed with recipient RBCs
 - iv. Donor's plasma is mixed with recipient plasma
- b. Glucagon is not normally found in the -----
 - i. Brain
 - ii. Pancreas
 - iii. Gastrointestinal tract
 - iv. Adrenal glands

Q2. Fill in the blanks. Attempt all.

2 Marks Each (2x3=6)

- a. Glucose reabsorption occurs in the of nephron.
- b. Failure of descent of testis is called
- c. Intrinsic factor is required for the absorption of

Q3. Write True or False. Attempt all.

2 Marks Each (2x2=4)

- a. Steatorrhea occurs due to the deficiency of pancreatic enzymes,
- b. Normal respiration is called Eupnoea.

Q4. Attempt any two of the following:

5 Marks Each (5x2=10)

- a. Discuss the composition & functions of bile.
- b. Enumerate the hormones secreted from pituitary gland. Add a note on actions of Growth hormone.
- c. Describe the conducting system of heart with an emphasis on origin & spread of cardiac impulse in the heart.

Q5. Attempt any one of the following:

10 Marks Each (10x1=10)

- a. Describe the Menstrual cycle and hormones regulating it.
- b. Enumerate the muscles of respiration. Explain the structure and functions of the respiratory membrane.

Subject: Human Anatomy

Q1. MCQs. Attempt all. Select the correct choice as applicable.

2 Mark each (2x3=6)

- c. All are synovial joints except
 - iii. Knee joint
 - iv. Xiphisternal joint
 - iii. Wrist joint
 - iv. Sternoclavicular joint

- d. All are parts of axial skeleton except
 ii. Mandible
 iii. Sternum
 iii. Clavicle
 iv. Hyoid bone
- e. Pituitary gland secretes all hormones except
 i. Growth hormone
 ii. Insulin
 iii. FSH
 iv. ACTH

Q2. Fill in the blanks. Attempt all.

2 Marks Each (2x3=6)

- d. The lower end of spinal cord is at the level of.....vertebra.
 e. The function of gall bladder isof bile.
 f. The parts of fallopian tube are intramural, isthmus, ampulla and

Q3. Write True or False. Attempt all.

2 Marks Each (2x2=4)

- c. Median cubital vein is used for withdrawal of blood sample.
 d. Jejunum is the longest part of small intestine.

Q4. Attempt any two of the following:

5 Marks Each (5x2=10)

- d. Describe the structure of right atrium.
 e. Write a short note on deltoid muscle
 f. Classify epithelium. Give one example of each type.

Q5. Attempt any one of the following:

10 Marks Each (10x1=10)

- c. Describe respiratory system under following headings:
 -Parts
 -Microscopic structure of lungs
 -Bronchopulmonary segments
 d. Name different endocrine glands. Describe in detail anatomy of thyroid gland.

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M.Sc. Medical Laboratory Technology (MMLT) Ist Year Ist Sem**Biostatistics & Computational Skills****Time: 3 Hours****Max. Marks: 70****Note: All questions are compulsory. Make diagrams wherever required.****Section-A****Subject: Computational Skills****Q1. MCQs. Attempt all. Select the correct choice as applicable.****2 Mark each (2x3=6)**

- a. Which of the following is the product of data processing
 i. Information ii. Software Program iii. Data iv. System
- b. The process of putting data into a storage location is called
 i. Reading ii. Controlling iii. Writing iv. Handshaking
- c. The process of copying data from a memory location is called
 i. Reading ii. Controlling iii. Writing iv. Booting

Q2. Fill in the blanks. Attempt all.**2 Marks Each (2x3=6)**

- a. -----Is known as a main memory.
- b. Program which acts as a interface between a user and the hardware is called -----
- c. Smallest Quantum of data is -----

Q3. Write True or False. Attempt all.**2 Marks Each (2x2=4)**

- a. The word bit is the short form of Binary Digit
- b. Fourth generation computer use integrated circuits

Q4. Attempt any two of the following:**5 Marks Each (5x2=10)**

- a. Write difference between RAM ROM and cache.
- b. Draw a neat and clean table to represent generations of computer
- c. What Explain what is number system also discussed about machine language in brief.

Q5. Attempt any one of the following:**10 Marks Each (10x1=10)**

- a. Discuss what is a network explain in brief? Also CONVERT the following BINARY value in hexadecimal.(11010011)₂
- b. Write some advantages and disadvantages of using traditional file system. Also Discuss about LAN MAN and WAN.

Section-B**Subject: Biostatistics****Q1. MCQs. Attempt all. Select the correct choice as applicable. 2 Mark each (2x2=4)****a. In a symmetrical distribution, the mean value is 30 and median value is 30. The value of mode can be:**

- (i) 60 (ii) 0 (iii) 30 (iv) 15

b. Out of 11 births in a hospital, 5 babies weighed over 2.5 kg and 5 weighed less than 2.5 kg. What value does 2.5 represent?

- (i) Median average (ii) Arithmetic average (iii) Mode (iv) Geometric average

Q2. Fill in the blanks. Attempt all. 2 Marks Each (2x2=4)

The following numbers give the incubation period in days in ten consecutive patients of infectious hepatitis: 26, 22, 36, 15, 27, 19, 24, 18, 23, 25. The mean is.....

b. The total area under normal curve is

Q3. Write True or False. Attempt all. 2 Marks Each (3x2=6)

- Chi Square test is a distribution free test.
- Mean, Median and Mode are measures of dispersion.
- If level of significance is 0.05 then Type I error will be 0.95.

Q4. Attempt any two of the following: 5 Marks Each (5x2=10)

- Write note on Hypothesis Testing.
- Write Note on Normal Distribution.
- Differentiate paired and unpaired t test.

Q5. Attempt any one of the following: 10 Marks Each (10x1=10)

a. What is sampling? Enumerate techniques.

b. Two types of chemical solutions(A & B) were analyzed for acidity of solution PH. Analysis shows the following results. Are the PH levels different between solution's A & B?

Growth Status	Result of Exposure	
	Sample A	Sample B
Sample size	6	5
Mean	7.5	7.2
SD	0.024	.032

($t_{0.05,9} = 2.262$)