August, 2015

STATE MEDICAL FACULTY OF WEST BENGAL

Preliminary Examination For Diploma in Medical Laboratory Technology : DMLT (Tech) Course

PAPER – I : PATHOLOGY [Clinical Pathology & Haematology]

Time :2 Hours Full Marks - 35

:GROUP A : ANSWER ANY TWO OUT OF THE FOLLOWING 3 QUESTIONS:- {2X10=20}

Q1. Mention different methods of E.S.R. estimation and describe the method most commonly used in a laboratory. What are the causes of increased E.S.R.?
3+4+3 = 10

Q2. Describe the process of semen analysis. State morphological abnormalities of sperm with labeled diagram. What is the range of normal sperm count?
5+4+1 = 10

Q3. How cell count and cell type are done in a sample of C.S.F.? How will you differentiate Tubercular and pyogenic meningitis by laboratory tests?
5+5 = 10

:GROUP B : WRITE SHORT NOTES ON ANY TWO OF THE FOLLOWING:- {2X5=10}

A. Reticulocyte count
B. Bone marrow aspiration needle
C. Occult blood test in urine.

:GROUP C : ANSWER ALL 5 QUESTIONS:- {5X1=5}

1. Hypersegmented Neutrophil in blood smear is suggestive of:
   a) Iron deficiency
   b) Vitamin C deficiency
   c) Vitamin B12/Folic Acid deficiency
   d) Protein deficiency

2. Oxalate crystals are found in:
   a) Acidic Ph
   b) Alkaline Ph
   c) Neutral Ph
   d) None

3. Albumin in urine is detected by:
   a) Heat and Acetic acid test
   b) Heller's Nitric acid test
   c) Sulphosalicylic acid test
   d) All of them

4. Bilirubin in urine is increased in:
   a) Haemolytic jaundice
   b) Obstructive jaundice
   c) Both
   d) None

5. Basophil count is increased in:
   a) CML
   b) AML
   c) CLL
   d) ALL.

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PAPER – II : MICROBIOLOGY
[General Bacteriology, Systemic Bacteriology, Immunology & Serology, Clinical Bacteriology]

Time :2 Hours Full Marks - 35

:GROUP A :

ANSWER ANY TWO OUT OF THE FOLLOWING 3 QUESTIONS:- {2X10=20}

Q1. a) How will you prepare a smear from CSF for gram staining?

b) Write down the morphology of streptococcus pneumoniae and Neisseria meningitidis after gram staining with diagram.

4+6 = 10

Q2. How will you –

a) perform the slide coagulase test?
b) Collect throat swab from a child?
c) Perform hanging drop preparation in the laboratory?

3+3+4 = 10

Q3. How will you –

a) prepare oxidase reagent?
b) Perform oxidase test?
c) Do interpretation of oxidase test with example.

3+4+3 = 10

:GROUP B :

Q4. Write Short Notes on: 2x5 = 10

A. RPR Test
B. Mantoux Test

:GROUP C :

Q5. Answer the following:- 5x1 = 5

1. Clostridium tetani is sporing/non-sporing/capsulated/non-motile gram positive bacilli.
2. Pressure of Autoclave is 15 pound per square inch/15 lb per square cm/15 kg per square inch/15 lb per square foot.
3. Blood agar is enrichment/enriched/selective/basal media.
4. Antibody which cross the placental barrier is IgG/IgM/IgA/IgD.
5. BCG Vaccination is against Tuberculosis/Pertussis/Cholera/Diphtheria.

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PAPER – III
BIOCHEMISTRY

Time :3 Hours Full Marks (Part-IIIA : 20 + Part-IIIB : 50)=70

Part IIIA and Part-IIIB are to be answered in separate Booklets

PART – III A

[ELEMENTARY PRINCIPLES OF CHEMISTRY, PHYSICAL CHEMISTRY, ORGANIC CHEMISTRY AND ELEMENTARY BIOCHEMISTRY]

-:Attempt All Questions:-

Q1. a) Write a note on Electrical and Chemical hazards in a laboratory. What measures (atleast two) must you take to avoid these two hazards? 2+2 = 4

b) What do you mean by "10% Solution of Sucrose"? 2

Q2. Define Buffer. State two suitable examples of Buffer. 2+2 = 4

Q3. Write Short Notes on (**Any Three**):- 3x2 = 6

a) Colloid and crystalloid
b) Reducing Sugar
c) Amino acid
d) DNA

Q4. Write down the procedure of venous blood collection. 4

See overleaf

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PAPER – III
BIOCHEMISTRY

PART III B

[PRINCIPLES OF COMMON CLINICO-BIOCHEMICAL METHODS]

(Q1, Q2 & Q3 are Compulsory)

Q1. Comment on the following statements (**True/False**): 5x1=5

a) White Plastic bags are used in laboratory to dispose blood.
b) Rothera's test gives positive result if urine contains acetic acid.
c) Glycine is an amino acid.
d) Glucose is a normal constituent of urine.
e) Radio immuno assay uses radioactive isotopes.

Q2. Write down the S.O.P. of a Centrifuge machine. What is hemolysis? How does it affect laboratory results? (atleast two examples)
6+2+2 = 10

Q3. Write short notes on (**Any Three**):- 3 x5 = 15

a. Standard Curve
b. Chromatography
c. pH Meter
d. Incubator

(Answer any <u>Two</u> from Q4, Q5 & Q6)

Q4. Write in brief the procedure of Serum Electrophoresis. Draw a diagram showing electrophoretic separation of proteins. What are the functions of Serum Albumin (atleast two).
6+2+2=10

Q5. Describe different parts of a Coloriemeter. Name two instruments based on Coloriemetric principle. Define Primary Standard Solution.
6+2+2 = 10

Q6. Describe the procedure of Serum Sodium and Potassium estimation. Mention normal range for both. What is hypokalemia?
6+2+2 = 10

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August, 2014

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PAPER – III
BIOCHEMISTRY

PART III B
:PRINCIPLES OF COMMON CLINICO-BIOCHEMICAL METHODS.

(Q1, Q2 & Q3 are Compulsory and Answer any Two from Q4, Q5 & Q6)

Q1. Answer True or False (Overwriting will be taken as wrong answer): 5x2=10

a) Sulpher is an important constituent of protein.
b) Cellulose acetate paper is used for thin layer chromatography.
c) Hyponatremia is a condition where plasma sodium is low.
d) Apoenzyme + Holoenzyme = Coenzyme.
e) Sucrose and lactose both are reducing sugar.

Q2. Write down the Standard Operating Procedure for Spectrophotometer and Electric Balance.

6+4 = 10

Q3. What are the preanalytic variations that can affect test result of blood glucose, blood urea and uric acid? How can a pipette of 1000ml be calibrated in the laboratory? What precaution should you take for drawing blood secimen for calcium?

6+2+2=10

Q4. What do you understand by the term "Arterial blood Gas"? How is an arterial sample sent? State with normal value the importance of pO_2, pCO_2 and pH.

1+3+6 = 10

Q5. Describe the tests to detect –

a. Urinary glucose
b. Ketone bodies in urine
c. Blood in urine with their interpretation

10

Q6. How do you prepare standard curve of protein by Biuret method? Write with diagram the procedure of making a Standard Curve.

10

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