

BANKIM SARDAR COLLEGE

Semester IV Examination 2020

B.Sc Honours

SUB : ZOOLOGY

PAPER : **ZOOA-CC-9**

Answers of each group should be in separate answer-sheet

ANSWER Q.1, Q.2 AND Q.3 COMPULSORILY AND ANY SIX FROM THE REST

Time : 2 hours

Total marks 90

GROUP A (1x10 =10 marks)

Q.1.i) Oxygen binds irreversibly with haemoglobin. How many millilitres of Oxygen binds to each gram of Hb?

- a) 1.50 gm b) 1.34 gm c) 2.03 gm d) none of them

Q.1.ii) During early embryonic development, the erythroid progenitor cells give rise to erythrocytes and macrophages. Where do these erythroid progenitor cells first appear in the embryo?

- a) Thymus b) bone marrow c) developing liver of the embryo d) embryonic yolk sac

Q.1.iii) Which property is common to the following - Thrombomodulin, Protein C and S, Plasminogen and Heparin?

- a) They are all Thrombogenic
b) All of these are antithrombogenic
c) They are haematopoietic
d) None of the above

Q.1.iv) What is the relationship between platelet count and plasma thrombopoietin levels?

- a) Platelet count is inversely related to thrombopoietin levels
b) Platelet count is directly related to thrombopoietin levels
c) There is no relation between them
d) Platelet count increases with decrease in the megakaryocytes

Q.1.v) If an antigen is present on a patient's RBC, then its corresponding antibody must be present in his plasma, under normal conditions. What is this law called?

- a) BLOOD GROUPING LAW
- b) LANDSTEINER'S LAW
- c) ANTISERA LAW
- d) ANTIGEN-ANTIBODY REACTION

Q.1.vi) The R-state of haemoglobin becomes fully oxygenated in a sequential mode of co-operativity. What is this hypothesis called?

- a) KOSHLAND'S HYPOTHESIS
- b) BOHR AND HALDANE EFFECT
- c) CHLORIDE SHIFT
- d) HAMBURGER'S PHENOMENON

Q.1.vii) Which of the following statements is true for T-form of Hb?

- a) It has low affinity for OXYGEN
- b) Low pH causes T form to release oxygen
- c) High temperature and high 2,3,BPG levels cause T form to release oxygen
- d) All of the above

Q.1.viii) Which enzymes are responsible for formation of antigen A or B from H antigen?

- a) Methyltransferases
- b) Ethyltransferases
- c) Glucosyltransferases
- d) Glycosyltransferases

Q.1.ix) Choose which of the following blood coagulation factors are Vit.K dependent?

- a) F-X
- b) F-IX
- c) F-VII
- d) F-II
- e) All of these

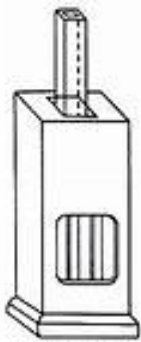
Q.1.x) In addition to Thrombopoietin, which Cytokine influences formation of megakaryocyte formation?

- a) IL - 17
- b) IL - 10
- c) SDF - 1
- d) none of these

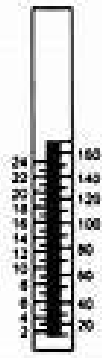
GROUP B(10x3 = 30 MARKS)

Q.2) A) i) WRITE THE PRINCIPLE OF ESTIMATION OF HAEMOGLOBIN CONTENT IN BLOOD USING SAHLI'S HAEMOGLOBINOMETER. (3)

Q.2)A) ii) IDENTIFY AND APPROPRIATELY LABEL THE PARTS OF APPARATUS GIVEN BELOW. (4)



A.



B.



C.



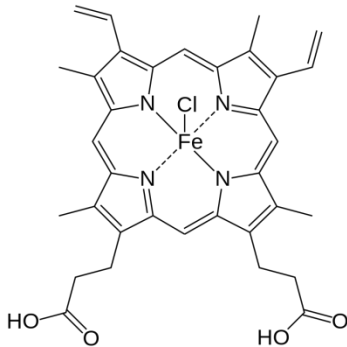
D.

Q.2) A) iii) WHAT IS MABP ?

(3)

Q.2) B) i) IDENTIFY THE GIVEN MOLECULE. WRITE ITS CHEMICAL FORMULA.

(2)



Q.2) B) ii) LABEL THE SPECIFIED PARTS OF DIGITAL BLOOD PRESSURE MONITOR UNIT GIVEN BELOW.

(2)

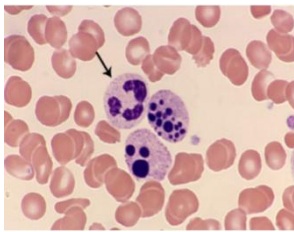


Q.2) B) iii) IDENTIFY THE COMPONENT IN THE GIVEN SLIDE. WRITE A NOTE ON ITS APPLICATION . (1+3)

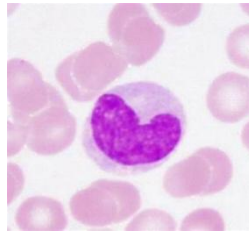


Q.2) B) iv) WRITE THE PRINCIPLE OF ABO BLOOD GROUPING. (2)

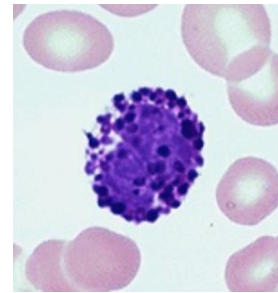
Q.2) C) i) IDENTIFY AT LEAST TWO TYPES OF BLOOD CELLS PROVIDED IN THE GIVEN SLIDES AND WRITE AT LEAST TWO CHARACTERISTIC FEATURES FOR EACH. (2^{1/2} x 2 = 5)



A.

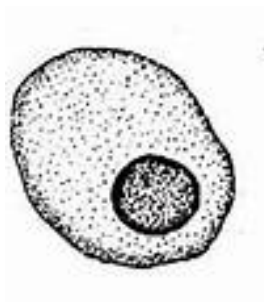


B.

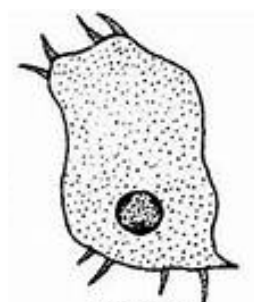


C.

Q.2) C) ii) IDENTIFY THE FOLLOWING TYPES OF COCKROACH HAEMOCYTES AND WRITE THEIR IDENTIFYING CHARACTERS. (2^{1/2} x 2 = 5)



(A)



(B)

GROUP C – 50 MARKS

Q.3 (10x2 = 20 MARKS) AND Q.4 TO Q.11 – ANY SIX (6x5 = 30 MARKS)

Q.3. i) GFR

ii) HAEMOGLOBIN AND HAEMOCYANIN

iii) FILTERATION MEMBRANE

iv) CARDIOMYOCYTE

v) CARDIAC OUTPUT

vi) BASIC STRUCTURE OF THE WALL OF MAMMALIAN ALIMENTARY CANAL.

vii) WHAT ARE ANTI-COAGULANTS?

viii) WHAT IS HALDANE EFFECT?

ix) CHLORIDE SHIFT

x) TIDAL VOLUME

Q.4. DISTINGUISH BETWEEN 'R' AND 'T' FORMS OF HAEMOGLOBIN.

Q.5. DISCUSS THE MECHANISM OF CARBOHYDRATE ABSORPTION IN SMALL INTESTINE.

Q.6. ELUCIDATE THE PROCESS OF CARBON-DIOXIDE TRANSPORT IN THE FORM OF BI-CARBONATE IONS WITH PROPER ILLUSTRATIONS.

Q.7. EXPLAIN BLOOD COAGULATION ACCORDING TO CASCADE HYPOTHESIS OF McFARLANE.

Q.8. WHAT IS CARBON MONOXIDE POISONING?

Q.9. WHAT IS THROMBOPOIESIS? EXPLAIN ITS REGULATION.

Q.10. WRITE A NOTE ON THE ORIGIN OF CARDIAC IMPULSE AND ITS PROPAGATION ACROSS A MAMMALIAN HEART.

Q.11. HOW DOES ERYTHROPOIETIN PLAY A ROLE IN ERYTHROPOIESIS? WHAT IS ERYTHROBLASTOSIS FOETALIS?