[9/3, 14:28] +254 729 715109: REGISTRATION EXAMINATIONS NOVEMBER 2015 SERIES
DIPLOMA LEVEL
THEORY PAPER 2
HAEMATOLOGY (DT 03)
DATE: 20/11/2015
DAY: FRIDAY
TIME ALLOWED: 1 HOUR
IMPORTANT INSTRUCTION:
- GUESS WORK WILL ATTRACT A HALF A MARK PENALTY
- ANSWER ALL QUESTION IN THE ANSWER BOOKLET
MCQ SECTION A: 20 MARKS
1. The organ responsible for formation of blood at
mesoblastic phase is:
1. Spleen
1. Bone marrow
2. Lymph tissue
3. The mesenchyme tissue (yolk sac)#
1. The following is a diluting fluid for platelet count:
1. Drabkins solution
1. 0.04 % ammonia
2. Baar’s fluid#
3. 0.1 NHCI
1. The following is an example of a supravital stain for
reticulocyte
count:
1. Methyl green
1. Brilliant Cresyl blue#
2. Heller’s stain
3. Methyl red
1. Hb x 100 is the formula for:
PCV
1. MCH
2. MCV
3. MCHc#
4. MCD
1. The test for Fibrinogen function is called:
1. Thrombin time
1. Clotting time
2. Bleeding time
3. Osmotic fragility test
1. The following is an enzyme based anticoagulant:
1. Sodium citrate
1. Ammonium oxalate

2. Heparin:#
3. EDTA
1. The best anticoagulant for coagulation studies is:
1. Heparin
1. Sodium citrate#
2. Sodium fluoride
3. EDTA
1. Rouleaux formation may be seen in the following conditions:
1. Multiple myeloma:#
1. Aplastic anaemia
2. Beta thalassaemia
3. Megaloblastic anaemia
1. The bleeding time test measures:
1. Platelet function
1. Common pathway
2. Intrinsic pathway
3. Extrinsic pathway
1. A patient’s RBC count = 3.00 million/cmm. If the red cells are normal
in size and in haemoglobin content, what are the approximate haemoglobin
and haematocrit values?
1. 9.00 million/cmm, 27.00 million/cmm
1. 6.0 g/dl and 27.0%
2. 9.00g/dl and 27/mm3
3. 9g/dl and 27%#
1. The major advantage of automated cell counting as opposed to manual
cell counting are the following EXCEPT:
1. A smaller sample is required
1. The pipetting is more accurate
2. A greater number of samples are analyzed at a time
3. The reagents cost is expensive#
1. Which of the following parasites can be found in peripheral blood
films?
1. Trichmonas Vaginalis
1. Trichmonas hominis
2. Microfilaria:#
3. Schistosomes
1. Carboxyhaemoglobin comes about as a result of the combination of:
1. Hemoglobin and Oxygen

1. Haem and Oxygen
2. Carbon dioxide and Oxygen
3. Carbon monoxide and Hemoglobin#
1. Acquired abnormalities found in WBCs commonly seen in blood films are:
1. Dohle bodies
1. Howell jolly bodies
2. Barr bodies#
3. Acanthocytes
1. E.S.R. may increase in the following conditions?
1. Sickle cell disease
1. Polycythaemia Vera#
2. Haemoconcentration
3. Tuberculosis
1. A red blood cell which is characterized by tactoid appearance is:
1. Burr cell
1. Sickle cell
2. Target cell
3. Amato cell
1. Packed cell volume(PCV) results may be used in the calculation of:
1. RBC#
1. Platelet count
2. Haemoglobin value
3. WBC

SECTION B: ESSAY QUESTIONS (30 MARKS)

1. With examples, describe anticoagulants used in haematology laboratory.
(10 marks)
(5 marks)
1. Discuss in detail the cyanmethaemoglobin method.
(10 marks)

REGISTRATION EXAMINATIONS NOVEMBER 2015 SERIES
DIPLOMA LEVEL
THEORY PAPER 2
BLOOD TRANSFUSION SCIENCE (DT 04)
DATE: 20/11/2015
DAY: FRIDAY
TIME ALLOWED: 1 HOUR
IMPORTANT INSTRUCTION:
- GUESS WORK WILL ATTRACT A HALF A MARK PENALTY
- ANSWER ALL QUESTION IN THE ANSWER BOOKLET

SECTION A: MCQ 20 MARKS

1. Antibodies that do NOT cause agglutination of cells are:
1. Complete antibodies
1. Sensitizing antibodies
2. Regular antibodies
3. Saliva agglutinins

1. 22% Bovine albumin is added to the test in order to:
1. Lower the di-electric constant
1. Increase the repulsion between the red cells
2. Increases the zeta-potential
3. Decrease the zeta potential#

1. Pre-treatment of red blood cells with enzymes:
1. Increases the charged particles
1. Exposes the antigenic sites on the Rbcs
2. Digests the red blood cells membrane exposing the antibodies
3. Preserves antigenic sites

1. The following parents can give rise to offspring of all the four ABO blood groups:
1. Group A and B parents
1. Group B and AB parents
2. Group A and AB parents
3. Group AB and O parents

1. The precursor substances is first acted upon by:
1. A gene
1. O gene
2. B gene
3. H gene#

1. Bombay phenotype individuals:
1. Have antigens A and B in their red blood cells
1. Have antibodies A and B only in serum
2. Lack ABO antibodies only in serum
3. Are universal recipients

1. An individual grouped as Du positive?
1. Is rhesus negative
1. Lacks all rhesus antigens
2. Is rhesus null phenotype
3. Is rhesus positive

1. A cross-match will:
1. Prevent immunization
1. Detect errors in ABO-typing
2. Guarantee normal survival of donors rbcs in the recipient

3. Not detect errors in ABO grouping
1. Rhogam:
1. Is a purified gamma D globulin
1. Is a purified gamma E globulin
2. Coats the maternal red blood cells
3. Lyses the maternal red blood cells
1. Substances that are capable of reacting with an antibody but does not
stimulate antibody formation are called:
1. Carrier molecule
1. Hapten
2. Immunogen
3. Carbohydrate
1. The best storage temperature for donated blood awaiting crossmatch is:
1. 0 – 100 C
1. 18 – 250C
2. 20 – 240 C
3. 2 – 80C
1. Rhesus null red cells:
1. React with all rhesus antibodies
1. React with anti-D only
2. Are commonly found in Africans
3. May exhibit stomatocytosis
1. Cells are washed to:
1. Make them clean
1. Avoid Haemolysis
2. Remove unwanted proteins
3. Avoid Agglutination
1. Anti-H can be prepared from phytoagglutinin:
1. Iberis amara
1. Dolichos biflorus
2. Vicia graminea
3. Ulex europeaus
1. The purpose of reverse grouping is to check:
1. Antigens in red blood cells
1. Agglutinins in serum
2. Agglutinins in plasma
3. Agglutinins in red blood cells
1. The following fact refers to complements:
1. Can be preserved at -50 for a maximum of 48 hours
1. Can be destroyed by heating at 560C or above
2. Promote inflammatory response
3. Are not found in fresh normal plasma

1. Indirect coomb’s test detects:
1. Maternal antibodies in HDNB
1. Paternal antibodies in HDNB
2. Foetal antigens
3. Maternal antigens
1. The most reliable grouping technique is:
1. Slide method
1. Micro-well method
2. Tile method
3. Tube method
1. Anti human globulin’s is obtained from:
1. Immunized mothers
1. Bovine
2. Hybrid rabbit
3. Lectins
1. Pyrogens are mostly the common causes of :
1. Toxicity
1. Allergic reactions
2. Anaphylactic reactions
3. Febrile reactions

SECTION B: ESSAY QUESTIONS (30 MARKS)

1. Explain five (5) reasons for washing of red blood cells (RBCs) during cross-matching of blood for transfusion. (10 marks)
1. Explain the different phases of the crossmatch technique. (10 marks)

REGISTRATION EXAMINATIONS NOVEMBER 2015 SERIES

DIPLOMA LEVEL

THEORY PAPER 3

CLINICAL CHEMISTRY (DT 02)

DATE: 20/11/2015

DAY: FRIDAY

TIME ALLOWED: 1 HOUR

IMPORTANT INSTRUCTION:

- GUESS WORK WILL ATTRACT A HALF A MARK PENALTY
- ANSWER ALL QUESTION IN THE ANSWER BOOKLET

SECTION A: MCQ 20 MARKS

1. The following anticoagulant binds calcium:
1. Sodium phosphate
1. EDTA
2. Heparin
3. Sodium citrate

1. The following is a product in glucose oxidase method:
1. Glucoronic acid
2. Peroxidase
3. Hydrogen peroxide
4. Chromogen system
1. The colour of urine is due to:
1. Glucose
2. Urea
3. Urochrome
4. Creatinine
1. Molar solution is made up of:
1. One mole substance/litre of solution
2. One mole substance /litre of solvent
3. One mole substance/litre of solute
4. One gram molecular mass of solute/litre of solution
1. A colorimeter is an instrument for measuring:
1. Scattered light
2. Absorbed light
3. Polarised light
4. Incidental light
1. One function of the liver is to:
1. Conjugate bilirubin
2. Digest protein
3. Synthesize and digest glucose
4. Digest fatty acids
1. One principal of chromatography is:
1. Cohesion
2. Adsorption
3. Adhesion
4. Absorption
2. A condition likely to lead to ketosis is:
1. Anaemia
2. Anuria
3. Diabetes mellitus
4. Diabetes insipidus
1. Surface tension of urine is lowered by:
1. Glucose
2. Chlorides
3. Fructose
4. Bile salts
1. Fluoride is used for:
1. Promoting glycolysis
2. Preventing glycolysis
3. Preventing glucogenesis

4. Enhancing blood clotting
1. The chief organic urinary constituent is:
1. Urea
2. Uric acid
3. Creatine
4. Creatinine
1. Polyuria is defined as:
1. Complete suppression of urine output
2. Decrease in urine output
3. Increased urine output
4. Controlled urine output
1. Blood in urine is termed as:
1. Albuminuria
2. Haemoglobinuria
3. Haematuria
4. Blooduria
1. In obstructive jaundice:
1. Urobilinoen is absent
2. Urobilin is absent
3. Urobilin is present
4. Bile salts are present
1. The following form part of liver function tests:
1. Serum amylase activity
2. Serum cortisol
3. Serum total T3
4. Serum ALP activity
1. The following enzymes are present in pancreatic juice:
1. Histamine
2. Pentagastrin
3. Amylase
4. Insulin
1. The migration of charged particles in an electric field is referred
to as:
1. Electroendosmosis
2. Electrophoresis
3. Electroplating
4. Polarity control
1. C.S.F protein is normally estimated by the following reagents:
1. Concentrated nitiric acid
1. 3% Trichloroacetic acid
2. Bromocresol green (BCG)
3. Albustix strips

1. A 24 hr urine specimen is required for the following test:
1. Urinary bilirubin
2. Amylase
3. Bence Jones proteins
4. Creatinine clearance
1. Laboratory safety standards demand that the following words be written clearly on a bottle containing concentrated sulphuric acid
1. Poison
1. Flammable
2. Corrosive
3. Radioactive

SECTION B: ESSAY QUESTIONS (30 MARKS)

1. With examples describe types of urine preservatives. (10 marks)
2.
1. Outline an Oral glucose tolerance test (OGTT) for an non pregnant adult (10 marks)

REGISTRATION EXAMINATIONS NOVEMBER 2015 SERIES
DIPLOMA LEVEL
THEORY PAPER 3
HISTOPATHOLOGY (DT 05)
DATE: 20/11/2015
DAY: FRIDAY
TIME ALLOWED: 1 HOUR

IMPORTANT INSTRUCTION:
- GUESS WORK WILL ATTRACT A HALF A MARK PENALTY
- ANSWER ALL QUESTION IN THE ANSWER BOOKLET

MCQ SECTION A: 20 MARKS

1. The cellular organelle that is involved in protein synthesis is: -
1. Ribosomes
1. Endoplasmic reticulum
2. Golgi apparatus
3. Lysosome
1. Some of the autolytic changes observed in a cell nucleus include:-
1. Grannulation
1. Fragmentation of nucleus
2. Detachment from basement membrane
3. Desquamation

1. A decalcifying fluid that can be used for bone decalcification and
surface decalcification is:
1. 1% acid alcohol
1. Mollifex
2. Perenyi;s fluid
3. 5 – 10% nitric acid
1. Small specimens and tissues fragments are processed in:
1. Tissue cassettes
1. Tissue baskets
2. Wrapped in lens tissue
3. Embedded in gelatine
1. The process by which tissues are surrounded by a medium to form a
block is called:
1. Impregnation
1. Embedding
2. Fulfitration
3. Vacuum infiltration
1. The staining technique that requires a mordant is:
1. Metallic impregnation
1. Elective solubility
2. Indirect staining
3. Supra vital staining
1. The dehydrating agent that is rapid, efficient and widely applicable
is: -
1. Methanol
1. Butanol
2. Ethanol
3. Isoproparol
1. The following tissues contain acidic radical group EXCEPT:
1. Collagen
1. White blood cells
2. Red blood cells
3. Crannules of eosinophil
1. Benzene compounds which contain chromophore describes: -
1. Chromoropes
1. Auto chrome
2. Chromattin
3. Chromogens

1. Recommended thickness for tissue slices for processing is:-
1. 1 – 3 mm
1. 3 – 5 mm
2. 5 – 8 mm
3. 8 – 10 mm
1. All of the following can convert haematoxylin to haematin in the process referred to as ripening EXCEPT:
1. Sunlight
1. Hydrogen peroxide
2. Sodium iodase
3. Calcium chloride
1. The following are nuclear counter stains EXCEPT:-
1. Orange G
1. Carmime
2. Neutral red
3. Celestine blue
1. Exciter filters are employed in :-
1. Phase contrast microscope
1. Elector microscope
2. Flourescent microscope
3. Dark ground microscope
1. Post chroming can be referred to as: -
1. Restraining
1. Secondary fixation
2. Primary fixation
3. Decolourization
1. An example of a lubricant for hones when sharpening microtome knives is:-
1. Arkansas
1. Aluminium oxide
2. Xylene
3. Paraffin wax

SECTION B: ESSAY QUESTIONS (30 MARKS)

1. List five fixatives that may introduce artifacts in tissue giving their mode of prevention/removal if necessary (10 marks)
2. Give two uses of the following reagents in a histology laboratory:-
1. Ethyl alcohol
2. Picric acid
3. Gelatin

4. Hydrochloric acid
5. Phenol (10 marks)
3. Outline four factors that can influence decalcification
(10 marks)
1.
REGISTRATION EXAMINATIONS NOVEMBER 2015 SERIES
DIPLOMA LEVEL
THEORY PAPER 1
PARASITOLOGY (DT 06)
DATE: 19/11/2015
DAY: THURSDAY
TIME ALLOWED: 1 HOUR
IMPORTANT INSTRUCTION:
- GUESS WORK WILL ATTRACT A HALF A MARK PENALTY
- ANSWER ALL QUESTION IN THE ANSWER BOOKLET
SECTION A MCQ 20 MARKS
1. Which one of the following is a tissue nematode:
1. Strongyloides stercoralis
1. Onchocerca volvulus
2. Necator americanus
3. Toxocara catis
1. The following are true of nematodes EXCEPT:
1. They are dioecious
1. Are cylindrical in shape
2. Have a tough cuticle covering the body
3. They have an incomplete alimentary canal
1. Which one of the following is a flagellate:
1. Balantidium coli
1. Entamoeba histolytica
2. Endolimax nana
3. Giardia lamblia
1. The following parasite thrives well in the media of pH
range 5.4 to
6.0:
1. Trichomonas vaginalis
1. Plasmodium falciparum
2. Trypanosoma gambiense
3. Toxoplasma gondii
1. The larval stage of parasites capable of penetrating
human skin is:
1. Rhabditiform
1. Microfilaria
2. Plerocercoid
3. Filariform

1.
2. Which of the following is a facultative parasite:
1. Strongyloides stercoralis
1. Schistosoma japonicum
2. Trichinella spiralis
3. Brugia malayi
1. The trematode called Heterophyes heterophyes is also known as:
1. Dwarf fluke
1. Chinese liver fluke
2. Oriental lung fluke
3. Lancet fluke
1. The following parasite infection is transmitted by eating larvae in
raw or semi-cooked meat:
1. Trichuris trichiura
1. Capillaria hepatica
2. Trichinella spiralis
3. Necator americanus
1. The name whipworm is applicable to the following parasite:
1. Enterobius vermicularis
1. Trichinella spiralis
2. Ascaris lumbricoides
3. Trichuris trichiura
1. The following are referred to as quantitative technique:
1. Formal ether method
1. Direct eosin method
2. Stoll’s dilution method
3. Zinc sulphate method
1. Visceral larvae migrans is a term used to describe human infection
with the following helminth larvae:
1. Ancylostoma caninum
1. Angiostrongylus cantonensis
2. Toxocara cati
3. Strongyloides stercoralis
1. The negative reaction to Ziehl-Neelsen stain will occur with the
following eggs:
1. Schistosoma haematobium
1. Schistosoma mansoni
2. Schistosoma japonicum
3. Schistosoma intercalatum

1. A good insecticide should:
1. Be easy in application
1. Toxic to the arthropods
2. Be a residue insecticide
3. Be oil based
1. An insect that is hairy, has long legs and holds its wings erect
when resting is:
1. Anopheles species
1. Phlebotomus species
2. Glossina species
3. Culicoides species
1.
20. In the advent of HIV, which of the following parasites has become very
important in causing diarrhoea?
1. Entamoeba histolytica
2. Cryptosporidium hominis
3. Giardia lamblia
4. Trichomonas hominis
SECTION B: ESSAY QUESTIONS (30 MARKS)
1. Describe the prevention and control measures applicable against
intestinal parasites. (10 marks)
1.
3. Briefly describe the lifecycle of Plasmodium falciparum (10 marks)
REGISTRATION EXAMINATIONS NOVEMBER 2015 SERIES
DIPLOMA LEVEL
PRACTICAL PAPER (DT 07)
DATE: 23/11/2015
DAY: MONDAY
TIME ALLOWED: 3 HOUR
IMPORTANT INSTRUCTIONS:
- ANSWER ALL QUESTIONS
- DO NOT DISCARD YOUR WORK
- ANSWER ALL QUESTIONS ON THE ANSWER BOOKLET
1. You are provided with a CLED agar plate marked ‘U’ with an overnight
culture of urine specimen from a patient with urethral tract infection
(UTI). With the materials and reagents provided, identify the organism as
far as the genus level. Brief procedures are required.

(30
marks)
2. You are provided with a urine specimen labelled ‘C’. With the
reagents and apparatus provided detect any abnormalities: Report and
comment on your findings .
(30 marks)
1. You are provided with sequestrenated blood sample ‘B’, reagents and
apparatus. Perform a reticulocyte count. Comment on your results. (30
marks)
1. You are provided with blood specimens ‘V’ and ‘W’. Using the reagents
and apparatus provided perform forward grouping on the two specimens. What
quality control measures did you observe? Comment. (30 marks)
2.
a) You are provided with a paraffin wax section on a microscope slide
marked ‘X’. Stain it using haemotoxylin and eosin staining method. Write
down the staining procedure and the expected results.
(22 marks)
b)
SPOT I
1. Give its use in a histology laboratory
2. Name an alternative reagent for its use. (4
marks)
SPOT II
i) Identify the spot
ii) Give its application in histology (4 marks)
1. You have been provided with a blood specimen labeled ‘P’. Prepare a
thick and a thin smear and stain using the reagents and apparatus
provided. Examine both smears and report on your findings. Comment on the
quality control measures you would observe to ensure quality results.
(21 marks)
SPOT III:

1. Identify the
spot
(2 marks)
2. State its use in parasitology
(1 mark)
3. What precaution should be taken when using
it? (2 marks)
SPOT IV
1. Identify the
spot
(1 mark)
Para. Life cycle of T. cruzy 20mk wth other small definitions
Histo. Gram's weigert staining 20mk wth other small definitions.
Haema. Calculation of RBC indices ie MCV, MCH and MCHC given values Hb, PCV n RBC counts 20 mks
BT fishers conversations of rhesus antigens n others
Chem. Principle n procedure of the tests
Sackles
Jaffe
Biurets
Uricase
Micro . Indore n Uricase