

APGAR 2  
w. d. i. - infant  
supp. h.  
V. 103  
V. 104  
1. 104  
AISHAH ①

SECTION 1: ESSAYS

1 NEONATAL

A. You receive a newborn aged 2 hours who is reported to have had an APGAR score of 2 and 3 at 1 and 5 minutes respectively. Outline the management steps. (10 Marks)

B. Briefly describe the essential components in the management of Respiratory Distress Syndrome in a 30 week gestation newborn. (10 Marks)

PAPY  
cells  
crackles  
intubation + medical ventilation  
check structure

2 CHILD HEALTH

A. List and briefly explain the strategies of preventing pneumonia. (10 Marks)

B. Several children are admitted in your district hospital with fever, maculo-papular rashes and respiratory symptoms. Briefly outline the essential components of the necessary response. (10 Marks)

ever have  
in prevention  
- R. m. f. c.  
Septic  
transmission

3 EMERGENCY PAEDIATRICS

A. Briefly describe the Emergency Triage and Treatment procedure. (10 Marks)

B. A seven year old child on follow-up for insulin dependent diabetes is admitted in delirious state. The blood sugar is beyond the upper level. Describe the 1<sup>st</sup> 5 steps in the management of this child. (10 Marks)

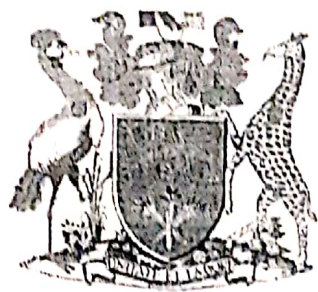
- Del. c  
- HyperG  
- Acidosis  
- Electrolyte imbalance  
KCl's KPO4  
- Admit  
- Assess A, B, C  
- Test blood sugar. If it's high, stop  
Del. c (1<sup>st</sup> hr. - 10 @ 1hr)

4 INFECTIOUS DISEASES

A. Outline the management of a child who presents with a temperature 38.9°C and chills. The child looks pale and has respiratory distress. He had travelled to Kisumu 10 days earlier. (10 Marks)

B. Define Pyrexia of undetermined origin and list (including one example for each) the groups of disorders that commonly cause it. (10 Marks)

EBF  
Con. infection  
HAP  
H. a. v. s. g.



UNIVERSITY OF NAIROBI  
DEPARTMENT OF PAEDIATRICS AND CHILD HEALTH  
TERM III MBCHB IV 2011-2012

SHORT ESSAY QUESTIONS

WEDNESDAY 01.08.12

Kulthum Salim

Q1. (a)  
Phototherapy  
Exposure to white or blue light at wavelength of 425-475nm which converts insoluble unconjugated bilirubin to soluble; excreted thru photoreduction of bilirubin  
- structural isomerization  
Distance

A 27 year old G 3 P 2+0 blood group B Rhesus+ve mother who is known to have incompetent cervix gives birth to a male baby at 32 preterm weeks gestation SVD. The baby quickly stabilizes clinically and he is started on breast milk through nasogastric tube by the second day of life. He is also noted to have some yellowness of the body on the same day, which appears increased by day 4 of life - when blood test reveal normal blood count with Hb of 16 gm/ell, normal CRP normal, U/E, bilirubin of 250 μ mol/L, total with Direct of 50 μ mol/L and blood group B Rhesus+ve:  
50 μ x 10<sup>9</sup> 20% Indirect 200  
51 → unconjugated

- (i) State the most appropriate treatment you would commence on him ( 2 marks). - Phototherapy
- (ii) State how the treatment in (i) works ( 6 marks)
- (iii) List the side effects of this treatment ( 8 marks)  
1. loose stools - excretion of bilirubin  
2. dehydration - H<sub>2</sub>O  
3. skin rashes tantrums  
4. hyperthermia  
5. Retinal hemorrhage  
6. injury and top  
7. upsets maternal & clinical  
8. Bronze baby synd  
9. Hypocalcaemia  
10. Hypocalcaemia

(b) A term female baby is born SVD to a mother who had ruptured her membranes two days prior to coming to the hospital. The baby develops lethargy and refusal to feed with tachypnoea on day two of life: NNS

- (i) What is the most likely diagnosis in this baby ( 2 marks)
- (ii) List the likely causes for her illness ( 4 marks). - Bacteria  
H. influenzae
- (iii) State the most appropriate definitive treatment for the baby and the rationale for it (3 marks). Amox for any amniotic infection

Q 2 (a) A six year old boy who has been getting recurrent acute pharyngitis since starting school is reported to be having persistent

mouth breathing with severe snoring during sleep, often associated with periods of apnoea and gasping:

- Adenoid hypertrophy  $\tau/5$  tonsillar hypertrophy
- (i) What is the most likely diagnosis in this boy? (2 marks)
  - (ii) State any THREE ways in which the condition can affect the boy (6 marks)   
 Right ventricular strain  $\Rightarrow$  heart failure  
 speech dept.  
 droopy, unstable or poor psychosocial dept.
  - (iii) What is the definitive treatment? (2 marks)

(b) A ten year old boy who is known to have multiple allergies runs back into the house from the garden where he has been playing with flowers. He is noted to have wheezy breathing and his skin is developing rapidly spreading wheals of itchy urticarial rash. He looks dazed and he is almost aphonic severe.

- (i) What is the most likely diagnosis? (3 marks) Anaphylaxis / severe allergic rxn.
- (ii) What complication may occur in this boy? (3 marks)
- (iii) What were the steps in managing him (5 marks).  $\rightarrow$  anaphylactic.
  1. Remove all clothing
  2. Wash/clean child
  3. Systemic steroids / antihistamines



Scadia (3)

E: M.  
DH (3)

Onset & progression v. fast. Transient.

Asplenectomy. Splen leads later lung & liver. Rapid fall of Hb sh may be path. Exchange transfusion. E subseq. Serial trans. Asymp. 30% mortality. Exchange transfusion. E subseq. Serial trans. Asymp. 30% mortality. Exchange transfusion. E subseq. Serial trans. Asymp. 30% mortality.

**PART II: ESSAYS**

1) Describe the strategies of reducing infant and childhood morbidity and mortality in a community.   
Fetal hydrops due to parvovirus B19. Recovery in 10 days may require transfusion.   
IV hydration removes fluid from cells. Analgesic.

2) Outline the causes and management of acute renal failure - ARF.   
FEMALABS.

3) A three year old child has been living with his grandmother who has open tuberculosis. Discuss the problem this child may have under the following headings:

- a. Clinical presentation
  - Failure to thrive
  - Weight over 20%
  - Reduced activity
  - Cough
  - High fever
  - Wt loss
  - Feeding
- b. Laboratory investigation
- c. Treatment

TB can be blood stream. Difficulty in breathing. Pneumonia chest pain. Lymphadenopathy.

4) List the types of crisis that occur in sickle cell disease and outline clinical presentation and management.

- Vaso-occlusive
  - Aplastic
  - Haemolytic
  - Splenic sequestration
  - (Vascular) - acute chest pain
  - vaso-occlusive
  - aplastic crisis
  - sequestration
  - acute chest pain
  - aplasia
  - hemolytic crisis
  - infarct
  - Leseplian
- Dehydration
- Acidosis
- Deoxygenation
- Infection
- Supportive Conservative
  - Sunlight exposure > 30 min - 1 hr
  - Medicinal
  - Vit B → B2 → Leseplian
  - B3

URICACID

AKI  
U/E/C → Ca<sup>2+</sup>  
Urinalysis  
K/P

ESSAY QUESTIONS:

A two year old presents with three days history of yellow eyes, itchininess and a very poor appetite accompanied by a fever. Discuss

Your differential diagnosis. (9 marks)  
 Laboratory investigations describing how they will help you discriminate between your differential diagnosis. (16 marks)

Write brief outlines on the following:  
 Coag profile, BMA, Liver biopsy

a) How you would clinically assess the function of 5<sup>th</sup> cranial nerve. (12 marks)

b) How you would investigate a child with haemolytic anaemia. (13 marks)

Discuss the differential diagnosis (10 marks) and investigation of a 5 days old neonate with convulsions and feeding difficulties (15 marks).

Outline causes of acute diarrhoea in children (10 marks) and their specific management (15 marks).

Jaundice  
 Hepatitis A, B  
 icteric phase  
 jaundice  
 LFTs → ALT, AST, ALP, GGT, Bilirubin  
 FBC, CXM, Blood culture, Abcd U/L, RBS  
 PBF, SCT, AFP, Urinalysis, ASPT (acute ser)

FBC → PHT → Reticulocyte count  
 Blood smears for malaria  
 - sickle  
 - spherocytes

- 2) GGPDH levels
- 4) Abcd uls - cholelithiasis
- 10) septic screen - TORCHES
- 11) TFT - hypothyroidism

- Blood with
- urine with
- LP
- CSF/ERP, ppxd
- ECG

QUESTION 1

List 5 possible cause (5Marks)

- a) Progression of the disease
- b) Recurrence of rheumatic process (acute on chronic)
- c) Non compliance to medicine (and prophylaxes)
- d) Inter current infections
- e) Infective Endocarditis
- f) Arrhythmias
- g) Concomitant illness e.g. anaemia

Outline the information you would like to obtain from the list ( 7 marks)

- History of upper respiratory tract infection
- History of fever
- Arthralgia and arthritis, especial migratory and the type of joints involved(larger)
- History of chest pains, palpitation, dyspnoea and poor exercise tolerance (suggesting carditis and heart failure)
- History of abnormal, purposeless movement , emotional lability( suggestive of chorea
- History of skin nodules and swelling (and suggest erythema marginatum and subcutaneous nodules)
- History of recent infections dental or surgical procedures to suggest infective endocarditis.
- History of dysuria and frequency to suggest UTI
- Treatment history and compliance to medication and prophylaxis.
- History to suggest heart failure orthopnea, persistent cough, weight gain ,body swelling and abdominal pains.

PART 11

Outline the relevant investigation (6marks)

- (a) Investigation to rule out infective processes and recurrence of ARF

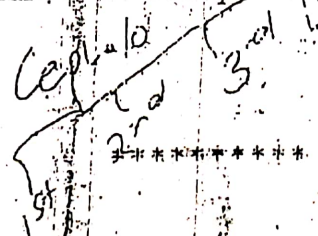
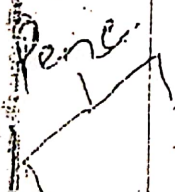
ALIO'S

①

QUESTION 4: Infectious Diseases

- (a) A child who travelled to Western Kenya one week ago comes with a temperature of 39°C. Name the 4 subtypes of the most likely causative organisms starting with the most likely one in this case. Draw the life cycle of this pathogen in humans. (10 Marks)
- (b) A 2 year old child has had a temperature of 38--39°C for 2 weeks despite full course of malaria and antibiotic treatment. The initial lab tests were normal. Briefly describe 5 laboratory test necessary at this treatment. (10 Marks)
- (c) Classify Beta lactam antibiotics used in children giving an example in each group indicating this antibacterial spectrum. (10 Marks)

*Handwritten notes:* JIC 5/10. FHG 2/3



molecular types of vaccines



②

QUESTION 1-Neonatology

- (a) A 6 week old infant whose birth weight was 1.3kg is found wasted, weighing 1.6kg but otherwise well. The haemoglobin is 6.5g/dl. List and explain 3 mechanisms of this condition: VLSD  
Approximate Prem - EDD - Fetal liver (20-25% of body weight),  
Capillary malformation,  
Rapid growth. (10 Marks)
- (b) A baby is born by caesarian section due to obstructed labor. At birth he is well but the head circumference is 48cm. State and explain 3 risk factors for this condition: Hydrocephalus - genetic synd.  
Pre-natal  
in (10 Marks)
- (c) A 4 hour old term newborn has blue extremities, lips and tongue. He is not pale, has normal peripheral circulation and is breathing at a rate of 60/min. Explain the most likely mechanism for this condition. TTN (10 Marks)

mus condition: *Hydrocephalus - genetic* (10 Marks)

(b) A 4 hour old term newborn has blue extremities, lips and tongue. He is not pale, has normal peripheral circulation and is breathing at a rate of 60/min. Explain the most likely mechanism for this condition. *TIN* (10 Marks)

QUESTION 2: Emergency Paediatrics

(a) A 2 year old child is admitted due to severe diarrhoea and vomiting. He is pale and has no palpable peripheral pulses. Briefly explain the mechanisms of acute kidney injury in this child. *Hypovolaemic shock* (10 Marks)

(b) A 4 year old child is on a regular follow-up for cardiac complications of Rheumatic fever. He presents with increasing difficulty in breathing and leg swelling. Explain 3 possible mechanisms of this deterioration. *CHF* (10 Marks)

(c) An 18 month old child presents with 2 day's history of cough, fever and poor feeding. He is breathing at a rate of 80/min, has marked chest retractions and an oxygen saturation of 75%. List and explain the expected abnormalities lung function. *Pneumonia* (10 Marks)

QUESTION 3: Child Health

- (a) Name and describe 3 molecular types of vaccines used in the Kenya National Program. (10 Marks)
- (b) State and explain 3 factors that influence lactation in humans. (10 Marks)
- (c) Name and explain 3 major factors that determine human cognitive development. (10 Marks)

Active  $\left\{ \begin{array}{l} \text{Polysaccharide} \\ \text{Conjugate} \\ \text{Live attenuated} \end{array} \right.$   $\left\{ \begin{array}{l} \text{Attenuated} \\ \text{Acellular} \end{array} \right.$

Factors:  $\left\{ \begin{array}{l} \text{Hormonal} \\ \text{Psychological} \end{array} \right.$

1. Education (nutrition + environment)
2. Genetic inheritance
3. Environmental factors (nutrition, parenting)

Drugs that ↑ lactation:

metochlorpromide, OHA's, limeridine, methyl dopa

QUESTION 2

List the clinical features, investigation and management of a 2 day old neonate with neonatal sepsis. ONE MARK FOR ANY MENTIONED

(A) Clinical Features

(9 marks)

- (i) Fever ✓
- (ii) Temperature instability (Hypothermia, hyperthermia)
- (iii) refusal to feed ✓
- (iv) Jaundice
- (v) Vomiting
- (vi) Convulsions
- (vii) apnoeic attacks
- (viii) tachypnoea
- (ix) Lethargy
- (x) Poor perfusion
- (xi) Hypotension
- (xii) Discharging, red, umbilicus ✓
- (xiii) Widespread pustules
- (xiv) Irritability ✓

(B) Investigations

(8 marks)

ONE MARK FOR ANY MENTIONED

- (i) Blood culture
  - (ii) Full haemogram
  - (iii) IT ratio
  - (iv) Swabs of discharging areas
  - (v) CRP
  - (vi) CXR
  - (vii) LP
  - (viii) Blood sugar
  - (ix) Urine culture
- Early sepsis (< 3 days) → Maternal factors  
 Maternal: P.ROM, GBS infection  
 - Foul smelling liquor  
 - chorioamnionitis  
 - UTI, STD,  
 - fever, poor or no ANC, poor initiation  
 Late Onset: - Overcrowded nursery  
 - inadequate handwashing  
 - central lines  
 - colonization of px by org.  
 - hyper from family member by contact.

fetal Rf - LRW

(C) Management

(8 marks)

(i) Supportive - 1

- (a) Fluids-1 ✓
- (b) Temperature-1 ✓
- (c) Oxygen if needed-1 ✓
- (d) Feeding - 1 ✓

(ii) Specific - 1

- (a) Broad spectrum antibiotics (Gentamicin and penicillin) -2
- b) Anticonvulsant
- c) Tardive dyskinesia
- d) IV Ig - VLBW

40.5 mg/kg  
50 mg/kg (bkg)

General

irritability  
lethargy  
petit  
tremor  
cyanosis

System

CNS - irritability  
dysphasia  
convulsions  
all  
| discharge

SECTION A: SHORT ANSWER QUESTIONS (SAQs)

INSTRUCTIONS:-

- (I) THERE ARE TWO (2) QUESTIONS IN THIS SECTION
- (II) ANSWER THE TWO (2) QUESTIONS
- (III) START EACH QUESTION ON A FRESH BOOKLET

(NAME) 28/7/20

SAQ 1

Regarding immunization:

- (a) Briefly describe the cold chain. (5 minutes)
  - OPV
  - Meningitis - Define
  - BCG - Location
- (b) Outline the immunizable diseases in children. (10 minutes)
  - MEASLES
  - Polio
  - Whooping cough
  - Diphtheria
  - Tetanus
  - Yellow fever
  - Cholera
  - Rotavirus
  - Typhoid
  - Mumps
  - Scarlet fever
  - Varicella
  - HPV
- (c) Outline the KEPI schedule. (10 minutes)
  - KEPI
  - measles
  - typhoid
  - Pneumococcal
  - rubella
  - Polio
  - Meningitis
  - Scarlet fever
  - Rotavirus
  - Typhoid
  - Mumps
  - Scarlet fever
  - Varicella
  - HPV

SAQ 2

A 2 year old child presented with fever, diarrhea, vomiting and convulsions.

- (a) Outline the causes of this presentation. (10 minutes)
  - meningitis
- (b) Outline how you would investigate this child. (15 minutes)

Invest → FBC, H Blood culture, U/E/C, Virology → serology, Stool → m/c/s, RBS, BUA, Plasma serology.

MX → correct dehydration, continue feeding, Give dextrose - hypoglycemia, MX fever → Blood + PCR, Antibiotics → Rx with drug, Zinc → 10 mg, 20 mg

Application of severe D

SECTION B: LONG ESSAY QUESTIONS (1 EQ)

INSTRUCTIONS:

- (I) THERE IS ONE (1) QUESTION IN THIS SECTION
- (II) ANSWER THE ONE (1) QUESTION
- (III) START EACH QUESTION ON A FRESH BOOKLET.

EQ 1

(a) List the causes of chronic cough in a 4 year old.

Handwritten notes: TB, Aspiration of FB, Allergies, LSC, bronchial asthma

Prolonged cough (10 minutes)

(b) Discuss the pathogenesis of bronchiole asthma.

Handwritten notes: Inflammation

1° allergic response (25 minutes)

(c) Discuss the treatment of a four (4) year old with bronchiole asthma.

Handwritten notes: bronchiole

(15 minutes)

(d) Define acute poisoning.

Handwritten definition: Pathologic state that is caused by a high dose in a short time which produces immediate symptoms - eg cyanide poisoning

(e) Outline the risk factors for acute poisoning in children.

(10 minutes)

(f) Discuss pathophysiology of organophosphate poisoning.

Handwritten notes: OMPs

(15 minutes)

Handwritten notes: Is ACh Esterase - ↑ ACh in synapse inhib

(g) Outline the management of a 2 year old child with organophosphate poisoning.

(20 minutes)

- Atropine
- Pralidoxime
- Supportive care

Acute poisoning

Handwritten notes: ems, sudden

SECTION B: LONG ESSAY QUESTIONS (LEQs)

INSTRUCTIONS:-

THERE IS ONE (1) QUESTION IN THIS SECTION ANSWER IT

ALL infants & children born to HIV infected others; either with or newly diagnosed; (the HIV virus in the or child is undetectable, & not & child is getting breastfeeding)

LEQ 1.

Define an HIV exposed child  
 \* Born to a mother newly infected or known HIV mother until the infant is 5 weeks

Discuss the investigations done for an HIV exposed child

Describe the prevention of mother to child transmission of HIV

NVP - 12w 1g

Cotrimoxazole - 6 weeks

- ① prevent HIV in family
- ② prevent of unwanted pregnancy in HIV infected child

LEQ 2.

Discuss the following in a patient with shock.

(a) Presentation - Cold extremities, weak/absent capillary refill > 3 sec, AVP < (A) (5 marks)

(b) Investigation - FBC, - RBS, - RFTs, - LFTs, - U/E/Cs, - BGA, - Radiology (10 marks)

(c) Treatment of shock due to dehydration (35 marks)

presentation in a patient with shock

- Unconscious
- Cold peripheries
- Cap Refill > 3 sec
- weak / cold absent
- Tachycardia
- Tachypnea
- altered level of mental status
- Resp distress
- Dry mucous membrane

During labour

- avoiding invasive procedures
- PROM -> elective
- CS (Emergency CS)
- Prophylaxis (single dose of NVP)
- PEP
- Maternal counselling
- EBF ->
- Replacement feeds
- Avoids mixed feeds

Page 4

- Care of HIV infected baby, women & family
- Health education
- Prevent & Mx opportunistic
- ARV Therapy
- Nutritional preservation
- Psychosocial support
- future plan

HIV

- BP, RR
- Pulse Rate
- Temp
- FBC, PBF
- BGA
- U/E/C
- Blood sugars

Page 3

- strategies to prevent MCT in HIV
- Drug program
- ARV's
- Emacily antenatal care
- Micronutrient supplement
- Vit A, folic, Iron
- screening and PEP
- STD eg. VORL Text 4



**PART II**  
SECTION A: SHORT ANSWER QUESTIONS (SAQs)

**INSTRUCTIONS:**

- (I) THERE ARE TWO (2) QUESTIONS IN THIS SECTION
- (II) ANSWER ALL THE TWO (2) QUESTIONS
- (III) START EACH QUESTION ON A FRESH PIECE OF PAPER OF THE BOOK

SAQ 1.

Outline the

- ✓ Presentation → Edema, ascites, pleural effusion, bronchog, left lung, abd pain, EIB → pleural effusion (5 marks)
- ✓ Investigation (10 marks)
- ✓ Treatment of 20kg child with nephrotic syndrome (10 marks)

**8**

SAQ 2.

Outline:

- (a) The aetiology → acute → mitral reg, (R) valves, sub-acute → ab (R) valves (5 marks)
- (b) The pathogenesis → damaged valves → turbulence → seeding, acute → damage & endocarditis → fibrin → vegetation (10 marks)
- (c) Investigation and treatment of a child with infective endocarditis. (10 marks)

Etiology

(R) heart → valvular dx → RHB  
 mitral & aortic valves  
 shunts  
 acute → surgery, UTI, catheters, dental procedure, sub-acute

trip  
 r-aph  
 HA-CEK  
 Enterococci

st factors → in drug abuse  
 R of ISS  
 immunodef  
 neutropenia

lyx → Fever  
 Dry murmur  
 Worsening RHB  
 malaise  
 Splinter haemage  
 Janeway lesions  
 Osler's nodes  
 stroke  
 septic emboli  
 Infarct

Ix → FBC  
 Blood culture  
 BCGO  
 ECG  
 Urinalysis + U/Z/C  
 CT scan  
 Abd dx → organ injury

Ix → 16  
 U antibiotics 14 2-6 wks → acute  
 site acute → 2 wks

**SHORT ANSWER QUESTIONS (SAQs)**

SAQ  
2018

ALHTA  
hypertension  
proteinuria  
Malabsorption

A 4 year old presents with history of generalized body swelling for 1 week. On examination the child has pedal edema, facial puffiness and ascites:-

- Give 5 differential diagnosis for this condition (5 marks)
- Urinalysis of this patient showed protein 4+ and serum albumin of 19 g/L. List 5 relevant investigations and the expected abnormality. (5 marks)
- Describe the management of this patient's condition. (2 marks for each)
- Give 2 complications of this condition. (2 marks)

- Define prolonged neonatal jaundice. (2 marks)
- List the causes of prolonged jaundice. (10 marks)
- What investigations would you do in this condition? (10 marks)
- List the complications of prolonged jaundice. (2 marks)

Kito aged 8 years is brought to the OPD with 2 day history of fever, joints pains, vomiting and convulsions for 1 day. He has a temperature of 40.5 °C, severe palor, splenomegally and GCS is at 11/15.

- What is the most likely diagnosis? (2 marks)
- List 3 differential diagnosis. (3 marks)
- What laboratory investigations would you carry out on this child? (4 marks)
- Outline how you will manage this child under the following subheadings: (2 marks)

  - Definitive treatment.
  - Supportive treatment.

- List any two prevention strategies for the disease condition this child has. (2 marks)

Reverse cold chain  
from point of collection to the laboratory.

- What does the term "cold chain system" mean in vaccine management? (3 marks)
- What is a vaccine vial monitor (VVM) and how does one interpret the different stages on the monitor? (3 marks)
- List 3 vaccines that have VVMs. (2 marks)
- Describe the procedure for conducting the shake test. (4 marks)

freeze intact v → shake 10 - 15 for 10 hrs  
freeze - fast v →  
shake 10 - 15

QUESTION ONE - 25 MARKS

Fatma, a 4 month old girl (5kg) is brought to the pediatric outpatient clinic by her mother with complaints of cough, hotness of body and difficulty in breathing for 3 days. You observe that she is not alert but responds to voice, is lying in the mother's arms unable to breastfeed. On rapid assessment you note that she has no noisy breathing, she is breathing at a rate of 63/minutes, oxygen saturation in room air is 89%, has no grunting, no head nodding and no central cyanosis. Lower chest wall indrawing is present but there is no deep acidotic breathing. Crepitations are heard bilaterally on auscultation. Rhonchi (wheezes) are absent.

3x3

Pneumonia

major signs severe pneumonia  
 CO<sub>2</sub> sat: 89% unable to breastfeed  
 NVPV at V  
 reduced SpO<sub>2</sub> for TB

DIS: AUPU  
 - AUPU  
 - A.B.C.D. - O<sub>2</sub> standard flow

- What would you do at this point? (4 marks)
- No other issues are identified in your rapid assessment. What would your working diagnosis be at this point? Give the appropriate classification and justify. (5 marks)  
 List the interventions/key strategies for protecting, preventing and treating children under 5 years with this condition in order to improve child survival. (12 marks)
- How would you manage Fatma? (4 marks)

Investigate - admit - put on O<sub>2</sub> P  
 Pulse oximetry - chest x-ray  
 TBC blood culture - 10 pencils 50000 units/kg x 50  
 Demander - 7.5mg/kg for 7 days

\* TB  
 \* Asthma

QUESTION TWO - 25 MARKS  
 Njoroge, a 2-and-a-half-year-old boy (now 16kg) presents with generalized body swelling.

- What are the 3 main systems that could be affected? Give one example in each system listed. (6marks)  
 - Renal - Nephrotic - Cardiac - HF  
 - Liver - Liver failure - Immune system - Anaphylaxis
- On taking history, Njoroge had been previously well with normal growth. The body swelling began 1 month ago and has been progressive. Systemic complaints are minimal and on examination, he is alert, has no pallor, jaundice, cyanosis or dehydration. His vital signs are within normal. Serum albumin is 15g/l. What one additional investigation would you do to clinch your diagnosis? Indicate the cut-offs. (4marks)  
 Urine protein: creatinine > 0.2g/min or 24hr: 30mg/24hr
- Njoroge has no blood in his urine macroscopically, RBC casts and blood are absent on microscopy and 900mg of protein are reported from his 24-hour urine sample. What are the possible causes for his condition? Give one example for each cause listed. (8marks)
- What is the most likely histological diagnosis for Njoroge's condition? (2 marks) M.C.D.S
- How would you know if Njoroge was responding well to the appropriate treatment? (5marks)

analysis for protein analysis - microscopy & urine profile

protein: creatinine ratio  
 29mg/1mmol  
 calculate of JFR

athic ~ 90%  
 ves  
 mal change  
 S; there is he predispositi

secondary cause  
 omenonephritis with proteinuria; SLE & infection  
 ngs: procainamide, heparin, penicillamine & heavy metals  
 Tumors - Hodgkin

proteinuria < 450mg/dl  
 serum Alb > 3.5g/dl  
 Nutrition  
 weight loss  
 P.T.O - Nutritional status

Severe pneumonia  
 - apnoea X  
 - Grunting X  
 - O<sub>2</sub> conc > 90%  
 unable to feed  
 NVPV \* A

DIB, cough, fever  
 \* AKI  
 \* CRF

Edema reduction  
 urine output  
 Total protein excretion  
 serum Alb  
 Quantitative

Pneumonia  
 RR 2-11 ≥ 50 bpm ✓  
 12-59 ≥ 40 bpm ✓  
 lower chest wall indrawing

40-60  
30-50  
25-40  
20-30

QUESTION THREE - 25 MARKS

3. Onyango, a 3 year old boy who recently traveled from Kisumu is brought to the pediatric outpatient clinic by his father with complaints of fever and respiratory distress for 2 days. You observe that he is drowsy, and does not respond to your stimulation so you quickly transfer him to an emergency setting. On rapid assessment, his airway clear and you open it into the sniffing position. He is breathing at a rate of 52/minute, has no grunting, head nodding, central cyanosis or lower chest wall indrawing. Deep acidotic breathing is present but there are no crepitations or rhonchi (wheeze) heard on auscultation. You give oxygen via a face mask with a reservoir bag at 10L/min.

Fever  
Resp distress  
drowsy  
AVPU - U  
RR: 52 bpm  
NO grunting

Malaria  
fluid resuscitate  
- 20ml/kg  
Reassess  
check for  
signs of  
dehydrat  
- FBC  
is AL  
transfuse  
worm  
check  
- prophylacti  
curative

A. On assessing his circulation, his peripheries are warm, radial pulse is easy to feel, capillary refill time is 1 second and he has severe palmar pallor. What would you do at this point? Give reasons why (4 marks)

- FBC; hb levels < 5g/dl  
- warm shock; Tx of shock  
- skin placed in circulation @ 3  
- Antibiotic SHU

B. On assessing disability, the child is noted not to respond to pain appropriately, is unable to sit up or drink. Blood glucose is 1.8mmol/l. What would you do at this point? The child weighs 15kg. (3 marks)

① 10% dex 5mls/kg  
5 x 15 = 75mls  
② Reassess (ABCD)

C. Once you have stabilized the child, you proceed to take a history and examination and follow up investigations done. A blood slide done for malaria parasites comes back positive. Classify and give reasons why. (6 marks)

- severe malaria  
- AVPU - U  
- Resp acidotic  
- sev pallor  
- Hypoglycaemia > 2cr.

D. Draw and describe the life cycle of Plasmodium falciparum. (12 marks)

**QUESTION FOUR - 25 MARKS**

Mutiso is a 6 year old boy who presents with painful swelling and bleeding into the ankle joint after being hit by one of his friends as they were playing football. He is unable to bear weight on this limb. This is his second episode of bleeding into this joint. There is no history of bleeding into the skin or mucosae (no epistaxis or gingival/buccal bleeding). Family history reveals that his maternal uncle experienced severe bleeding when he underwent circumcision.

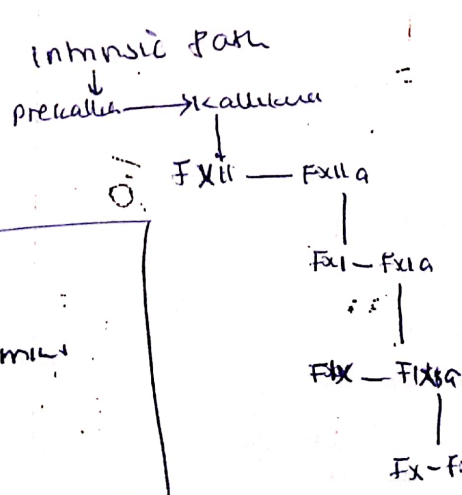
- severe pattern  
- hypoplasia > 20%  
- unable to drive

\* SCD  
\* microcytic anaemic (esp IDA)

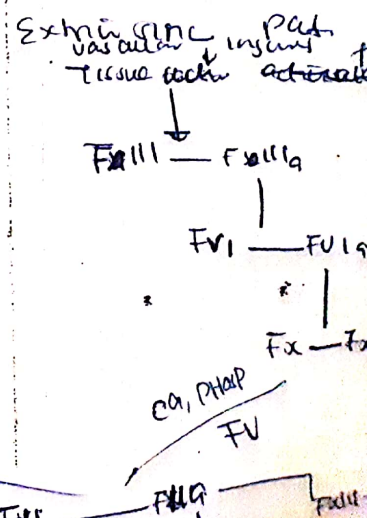
- What is the most likely diagnosis? (2 marks) *Hemophilia A*
- How is this condition inherited? (2 marks) *X-linked recessive*
- List the investigations that would be useful in screening Mutiso's condition. Include the expected findings. (6 marks) *FBC & PBF: platelets & Hb, Hct, Hwe, & platelets*  
*Coagulation profile: Bim: Protin*
- What test would give a definitive diagnosis? (2 marks) *Factor VIII assay (low)*
- Draw and describe the traditional coagulation cascade. (10 marks)

*Bleeding time 0-7m*  
*VAPPT prolonged*  
*PTNO*  
*TT prolonged*  
*Hemophiles*  
*X-linked*  
*recessive*  
*Factor VIII*  
*WF3*  
*Riston*  
*Coagulation profile*  
*BT - Normal: 2-7min*  
*VAPPT - prolonged*  
*PT & TT - Normal or prolonged*

*Bleeding time*



*protease*  
*5mmol/kg*  
*9.5*



*VIII/wt FxII*

2017 Q. no. 2

SHORT ANSWER QUESTIONS Attempt all Questions. Write each Question (1, 2, 3, and 4) in its own answer sheet.

1) A twelve year old boy arrives home from a boarding school with acute onset severe headache, photophobia and muscle aches. Physical examination shows that he has a hemorrhagic (non-blanchable) rash. He is febrile, has a weak pulse, a stiff neck with positive Kernig's sign:

- a. What's the diagnosis and what's the most likely causative organism (3 marks). - Meningococcal meningitis, N. Mening
- b. List two other common bacterial pathogens that may cause a similar infection in children. (2 marks). S - strep pneumo, Staph aureus

c. Describe the diagnostic test you would carry out to confirm the diagnosis and the expected results (appearance of the sample and microscopy) (4 marks). CSF analysis - turbid, cloudy appearance - Cloudy, Gram stain - Gram d

d. Which antibiotics would you choose in the management of this child's condition? (3 marks). 1st line - Ceftriaxone, Chloramphenicol + Ampicillin, Vancomycin / All - for 21 days. Describe three long-term complications that may be associated with this condition (6 marks). - Hearing loss, Intellectual disability, Ataxia, chorea, etc.

iii) List the vaccines available in the EPI program that have led to a reduction in incidence of childhood bacterial pneumonia, the recommended age at administration; and two absolute contraindications to these vaccines. (7 marks). Hib, Pneumo, Measles, DTP, Polio. Contraindications: severe allergic reaction to vaccine components, immunodeficiency.

Felix, an eight year old boy is admitted with one week history of epistaxis; and a month history of easy bruising and severe bone pains. He has had fever that has responded poorly to antibiotics and noted to have lost significant weight. On examination he is pale with an Hb of 5g/dl and has generalized lymphadenopathy as well as hepatosplenomegaly.

a. What's the likely diagnosis? (2 mark). ALL - 3-7 yrs, Lymphoproliferative disorder.

b. List the two diagnostic investigations you would carry out to confirm the diagnosis and describe the expected results. (6 marks). BMN - cytology (staining), FHG - lymph biopsy.

c. Discuss the management for this child's condition. (6 marks). - Multi-drug chemotherapy.

- i) Briefly describe: a) the clinical presentation (4 marks). Excess bruising, haematuria, haematemesis, post-circumcision bleed, post-dental extraction.
- b) Diagnostic investigation (4 marks) and APTT - Prolonged, Factor Assay - low F.
- c) Management of Haemophilia A (3 marks).

3. i) A 1 day old baby born at home by spontaneous vertex delivery to a para 2+1 mother is brought to paediatric emergency department because he was noted to be generally unwell, is pale and has difficulty suckling. He is noted to be deeply jaundiced, lethargic, anaemic and to have generalized oedema. The baby is reported to have cried immediately at birth. The temperature is 37 degrees celcius, the respiratory rate is 65/minute and he has a hepatomegaly of 4 cm below costal margin. On further inspection of the ANC book, it's noted that the mother's blood group was "B-Negative", VDRL negative, Hb 12g/dl and urinalysis was unremarkable. She attended clinic only once.

Handwritten notes on the left margin: "hemolytic dx of newborn", "pt. of hemophilia", "Factor level 2 of transfusion".

Handwritten notes on the right margin: "Gardner", "Meningococcal meningitis", "N. Mening", "LP", "APP", "Gram d", "Biod", "Cult", "Anti", "ECG", "Peds", "Med", "Ht".

What's the likely diagnosis? (2mks) Hemolytic dx of newborn d<sup>2</sup> Rhesus Incompatibility.

b) Describe mgmt of child's condition (6mks) iVig, Phototherapy, Exchange transfusion with packed c. Pres. Ant.D.

iF, O<sub>2</sub>, mechanical, inotropics

c) Describe the p<sup>o</sup> prev for this condition (2mks) Disseq. →

1st preg → Ant.D at 28-32wks gestation; 72hrs after delivery; each ectopic preg, ant. crit. or amniocentesis

d) Discuss longterm & shortterm complication of this condition (2mks)

Kernicterus

CP Growth fainting

intellectual disabilities

embolization

infx, ARF, metabolic, hyperkalemia, necrosis

ii) Discuss the measures you would employ to ↓ occurrence of newborn htx in the hosp (7mks)

- Handwashing & sanitize. by touch baby wear short sleeves

- Proper umbilical stump care  
- Handwash after visiting toilet  
- low nurse to px ratio

- Put babies in separate cot
- Isolate room for those arrangements
- Sanitize equipment (stethoscope)
- Mother - wash hands & gown by

NEW BORN UNIT (7 MARKS)

-sanitize equipment (stethoscope)  
 -mother - wash hands etc.  
 new born unit. (7 marks)

4. i) A three year old child is brought with history of recurrent cough and has had persistent cough for the past three months treated with various antibiotics with no improvement. She is irritable, restless and refuses to feed or go to sleep. Further examination reveals a child in fair nutritional status, with low grade fever (37.7 C), respiratory rate of 60 breaths/minute and lower chest wall recession. She has wheezing as well as crackles on chest auscultation and her oxygen saturation is 80% on room air.

- a. What is the most likely cause of her persistent cough? (2 marks)
- b. Describe how you would manage this child during this admission. (8 marks)
- c. Describe the long-term management of this child. (8 marks)

ii) Briefly describe the clinical presentation and list 3 complications of Juvenile Idiopathic Arthritis. (7 marks).

Counselling, Inhaled Corticosteroids (MDI), Avoid triggers, Follow-up (review 1-2 hrs within)

LABA  
 Budesonide  
 Teach how to use  
 spacer 3 spacer  
 5 mark  
 73 use face mask  
 or mouth piece  
 device management

1-2 liter, 50-35%  
 Nebulizer 2.5mg salbutamol  
 or 6 puffs of inhaler with  
 spacer 5 mark give every  
 20min upto 2-3 liter if needed in a hr.

Pne Pe T.I.P  
 PCV  
 Penta  
 Tetanus, IPV  
 Rotavirus  
 BCG  
 MMR  
 BCG, Yellow.  
 Ramus Be Mean  
 A Dnda Yellow  
 B  
 Y  
 Complicate