

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MD (PAEDIATRICS) EXAMINATION – JANUARY 2018**

**Date:** 23<sup>rd</sup> January 2018

**Time:** 9.00 a.m. – 12.00 noon

**PAPER I**  
**(STRUCTURED ESSAY QUESTIONS)**

Answer **all five** questions.

Answer each question in a **separate book**.

**Q.1.**

- 1.1. What is the standard classification of Germinal Matrix Haemorrhage-Intra Ventricular Haemorrhage(GMH-IVH) of a preterm brain. (20 marks)
- 1.2. List fifteen (15) risk factors for the development of GMH-IVH in a preterm baby. (30 marks)
- 1.3. What are the ways in which GMH-IVH is known to present in a preterm baby. (30 marks)
- 1.4. Briefly outline the prevention and management of GMH-IVH in a preterm baby. (20 marks)

**Q.2.**

2.1. Provide a very brief definition for each of the following terms.

- (a) Dead space ventilation
- (b) Venous admixture
- (c) Closing capacity
- (d) Alveolar ventilation

(20 marks)

2.2. Explain why an infant is physiologically more likely to develop respiratory distress when compared to an older child. (30 marks)

**2.3.**

2.3.1. Briefly describe the pathogenesis of bronchiolitis obliterans (obliterative bronchiolitis). (10 marks)

2.3.2. List five (05) non-infective causes of bronchiolitis obliterans (obliterative bronchiolitis). (15 marks)

2.4. Mention five (05) advantages of high-flow nasal oxygen therapy. (25 marks)

**Q.3.**

You are recently appointed as a Consultant Paediatrician to a Base Hospital. A fourteen-year old girl is admitted to the Paediatric Ward with the history of alleged penetrative sexual abuse which occurred thirty (30) hours prior to admission.

3.1. Outline the clinical care of the above-mentioned child. (30 marks)

3.2. List the possible consequences of child sexual abuse. (20 marks)

3.3. As a paediatrician, what measures would you take to improve the quality of care of sexual abuse victims in your area. (30 marks)

3.4. List four (04) reasons why appropriate sexual health education is important at school. (20 marks)

**Q.4.**

4.1. Name three (03) genetic conditions which would cause hyperammonaemia. (10 marks)

4.2. List ten (10) clinical features of hyperammonaemia. (20 marks)

4.3. Mention ten (10) relevant investigations you could perform in a child with hyperammonaemia due to a genetic defect. (20 marks)

4.4. Mention two (02) principles of treatment strategies for lowering the ammonia level in hyperammonaemia. (10 marks)

4.5. Outline the management of acute hyperammonaemia due to genetic defects. (25 marks)

4.6. Outline the long-term management of the commonest genetic cause of hyperammonaemia. (15 marks)

**Q.5.**

“Injuries are one of the common causes of death during childhood in both developed and developing countries.”

- 5.1. Briefly outline why children are comparatively more susceptible to injuries than adults. (20 marks)
- 5.2. List five (05) factors which increase the risk of injuries in children. (20 marks)
- 5.3. Describe the interventions which can be taken to prevent injuries due to road traffic accidents in children. (30 marks)
- 5.4. Discuss the paediatrician’s role in reducing the morbidity and mortality due to childhood injuries in Sri Lanka. (30 marks)

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Time:- 9.00 a.m. – 12.00 noon

PAPER II – CASE HISTORIES

Answer **all five (05)** questions.

Answer each question in a separate book.

1. A seven (7) year old girl is brought to the emergency department of a District General Hospital with a history of a prolonged convulsion lasting over ten minutes. Mother gives a history that she has been unwell for the past few days with complaints of recurrent headache and brief episodes of unusual behaviour. She also had frequent staring episodes, has been diagnosed as having a seizure disorder and has been started on carbamazepine 8 months ago.

1.1. Give the principles of immediate management of this child.

(10 marks)

The convulsion was terminated after medical management. The paediatric registrar who examined the baby noted that her blood pressure was 150/100 mmHg and fundoscopy was inconclusive. There was no history of fever.

The examination after cessation of the convulsion revealed a conscious but drowsy child. There was no neck stiffness and all tendon reflexes were brisk and her peripheral pulses were weak. She was referred to an eye surgeon the next day and was reported to have silver wiring appearance on funduscopy. Repeated blood pressure measurements were over the 99<sup>th</sup> centile for the age and height.

Weight	32 Kg	(75 <sup>th</sup> - 90 <sup>th</sup> centile)
Height	125 cm	(10 <sup>th</sup> - 25 <sup>th</sup> centile)
BMI	20.5	
Tanner staging	Prepubertal	

## Investigations

FBC	16.5 x 10 <sup>9</sup> /L	N-75%, L- 22%, E- 5%
Hb	12.7 g/dL	
Platelet count	266 x10 <sup>9</sup> /L	
ESR	60mm in the 1 <sup>st</sup> hour	
CRP	40 mg/L	
RBS	78mg/dL	

Ultra sound scan abdomen/KUB - Normal

MRI appearance is in keeping with left sided hippocampal sclerosis.

## Lipid Profile

Cholesterol	190 mg/dL	(125-205)
HDL	53 mg/dL	(37-70)
LDL	130 mg/dL	(68-136)
TG	77 mg/dL	(39-120)
Albumin	4.25g/dL	(3.5-5.4)
Globulin	3.61g/dL	(2.5-3.5)
Alkaline phosphatase	294 IU/L	(34-104)
ALT	17.8 u/L	(up to 40)
AST	32 u/L	(up to 40)
Blood urea	5 mmol/L	(4 - 6)
Creatinine	58 µmol/L	(60-115)
Serum electrolytes		
Na <sup>+</sup>	143 mmol/L	(135 - 145)
K <sup>+</sup>	4.9 mmol/L	(3.5 - 4.5)
UFR	Normal	
Urine micro albumin	Nil	

1.2. Mention two (02) possible differential diagnoses. (20 marks)

1.3. Mention two (02) specific investigations for each condition that you have mentioned. (20 marks)

Her birth record indicated her four limb oxygen saturation assessment as right upper limb-97%, left upper limb - 98%, right lower limb - 96%, left lower limb - 96%.

1.4. What is your most likely diagnosis? (20 marks)

1.5. Outline the treatment of this child. (25 marks)

2. A previously well five year old boy, the third child of a non-consanguineous marriage, is admitted to a newly established base hospital, with ongoing fever spikes over the last 14 days. He did not have symptoms related to urinary, gastrointestinal or respiratory systems. Examination revealed a thin, febrile child with a generalized maculopapular rash. His respiratory rate was 18 cycles/minute, heart rate of 90/minute and capillary refill time of less than 2 seconds. He had inflamed pharynx and palatal petechiae and an oedematous uvula. Bilateral cervical and axillary lymphadenopathy was noted with palpable spleen and liver 2 cms below the costal margins.

The full blood count revealed the following.

WCC total	11.3 x 10 <sup>9</sup> /L	(4 - 11)
	N - 22%, L - 77%, E - 2%	
Platelet count	175 x 10 <sup>9</sup> /L	(150 - 450)
Hb	12.5g/dl	(11.5 - 14.5)

- 2.1. List three (03) differential diagnoses. (30 marks)

Over the next 3 days the patient continued to have high fever spikes up to 39°C and appeared ill. It was noted that the hepatomegaly and splenomegaly progressively increased. Scaly skin lesions were noted behind the ear and the scalp.

The full blood count performed at this time revealed the following.

WCC	2.2 x 10 <sup>9</sup> /L	(4 - 11)
	N- 55 %, L - 44%, E -1%	
Platelet count	23 x 10 <sup>9</sup> /L	(150 - 450)
Hb	5.5 g/dl	(11.5-14.5)

Blood picture showed no blast cells.

The patient was transferred to a Teaching hospital for further management.

- 2.2. What is the most likely complete diagnosis? (30 marks)
- 2.3. List five (05) specific tests you would perform and the expected results to confirm the diagnosis. (25 marks)
- 2.4. List the principles of management of the condition that you have mentioned in 2.2 (15 marks)

- 3.2. List two (02) investigations you would arrange to confirm the diagnosis. (20 marks)
- 3.3. State two (02) other investigations you would do in this child giving reasons for doing those investigations. (30 marks)
- 3.4. What is the specific treatment that you would employ for this child? (20 marks)
- 3.5. What other therapeutic options are available for him? (10 marks)

4. A ten (10) year old, previously healthy boy presented with abdominal pain and vomiting of 72 hours duration. He had opened his bowels as normal and was afebrile. He was seen by a General Practitioner and treated with antacids and omeprazole.

In spite of this treatment he continued getting abdominal pain and it turned to be more severe and colicky. He was admitted to the surgical casualty ward.

On admission, he had a dry, coated tongue. Temperature was 100.2<sup>o</sup> F. His pulse rate was 140/minute. Blood pressure was 110/70 mmHg. Abdomen was distended. There was generalized tenderness and a large tender mass on the right iliac fossa measuring 15 cm x 8 cm. Bowel sounds were sluggish.

He was seen by the surgical team and kept on nil by mouth and intravenous fluids were started. A nasogastric tube was inserted and it had blood stained aspirate. Intravenous cefotaxime and metronidazole were started.

Investigation results were as follows.

Haemoglobin	9.8 g/dL	(11-15)
WBC	15.4 x10 <sup>9</sup> /L	
	N- 85%, L-12%, E - 3%	
Platelet count	550 x 10 <sup>9</sup> /L	
ESR	35 mm in the 1 <sup>st</sup> hour	
CRP	56 mg/L	(<6)
S.sodium	140 mmol/L	(135-145)
S.potassium	5.2mmol/L	(3.5-5.5)
UFR		
Pus cells	5-10 /HPF	
Red cells	30-40 /HPF	

Ultrasound scan showed bowel oedema.

Urgent barium enema was performed. It did not show any obstruction.

He opened his bowels on the 4<sup>th</sup> day of admission. It was loose, frequent and mixed with blood on many occasions. On day 5 of admission he had bilateral swollen ankles and a few erythematous patches on the shin and the foot.



- 4.1. What is the most likely diagnosis? (30 marks)
- 4.2. What is the immediate drug treatment indicated at this stage? (30 marks)
- 4.3. What other tests would support the diagnosis? (10 marks)
- 4.4. List four (04) complications he might develop. (30 marks)

5. An eleven (11) year old boy was admitted to the emergency unit with acute onset of nausea, vomiting, tightening chest pain, dizziness and excessive sweating. He had been discharged 10 days before, after being managed for Dengue Haemorrhagic Fever. Past medical history was uneventful except for a febrile illness of 10 days, at the age of 5 years. He had a diagnosis card which mentioned "Treated for Typhoid fever" but the specific serology was repeatedly negative for typhoid. The ESR was 90 mm in the 1<sup>st</sup> hour during that illness.

On examination he was noted to have cold peripheries with a heart rate of 112 beats per minute. Blood pressure was 75/43 mmHg. Peripheral pulses were of low volume. Oxygen saturation was 92% in room air. Abdominal examination and respiratory system were normal.

FBC revealed the following -

WBC	14.4 x 10 <sup>9</sup> /L	(4 - 11)
	N - 67%, L - 30%, E - 3%	
Hb	13.1 g/dL	(11 - 15)
Platelet count	414 x 10 <sup>9</sup> /L	(150 - 450)
Haematocrit	42%	

- 5.1. What is the most likely diagnosis? (20 marks)
- 5.2. Mention three (03) investigations you would perform to confirm your diagnosis. (30 marks)
- 5.3. What is the most likely underlying aetiology for the diagnosis mentioned in 5.1. (30 marks)
- 5.4. Outline your long term management. (20 marks)