POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (PAEDIATRICS) EXAMINATION – JULY/AUGUST 2018

Date: 24th July 2018 **Time:** 9. 00 a.m. – 12.00 noon

PAPER I
(STRUCTURED ESSAY QUESTIONS)

MASTER COPY

Answer **all five** questions.
Answer each question in a **separate book.**

1.

1.1. Give five (5) predisposing factors leading to the development of Bronchopulmonary Dysplasia. (15 marks)

1.2. List five (5) sequalae of chronic hypoxaemia in children. (15 marks)

1.3.

1.3.1. Define "long term oxygen therapy" in children. (20 marks)

1.3.2. List ten (10) **paediatric** conditions that may require long term oxygen therapy. (20 marks)

1.3.3. Outline briefly five (5) steps you would arrange when discharging a child on domiciliary oxygen therapy. (30 marks)

2.

2.1. Define β^o thalassemia major (10 marks)

2.2. Outline the pathophysiology of anaemia in β^o thalassemia major. (30 marks)

2.3. Briefly outline the **current and long term** management plan for a child newly diagnosed to have β^o thalassemia major . (50 marks)

2.4. Mention two (2) steps currently practiced in Sri Lanka to prevent β^o thalassemia major. (10 marks)

Contd...../2-

3.

3.1. List five clinical manifestations of congenital **hyperthyroidism** in neonates. (10 marks)

3.2. Briefly outline the pathophysiology of Graves ophthalmopathy. (30 marks)

3.3. Discuss the management options of Graves disease. (40 marks)

3.4. List three (03) adverse effects of each management option you mentioned in 3.3. (20 marks)

4.

4.1. List five (5) abnormalities associated with posterior urethral valves (PUV). (20 marks)

4.2. How do you establish the diagnosis of PUV in a neonate? (10 marks)

4.3. A polyethylene feeding tube is used in the bladder drainage in a neonate instead of a Foley catheter. Explain why. (10 marks)

4.4. List four (4) indications for initial vesicostomy prior to transurethral posterior urethral valve ablation. (30 marks)

4.5. List four (4) unfavourable prognostic factors in patients with PUV. (30 marks)

5.

5.1. "Deaths related to influenza are grossly underestimated". Give 3 reasons to justify this statement. (15 marks)

5.2. 'Globally, even if the attack rate of influenza is similar in young children in the low and high resource settings, mortality and morbidity of influenza are likely to be higher in the low resource settings'.
Give 3 reasons for children in the resource poor setting to be more vulnerable. (15 marks)

5.3. What are the broad categories of seasonal influenza vaccines available for the use of children globally and their routes of administration and recommendation for 2017/2018. (25 marks)

5.4 ~~5.3.1.~~ Describe the following about influenza vaccine.

5.41 ~~5.3.1.1.~~ Who are the priority groups for vaccination? Also indicate who has the highest priority giving 2 reasons. (20 marks)

5.42 ~~5.3.1.2.~~ What is the recommended administration schedule in children. (10 marks)

5.5 Name three (3) anti-viral drugs effective against influenza with their routes of administration. (15 marks)

MASTER

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MD (PAEDIATRICS) EXAMINATION – JULY/AUGUST 2018

Date: 25th July 2018 **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 five year old, previously healthy boy, presented with jaundice of 3 months duration.
   He is the first born child to healthy non consanguineous parents without a family history of liver diseases. He developed jaundice with dark colored urine which gradually progressed. There were no other systemic symptoms. Examination revealed few small cervical lymph nodes with hepatomegaly of three centimeter and just palpable spleen. Other systems examined normally.

   Investigation results were as follows:

AST	1200 IU/L	(<40)
ALT	800 IU/L	(<40)
ALP	562 IU/L	(80-480 iu)
GGT	132IU/L	(9-48)
Total bilirubin	146 µmol/L	(<17)
Direct bilirubin	68µmol/L	
APTT	36 seconds	(control 35 seconds)
PT	18.6	(control 13 seconds)
INR	1.4	
Total protein	50g/L	(60-75g/L)
Albumin	25g/L	(35-50 g/L)
ESR	22mm/1st hour	
WBC	8.5×10^9/L	(N 52%, L 46%)
Hb	9.8g/dl	(12-15 g/dl)
Platelet	160×10^9/L	($150\text{-}400\text{x}10^{9/}$)

   Ultrasound scan of abdomen:
   Mild hepatomegaly with normal hepatic echogenicity and mild splenomegaly. Multiple calculi are seen in the gall bladder.

   1.1. Mention three (03) possible differential diagnoses? (15 marks)

Contd...../2-

Further investigations revealed:

EBV IgM and IgG	positive	
EBV PCR	negative	
Mycoplasma antibody titre	<40	
Hepatitis B surface antibody	positive	
Hepatitis A (IgM and IgG)	negative	
Hepatitis C antibody	negative	
Serum ceruloplasmin	10 mg/dl	(20-35 mg/dL)
24 hour copper excretion	inconclusive	
IgG levels	2290 mg/dL	(559-1490)
IgA	209 mg/dL	(54-221)
IgM	85 mg/dL	(27-118)

Liver biopsy

Liver tissue showed features of micronodular cirrhosis. Hepatocytes show ballooning degeneration and intra hepatic cholestasis. Giant cells, neutrophils and plasma cells infiltrated portal areas are seen. No liver cell necrosis. Portal tracts expanded with bile duct proliferation. Fibrosis extends from portal tract to central veins. No steatosis.

1.2. What is the diagnosis? (25 marks)

1.3. List three (03) investigations that would support the diagnosis? (20 marks)

1.4. Outline the steps in the management. (40 marks)

Contd...../3-

2. A five year old boy is transferred from a local hospital with progressive drowsiness over 24 hours. He gives a history of increased frequency of micturition and bedwetting for last one week.
The child has had a history of headache for a period of one year with vomiting which did not settle with treatment from the local hospital. One month ago he had presented with a convulsion and cranial imaging showed a pituitary tumour. He underwent surgery and histology revealed a craniopharyngioma. He was started on thyroxin and growth hormone replacement therapy following surgery. He has been well at the time of discharge with no headache or urinary symptoms. His weight on discharge was 15kg.
During the last one week mother noticed him to be sleeping from time to time even while watching his favorite cartoon. He wakes up in the night to drink water and mother had to keep a bottle of water at his bedside.
His admission weight was 13 kg. His urine output during the first 24 hours of admission was 2.4 L.

On examination

Weight	13kg	(-2SD to -3SD)
Height	102cm	(-1SD to -2SD)
Dry mucus membranes.		
Blood pressure	85/55 mmHg	

His investigation results are as follows:

Random blood sugar	98mg/dL	
Serum electrolytes		
Sodium	120 mmol/L	(135-145)
Potassium	3.5 mmol/l	(3.5-4.5)
Serum creatinine	80 µmol/dl	(45-80)
Blood urea	7 mmol/L	(4-6)

2.1 List three differential diagnoses. (15 marks)

Further investigations revealed:

Serum osmolality	256 mOsm/Kg	(275-295)
Urine osmolality	468 mOsm/Kg	(300- 900)
Urinary sodium	160 mEq/L	(<20)

2.2. What is the most likely diagnosis? (30 marks)

2.3. List three (03) other investigations which will be helpful to confirm the diagnosis? (30 marks)

2.4. Briefly outline three (03)main steps in the management of this patient? (25 marks)

3. A 10 year old boy was admitted to the ward with a one month history of low grade fever, cough and wheezing. Cough was productive with brownish sputum. He was diagnosed as having asthma at the age of 6 years and had been on steroid inhalers since then. For the last three months he was getting frequent episodes of cough and wheeze which improved with oral steroid therapy but developed symptoms soon after discontinuation of steroids. Optimization of asthma treatment did not help these frequent episodes. His drug compliance and the technique were good.

   There is no history of allergies. His immunization was up to date. His 7 year old brother is also having well controlled asthma with prophylaxis.

   On examination his height and body mass index is at -2SD. He has grade 2 finger clubbing with mild respiratory distress. Auscultation of the chest revealed diffuse crackles with prolonged expiration. His oxygen saturation is normal.

   Following investigations were done on him.

Hb	13.0 g/dl	(11- 15)
WBC	9.6 X 10^9/L	N – 48%, L- 38%, E -14%
ESR	32 mm 1st hour	
Sputum	negative microscopy, did not yield any bacterial growth.	
Mantoux test		negative
Sputum GeneXpert for MTB		negative.
Sputum for Mycobacterial TB culture		awaiting reports
Sweat Chloride	25 mmol/L (<40)	
Serum immunoglobulin		
IgG.	9.92 g/l	(6.00 - 20.00)
IgA	1.50 g/l	(0.80 - 3.00)
IgM	0.85 g/l.	(0.40 - 1.80)
IgE.	1350 iu/ml	(0 - 230)

Chest x-ray	hyper-inflated chest with pulmonary infiltrative shadows in both lungs, mainly in the upper lobes.
Chest HRCT	central bronchiectasis

3.1. What is the most likely diagnosis? (20 marks)

3.2. List four (04) investigations you would do to confirm above diagnosis. (20 marks)

3.3. Outline the management of this child. (40 marks)

3.4. List four (04) modalities which can be used to monitor the response to treatment. (20 marks)

Contd...../5-

4. An eight year old girl who had undergone cardiac surgery for an ASD closure 3 years ago presented with recurrent episodes of fever and dysuria for two (02) months. The mother had sought treatment from general practitioner on several occasions with only transient improvement of symptoms. There were no other urinary symptoms.
The ultra sound scan done at the onset of the symptoms had shown a normal urinary tract.

On examination she is febrile, ill looking. There is no significant lymphadenopathy. The respiratory and cardiovascular systems are clinically normal. Abdominal examination reveals a right sided ballotable lump which is slightly tender. There is no hepatosplenomegaly or free fluid in abdomen.

Investigations:

WBC	10.5 x 10^9/L (N - 65%, L - 30% M-3%, E -2%)
CRP	70 mg/dl (<6)
ESR	120 mm 1st Hour
UFR	pus cells field full/hpf no red cells
Urine culture	sterile on 3 occasions
Ultrasound scan	right sided gross hydronephrosis with AP diameter of 3.5cm and cortical thinning. No hydroureter, renal calculi, pyonephrosis or abscess.

4.1. State the most likely diagnosis. (20 marks)

4.2. List three (03) investigations that would help you to confirm the diagnosis. (30 marks)

4.3. What immediate intervention is required? (10 marks)

4.4. Outline the management. (40 marks)

Contd...../6-

5. A 14 year old girl was brought to the Emergency Unit by her grandmother. She was afebrile and drowsy but was arousable. Grandmother reports that the patient had been living with her for the last two weeks as the father has abandoned them and the mother is in the process of seeking foreign employment. Grandmother suspects that the child may have taken an overdose of some of her pills as she found an empty pill bottle in the child's room when she discovered her drowsy on the bed. Grandmother suffers from multiple ailments and is on many medications.

Vital parameters:

Temperature	98.6^0F
Heart rate	42/minutes
Respiratory rate	14/minute
Blood pressure	85/50 mmHg
Oxygen saturation	96% in room air

5.1. What are the two likely pharmacological groups which can cause the above presentation? (20 marks)

On subsequent examination, the child was found to have sweating with bronchospasms. Her Glasgow coma scale score was 14/15. No hepatomegaly.

Investigations done at ETU

Haemoglobin	12.1g/dl	(11-15)
WBC	10.2×10^9/L	
	N 65% L 30% M 3% E 2%	
Platelet count	385×10^9/L	(150-400)
C –reactive protein	5.0 mg/L	(<6)
ALT	32 IU/L	(20-40)
AST	25 IU/L	(20-40)
Capillary Blood Sugar	4.0 mmol/L	(5.0-7.0)
Urine Full Report	Normal	

5.2. Of the two pharmacological groups mentioned in 5.1,

5.2.1 Which is the most likely group to cause this presentation? (10 marks)

5.2.2 Give reasons for the answer (10 marks)

5.3. List five (05) investigations that you would request. (20 marks)

5.4. Briefly outline the management of this child. (40 marks)