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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (PAEDIATRICS) EXAMINATION – JANUARY/FEBRUARY 2016

Date :- 26th January 2016 **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. Define osteopenia of prematurity. (10 marks)

1.2. Discuss the factors responsible for osteopenia of prematurity. (30 marks)

1.3. Discuss the investigations to confirm the diagnosis of osteopenia of prematurity. (30 marks)

1.4. Outline the management of osteopenia of prematurity. (30 marks)

Q.2.

2.1. Define exclusive breast feeding. (15 marks)

2.2. Describe the oxytocin reflex. (30 marks)

2.3. Name five (05) anti infective agents available in colostrum. (15 marks)

2.4. Briefly explain the steps you would take to assess a 10 day old baby brought to the Lactation Management Centre with a history of poor feeding. (40 marks)

Contd...../2-

Q.3.

3.1. Define adolescence. (15 marks)

3.2. Outline the important changes that take place during adolescence.(45 marks)

3.3. Sri Lankan Paediatric wards will admit children up to 16 years of age in the near future. The Ministry of Health seeks advice from the Sri Lanka College of Paediatricians as to how such services should be planned.

Briefly outline the important aspects that would have to be taken into consideration for the provision of such services in an adolescent friendly manner. (40 marks)

Q.4. Outline the patho-physiological basis for the following observations.

4.1. Increased anion gap metabolic acidosis in diabetic keto-acidosis. (25 marks)

4.2. Absence of left ventricular hypertrophy in tetralogy of Fallot, despite the presence of a large ventricular septal defect. (25 marks)

4.3. Hypertension with bradycardia in raised intracranial pressure. (25 marks)

4.4. Worsening of hypoxia in acute severe asthma, if nebulized with salbutamol without oxygen. (25 marks)

Q.5. A 14 day old baby with ambiguous genitalia is transferred for evaluation.

5.1.

5.1.1. Describe giving reasons, five (05) clinical features (symptoms and signs) which would help in determining the probable sex of this baby. (40 marks)

5.1.2. Give four (04) investigations you would perform on this baby and explain the expected findings with the probable diagnosis where relevant. (40 marks)

5.2. Enumerate five (05) aspects useful in making a decision regarding the sex of rearing of a 3 week old baby with ambiguous genitalia. (20 marks)

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MD (PAEDIATRICS) EXAMINATION – JANUARY/FEBRUARY 2016

Date :- 27th January 2016 **Time :-** 9.00 a.m. - 12.00 noon

PAPER II – CASE HISTORIES

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

1. A 12 year old boy was transferred to a tertiary hospital with a history of bloody diarrhoea for 4 days duration. The stool frequency was 6-8 times a day and is associated with abdominal pain. He was diagnosed to have beta-thalassaemia major at the age of 6 months and was on regular 4-weekly blood transfusions and subcutaneous desferrioxamine.

   On examination he is febrile, ill looking, pale and has bilateral ankle oedema. He has mild icterus. The pulse rate is 140/minute and the blood pressure is 98/66 mmHg. Apex beat is felt at the 7th left inter-costal space 2 cm lateral to the mid-clavicular line. No murmurs. His respiratory rate is 44/minute and he has mild intercostal recessions. Percussion note is resonant and auscultation reveals bilateral fine crackles in lung bases. Abdominal examination reveals a firm 3 cm tender hepatomegaly and a 6 cm splenomegaly. There is moderate ascites. His Glasgow coma scale is 15 and the rest of the nervous system examination is unremarkable.

   Investigations reveal following results:

Haemoglobin	7.5g/dl	
WBC	4 200/µL	(5000 -11 000)
	N- 34%, L- 64%, E- 2%	
Platelets count	120,000/µL	(150 000 - 400 000)
ALT	75.6 U/L	(up to 40)
AST	148 U/L	(up to 40)
Serum albumin	2.47 g/dl	(3.5-5.4)

Contd..../2-

Serum globulin	4.62 g/dl	(2.5 - 3.5)
Serum alkaline phosphatase	225 IU/L	(34 - 104)
S. bilirubin	37 µmol/L	(1 - 24)
Blood urea	35 mg/dl	(10 - 50)
S. Creatinine	62 µmol/L	(60 -115)
Prothrombin time	26 seconds	(control 14)
INR	2.34	
Serum Ferritin	5643 ng/ml	(15 - 200)
2D echocardiogram	Dilated right atrium and ventricle. Left ventricular dysfunction+. Ejection fraction 40%.	

1.1. State the most likely cause for bloody stools. (10 marks)

1.2. List the other medical problems in this child. (20 marks)

1.3. Discuss briefly the short term management of this child. (40 marks)

1.4. Briefly outline how this situation could have been prevented in an optimal resource setting. (30 marks)

Contd..../3-

2. A 5 year old girl who was referred by the school teacher for assessment of poor scholastic skills was admitted to the ward for further evaluation.

She is born to non-consanguineous parents and has not had any obvious ante-natal or post-natal complications. Her birth weight was 2.5 kg. There is no family history of neuro-developmental disorders.

She has a delay in achieving milestones compared to her older siblings. She had difficulty in climbing stairs, had a vocabulary of about 30 words but was unable to link words at the age of 3 years. She was able to do circular scribbling only. As the parents were concerned she was evaluated at the local clinic at the age of 3 years with full blood count and thyroid function tests and the parents were reassured.

On examination her growth parameters show the height and weight at the 10^{th} percentile and the occipito-frontal circumference at the 3^{rd} percentile. There were no obvious dysmorphic features and the examination of the systems did not reveal any abnormality.

2.1. Name four (04) disease categories you would consider in this child. (30 marks)

While in the ward she developed fever which is followed by recurrent right focal seizures. She loses her ability to walk and is unable to talk. She is also noted to sleep excessively.

Investigations done during the acute stage:

Haemoglobin	11.2g/dl	(11 - 12.5)
WBC/DC	9.8 x 10^9/l L -38%, N -58%, E - 4%	
Platelet count	220 x 10^9/l	(210 - 450)
C-reactive protein	7 mg/dl	(<6)
Random blood sugar	5.2 mmol/l	(5 - 7)
Serum Sodium	138 mmol/l	(135 - 145)
Serum potassium	3.8 mmol/l	(3.5 - 4.5)
Serum ionized calcium	1.2 mmol/l	(1.0 - 1.3)

2.2. Write three (03) possible causes for the acute deterioration. (30 marks)

Contd..../4-

Her seizures became infrequent by the following day. However she was noted to have right sided weakness and the following investigations were done.

ALT	115 U/L	(<40)
AST	92 U/L	(<40)
Arterial Blood gas:		
pH	7.31	
pO_2	10.2 kPa	(9.3 - 13.3)
pCO_2	3.8 kPa	(4 - 5.5)
Bicarbonate	17 mmol/l	(20 - 26)
Base excess	-8 mmol/l	(-3 to +3)
Septic screen	negative	

2.3. What is the most likely diagnosis? (10 marks)

2.4. Name three (03) investigations you would perform to support the above diagnosis. (30 marks)

Contd..../5-

3. A 2 month old boy was admitted with tachypnoea. He had nasal congestion and feeding difficulties in the last few days but there was no fever or cough.

He was the firstborn of non consanguineous parents. He was born at term after an uneventful antenatal period and the birth weight was 3 kg. There were no problems in the early neonatal period and the baby was exclusively breast fed. There were no major concerns except that the mother noticed that the baby was breathless from time to time for which she sorted medical advice. She was reassured by the doctor that it was the normal breathing pattern in infancy. Mother also had noticed that the rapid breathing improves after feeding and felt reassured and fed him very often.

On admission his respiratory rate was 60 per minute with intercostal and sub costal recessions. Air entry was equal and there were no added sounds. His heart rate was 160/minute and the pulse volume was satisfactory. The capillary refilling time was less than 2 seconds. The apex was in the fourth inter costal space at mid clavicular line. There were no murmurs. Liver was palpable 5 cm below the right costal margin.

The weight on admission was 4.8 Kg

Oxygen saturation was 96% in room air on admission.

Haemoglobin	12 g/dl	
WBC/DC	9.0 x 10^9/L N - 54%, L - 44%, M - 2%	
Platelet count	198 x 10^9/L	(150 - 400)
Serum sodium	140 mEq/L	(134 - 144)
Serum potassium	4 mEq/L	(3.5- 6)
Blood urea	5 mmol/L	(4 - 6)
ALT	38 U/L	(<40)
AST	44 U/L	(<40)
Capillary blood sugar	2.2 mmol/L	(5-7)
C-reactive protein	4 mg/dl	(<6)
ECG	Sinus tachycardia with normal QRS complexes and ST segments.	
Chest x ray	Lung fields were normal and there was no cardiomegaly.	

3.1. What is the likely diagnosis? (30 marks)

3.2. List three (03) investigations with the expected results which would be helpful in arriving at a diagnosis. (30 marks)

3.3. How would you confirm the diagnosis? (10 marks)

3.4. Outline the principles of management. (30 marks)

Contd...../6-

4. A 10 year old girl was admitted to paediatric casualty ward with a two day history of abdominal pain and vomiting. She had vomited five times on the day of admission. Vomitus was not blood or bile stained. Central abdominal pain was episodic. There were two episodes of loose stools on the day of admission. There was no fever or dysuria. At the time of admission she developed a generalized tonic clonic convulsion.

She has had several episodes of abdominal pain associated with vomiting for the last two months. She was admitted to a district general hospital one month before with abdominal pain and had undergone an appendicectomy. Subsequently, she had intermittent fever for one week, was readmitted and was treated with intravenous antibiotics for 7 days. Since then she was asymptomatic till the present admission. There were no other significant illnesses in the past. Mother revealed that there was loss of appetite and loss of weight over the last two months. The child had felt faintish and weak and had returned early from school on several occasions.

She was born at term. There were no antenatal or postnatal complications. Immunization and development are age appropriate. Parents are non consanguineous. Mother is taking thyroxin for the last 8 years. Father has poorly controlled bronchial asthma.

On examination:

Weight was less than 3rd percentile and height at the 10th percentile. She was ill and wasted with a dark complexion. There was significant dehydration. She was pale. Bilateral cervical and axillary lymphadenopathy was noted. Abdomen was soft, non tender and the liver was palpable 2 cm below the right costal margin. The spleen was palpable 2 cm below the left costal margin. Pulse rate was 130/minute, capillary refill time was 3 seconds. The blood pressure was 80/60 mmHg. Respiratory and nervous systems were clinically normal.

Investigations :

Haemoglobin	7.8 g/dl	
WBC	2.8 $\times 10^9$/L N - 50%, L - 45%, E - 5%	
Platelet count	140 $\times 10^9$/L	
Serum sodium	118 mEq / L	(134 - 145)

Contd.../7-

Serum potassium	5.7 mEq/L	(3.5 - 6.0)
Blood urea	5.0 mmol/L	(4 - 6)
Random blood sugar	2.5 mmol/L	(5 - 7)
ESR	130 mm - 1st hour	
ALT	65 U/L	(<40)
AST	85 U/L	(<40)
Blood picture	Evidence of pancytopenia. No abnormal cells.	

Ultrasound scan of the abdomen

Multiple mesenteric lymph nodes were noted. Hepatosplenomegaly was confirmed.

4.1. What is the most likely cause for her acute presentation? (10 marks)

4.2. List three (03) possible underlying aetiological diagnoses for the condition mentioned in 4.1. (15 marks)

4.3. List four (04) investigations to confirm the diagnosis mentioned in 4.1. (20 marks)

4.4. Give two (02) investigations each to support the diagnosis of the three conditions you have mentioned in 4.2. (30 marks)

4.5. Outline five (05) important aspects of management within the first 24 hours of admission. (25 marks)

Contd.....8/-

5. A 5 year old boy was transferred to a general paediatric ward after being treated in a surgical unit for five days. The child was admitted with a history of fever, constipation and abdominal pain which was colicky in nature. He was not ill and had tenderness in the right iliac fossa with no guarding or rigidity. The bowel sounds were heard. There was a history of recent weight loss and loss of appetite.

Following investigations were performed in the surgical unit.

Haemoglobin	10 g/dl	
WBC/DC	11 x 10^9/L	N - 65%, L - 31%, E - 4 %
Platelet Cunt	360 x 10^9/l	(150 - 400)
CRP	12 mg/dl	(<6)
Ultra sound scan abdomen	Thickened colon and there were no other abnormalities.	

His symptoms got better after treatment with laxatives and intra venous cefuroxime. Subsequently, he developed a rash, back pain and arthralgia with swelling of multiple joints. On examination he was febrile and had swelling in both wrist joints and in the right ankle with limitation of movements. There was no tenderness in the abdomen.

Ultrasound scan of the joints showed peri-articular inflammation and there were no joint effusions.

5.1. List three (03) likely conditions which could give rise to above presentation. (30 marks)

5.2. Mention two (02) information in the history and two (02) physical signs you would look for to arrive at a diagnosis of each condition mentioned in 5.1. (40 marks)

5.3. Mention five (05) investigations, giving reasons you would request to arrive at a diagnosis. (30 marks)