

# **West Midlands FCEM Course**

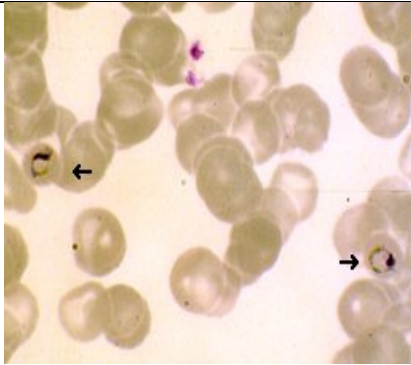
**January 2010**

**Clinical SAQ Paper**

Clinical SAQ Paper

**QUESTION 1**

**[A]** A 21 yr old British resident travelled to Bolivia and has returned unwell with fevers, chills, nausea and flu-like illness



His blood film is shown. What is the diagnosis?

[1 mark]

**[i]** What are the four species; **[ii]** which one causes severe and potentially fatal disease in humans and **[iii]** describe how the infection is transmitted to humans?  
[3 marks]

Name 4 complications

[2 marks]

Name 2 indications for ITU admission

[1 mark]

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**[B]** This 48 year old Pakistani woman developed cough and haemoptysis with night sweats and weight loss



**What test may be useful in determining the underlying diagnosis, and describe this test? [2 mark]**

**With regards to TB status, what is the recommendation (NICE/ RCP/ HCC) regarding locum doctors? [1 mark]**

**QUESTION 2**

A 35 year-old male with known asthma presents to the ED with acute asthma exacerbation. In the past 12 months, he had been admitted twice to ITU with life-threatening asthma, the last being within the previous month. He is known to have good compliance with his multitude of asthma control medications. His GP has re-commenced him on Prednisolone 40 mg o.d. the previous day. In the preceding 2 hours, he has had 3 home nebulisers (Salbutamol) prior to calling the ambulance.

His respiratory rate is 35/min, pulse rate 130/min, BP 95/60 mmHg. His arterial blood gases on arrival were pH 7.1, PaO<sub>2</sub> 8.4, PaCO<sub>2</sub> 11.2, BE minus 4. Despite adequate management, including high flow oxygen, repeated nebulised  $\beta$ -agonist and IV Magnesium, he continues to deteriorate with his RR dropping to 7/min, HR 145/min, unrecordable BP and drowsiness. The intensivist advises immediate intubation/ventilation,

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but is unable to get down to ED for about an hour (and you are the most competent personnel available).

**What is the usual method of pre-oxygenation prior to RSI? [1 mark]**

**Following Preoxygenation, what are the three treatment (medication) steps? [1.5 marks]**

**What is the correct head / neck positioning in such patients, how is this position achieved and why? [1.5 marks]**

**What are the four steps to ensure / confirm correct tube placement? [2 marks]**

**How long should cricoid pressure be maintained [1 mark]**

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After three failed attempts at intubation, you are unable to adequately oxygenate with BVM (despite correct head & neck positioning). What would be your next step (you are still the most competent personnel available)? [1 mark]

What would the next step if the above step failed, and you are unable to ventilate or oxygenate the patient? [1 mark]

What would this patient require if the above step proves inadequate? [1 mark]

**QUESTION 3**

A 25-year-old woman, who is 27 weeks pregnant, has been a passenger in a high speed RTA. She was wearing a car seat belt. She has abdominal bruising and cramps. She has no PV bleed, but is known to be rhesus negative.

Her RR is 16/min, pulse 100/min, BP 100/70mmHg and temperature 36.3<sup>o</sup>.

What treatment is necessary during a sensitising incident in known rhesus-D negative women and within what time frame should it be given? [2 marks]

Radiological investigation - how would pregnancy change your threshold or interpretation for radiological investigation? [1 mark]

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After 48 hour admission under the care of Obstetricians, she was successfully discharged, fit and well. She presents to the ED again at 35 weeks, with shortness of breath, pleuritic chest pain, normal 12-lead ECG, respiratory rate of 22/min and is haemodynamically stable.

**In order to consider the patient for anticoagulation, what would be your first line radiological investigation (not a plain CXR whose main role is excluding alternative diagnosis)?**

**Explain how the result of this test would influence your further management**  
**[2 marks]**

**CTPA, V scan and Q scan are all reported as well below the upper limit considered unsafe for foetal radiological absorption. What are the relative foetal radiological absorption risks of –**

- (i) CTPA versus V scan**
- (ii) CTPA versus Q scan**

**[1 mark]**

She is confirmed as having PE, but remains haemodynamically stable

**What anti-coagulant agent would you commence –**

**Name and route**

**[1 mark]**

**Dosage guidance**

**[1 mark]**

**For how long would you expect her to be on anticoagulants (including post puerperal period)?**  
**[1 mark]**

**She tells you that she intends breast feeding. How does this influence the choice of post-puerperal anticoagulant?**  
**[1 mark]**

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**QUESTION 4**

A 44 year-old man presents to the Emergency department with fever, rigors and dysuria

**Name four features that will indicate the presence of systemic inflammatory response. [2 marks]**

**Apart from dysuria, what other signs and symptoms would suggest new infection; name four [2 marks]**

**Name four features that would indicate organ dysfunction [2 marks]**

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**You have confirmed the presence of severe sepsis. Outline the 6 components of his management in the ED. [3 marks]**

**His arterial blood gas results are as given: pH 7.15; pCO<sub>2</sub> 3.5; pO<sub>2</sub> 8.5; HCO<sub>3</sub> 15; BE -6; Lactate 2.5; Na 142; K 4.5; Chloride 98. Calculate the anion gap? [1 mark]**



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**QUESTION 5**

A 27 year-old female weighing 69kg attends the ED with the butterfly from her ear-ring stuck in her lobe.

**Draw the ear, its sensory innervations and the landmarks for nerve block that would enable you to remove the butterfly [5 marks]**

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**Calculate the dose in mls of 1% lignocaine you could use for this procedure. Show your calculations** **[ 2 marks]**

**Give 3 systems affected by local anaesthetic toxicity and how they are affected** **[3 marks]**

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**QUESTION 6**

**[A]** A 27 year-old male presents to your ED following a rugby tackle injury; he went into a tackle hitting the opponent with his right shoulder/neck/head. He presents with his right arm hanging limply by his side with the forearm pronated and the palm facing backwards (like a porter hinting for a tip).

**You make a diagnosis of Erb-Duchenne paralysis.**

<b>What plexus is injured?</b>	<b>[0.5 mark]</b>
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<b>Which muscles are injured; name at least three</b>	<b>[1.5 marks]</b>
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**[B]** A 21 year-old-female presents to your ED with laceration on the volar surface of her right wrist.

<b>Assuming that the median nerve is divided at the wrist, which two groups of muscles would you expect to be paralysed?</b> <b>[1 mark]</b>
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**Describe the relation of the median nerve in the carpal tunnel; with regards to its position and its radial, ulna, overlying and underlying structures  
[2 marks]**

**[C]**

**What is the maximum adult doses/kg (or other lower maximum dose) for the following local anaesthetics? [ 2 marks]**

**Give 3 organ systems affected by local anaesthetic toxicity and how they are affected**

**[3 marks]**

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**QUESTION 7**

A 62 year old man presents with a history of sudden loss of speech whilst he was driving. His partner says he was getting his words muddled up, and this went on for about 90minutes, but this has now completely resolved. He also had transient loss of vision in his right eye lasting 5 minutes. He did not suffer any weakness of his limbs. He feels back to normal now and wishes to go home.

PMH: Type I diabetes. He is not known to be hypertensive or have high cholesterol. His BP is 150/90mmHg. All other vital signs are within normal limits.

**What is his risk for a major cerebro-vascular event? [1 mark]**

**Outline the ABCD2 criteria for risk assessment of TIA [2 marks]**

**What two mandatory tests should be done within the first 24 hours (excluding blood tests)? [2 marks]**

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**Regarding treatment:**

- 1) What is the target cholesterol level for this type of patient?**
- 2) If he is already on aspirin, what other medication should be considered?**

**[2 marks]**

**If he had presented with an established ischaemic stroke, what is the time scale for thrombolysis?**

**[1 mark]**

**What agent is licensed in the UK and what is the dose/kg?**

**[1 mark]**

**Patients with this eye presentation have a higher risk of two main systemic sequelae. What are these?**

**[1 mark]**

**QUESTION 8**

A 32 week pregnant lady presents with a headache and BP of 160/100

**Apart from headache and HT, list 6 symptoms/signs of pre-eclampsia [3 marks]**

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List 3 or more risk factors for pre-eclampsia

[3 marks]

How would you reduce the blood pressure?

[1 mark]

Her condition deteriorates and she starts to fit. What definitive drug treatment would you give (one drug: name, dosage and route)?

[2 marks]

What are the signs of magnesium toxicity?

[1 marks]

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**QUESTION 9**

**A)** Ambulance crews attended a two-year-old child who was floppy and unresponsive and had difficulty breathing. Her 15 year old sister and her mum are also feeling unwell with tiredness. They have recently been using stand-alone gas heaters and you suspect Carbon Monoxide poisoning (CMP).

**Give the commonest symptoms and signs, in order of frequency in CM poisoning cases: [2 marks]**

**Outline your management if CoHb levels in a patient were 20%. [2 marks]**

**What are the indications for hyperbaric oxygen therapy (HBOT)? [2 marks]**

**B)** A 60kg weight, 15 year old girl attends the ED claiming to have taken 30 Paracetamol tablets 5 hours ago. She is asymptomatic. Your SHO has taken levels and immediately commenced Parvolex

**Which patients are at greater risk of toxicity from Paracetamol OD; name two groups [1 mark]**



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What are the four phases of Paracetamol overdose?

[2 marks]

Can NAC treatment be used in pregnant patients, and why?

[1 mark]

**QUESTION 10**

[A] A 14 year old girl comes to the ED with lower abdominal pain. She is here without her parents and pregnancy test is positive. She is requesting a termination. She is in a relationship with a 19 year old partner.

How do you assess someone has capacity [BMA]? [2 marks]

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**What three points must you think about regarding Gillick competence? [3 marks]**

**[B]** A 75-year-old with left lobar pneumonia has presented to Emergency Department with a temperature of 38.9C, respiratory rate of 32 breaths /min, BP of 130/70mmHg. PR 110/min. His wbc was  $15 \times 10^9/L$ , Hb 12.5g/dL, Platelets  $250 \times 10^9/L$ , urea 24mg/dL, Creatinine 140 $\mu$ mol/L, Na 142mmol/l, K 3.8mmol/L.

He was alert on arrival and presented a personally signed “advance directive” stating that he has prostate cancer and he does not want treatment.

He suddenly deteriorated whilst in the department and went into shock, with reduced level of consciousness. The daughter tells you that he should not be admitted to ITU or ventilated according to his “advance directive”.

**What are the principles of the Mental Capacity Act 2005? [3 marks]**

**Under the Mental Capacity Act 2005, would you consider him for ITU admission and cardio-respiratory resuscitation? [1 mark]**

**Give a reason for your answer [1 mark]**

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**QUESTION 11**

**[A]**

An 18 month old child is brought into the ED by his mother. He has been playing with a few 10p coins and she thinks she saw one in his mouth.

**What two methods of investigation could be carried out in the ED? [1 mark]**

**Describe 3 sites and the vertebral level at which foreign bodies are most likely to get stuck. [3 marks]**

**site: level:**

**site: level:**

**site: level:**

**[B]**

A three year old child presents to the ED with coryza and a barking cough.

**What is the commonest causative organism for this condition? [1 mark]**

**Name four of the features used in the Westley modified croup score? [2 marks]**

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**In a child with severe croup, apart from corticosteroids name one other drug that you are likely to use, giving dose and route of administration. [1 mark]**

**[C]**

A previously well 10-month old baby boy presents to the ED with about 6 hours history of vomiting and paroxysmal abdominal pain (about 10 – 20 min frequency). He also has loose and watery stools. On examination, he appears well between the episodes of abdominal pain, his abdomen is soft and non-tender, but appears to have a palpable vertical mass in the RUQ. His stool shows occult blood.

**What is the most likely diagnosis? [1 mark]**

**What is the investigation of choice? [1 mark]**

**QUESTION 12**

**A)**

A 2 year old boy is brought into your Paediatric ED with a fever of 38.5 deg C and vomiting of 2 days duration. He has had no coryza or cough. He has no rash.

The nurses have done a urine dipstix which is positive for leucocytes esterase and nitrites. According to the NICE guidelines for management of UTI in children:

**Give two indications for sending the urine sample for culture? [1 mark]**

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**Give two indications for referring to a Paediatric Specialist? [2 marks]**

**What is defined as atypical UTI; give four examples? [2 marks]**

**B)**

A 2 month old child is brought into the paediatric ED by parents. They are worried he is not feeding well and has developed a temperature which they report as 39deg C at home. He has had a coryza illness for 6 days now. He appeared to be getting better after a few days but took a turn for worse 1 day ago. He is reported to be "sleepy" at unusual times of the day.

He is pale, does not respond normally to social cues. He wakes only with prolonged stimulation. His temperature is 38.5deg C. When he cries, it is high pitched.

**Give four indications for parenteral antibiotics in a child with feverish illness?  
[2 marks]**

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What anti-microbials would you consider in the 2 month old child above? [3 marks]

**QUESTION 13**

A 28 year old woman presents to the ED with lower abdominal pain for 24 hours. She has been vomiting today and has a purulent vaginal discharge. Her temperature is 38.3C

Name 2 sexually transmitted and 2 non-sexually transmitted causative organisms [2 marks]

How would you make a definitive diagnosis? [1 mark]

Name 4 possible sequelae of PID [2 marks]

Give the dermatomal innervation for the following pelvic organs [3 marks]

Ovaries –

Uterine fundus –

Labia and perineum –

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**She asks you what should be done with her IUCD. What advice would you give her? [1 mark]**

**If she was HIV positive would this influence your choice of antibiotics? [1 mark]**

**QUESTION 14**

**A)**

A 60 year old man was brought into the ED via ambulance at 9pm. He had sustained a fall down a couple of stairs onto a pavement (concrete). He has had some alcohol, and is somewhat belligerent.

**Give four indications for CT head scan within 1 hour of presentation? [2 marks]**

**He is admitted to the Observation ward/CDU as his GCS was 15/15 at 90mins post admission, and there were no other indications for immediate CT head imaging. Outline the instructions you will give in the patient's notes that will trigger urgent reappraisal by supervising doctor; give four. [2 marks]**

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**NICE Guidelines states that as a minimum, half-hourly observation should be done until the GCS is 15. Once the GCS is 15, outline the time interval for minimum acceptable neurological observations. [2 marks]**

**B)**

Your SHO discusses a 30 year old woman with you. She presented with a 2 day history of headache and perception of left sided weakness. He cannot find any neurological loss on examination. He wonders if it is ok to discharge her, especially as she wants to get back home to her 1 week old baby who she had by Caesarean section. He has assessed her as a low risk TIA, and wishes to process her on outpatient basis.

**What important diagnosis should you consider and what is the investigation of choice? [2 marks]**

**If confirmed, what is the treatment? If this treatment fails what other treatment option is available? [2 marks]**

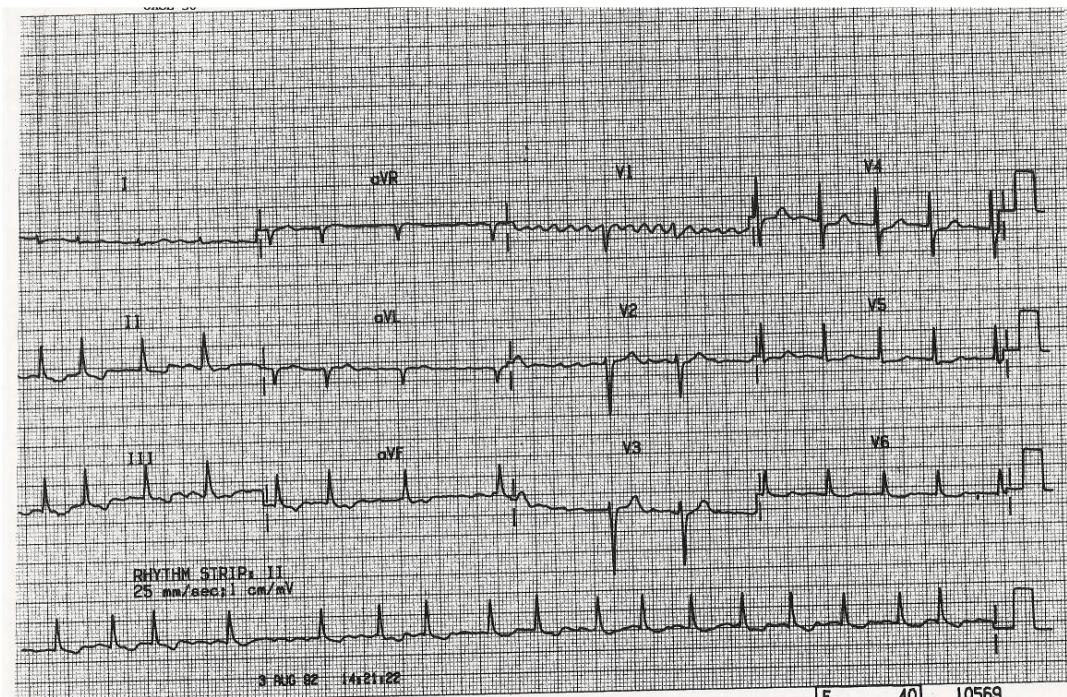


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**QUESTION 15**

A 60 year old man presents to the ED at 0900 with a history of rapid heart beats starting at 10pm the previous night. He gives no history of chest pains. He is normally fit and well and has no PMHx. He is not on any regular medications.

His blood pressure is 140/80; His heart rate is 140bpm. His Oxygen sats are 97% on air. His 12 lead ECG is as shown.



**What are the indications for a rate control strategy in a patient with this condition?  
[2 marks]**

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**You decide he is best managed using rhythm control. Outline your management? [4 marks]**

**You need to know his risk for a thromboembolic event. Outline the high risk factors? [3]**

**Explain why the patient needs an anti-arrhythmic drug? [1]**

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**QUESTION 16**

A 45-year -old male presents to your ED with a few days history of fever, malaise, headache and vomiting.

**Due to the ongong H1N1 flu pandemic, your junior doctor asks for advice regarding the appropriate face mask to use.**

**Given the option of the following, (1) surgical face mask, (2) FFP2 mask and (3) FFP3 mask, which one would you advice him/her to use? [1 mark]**

**Who and/or when is each of the above three masks indicated in suspected H1N1 infection? [1.5 marks]**

**Surgical face mask -**

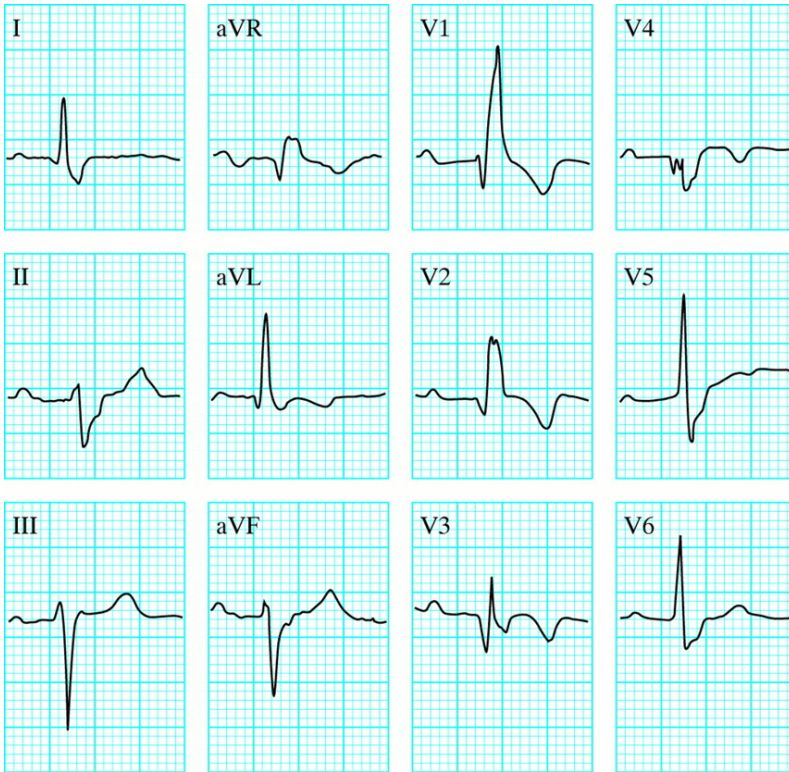
**FFP2 –**

**FFP3 –**

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On further questioning he says preceding this current illness, he has had dizzy spells over the last couple of months but always with a full recovery.

This is his ECG on admission.



**Give 3 abnormalities** [1.5 marks]

**What is this group of features also known as?** [0.5 mark]





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The patient above resides with both his parents. 2 months after this attendance, his parents (with parental responsibility) request access to the medical record of that attendance (under Access to medical record section of the Data Protection Act 1998)

**[B] Under this Act; who has the right to apply for access to their health records?  
- [1 mark]**

**[C] Under this Act, what is referred to as "Personal data"? [1 mark]**

**Under this Act, give one of the two reasons where access could be denied or limited to a patient or their authorised representative. [1 mark]**

**In the National Health Service, what is the role of the Caldicott Guardian? [1 mark]**

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**QUESTION 17**

A 45 year old man presents with a one day history of a painful, watering eye. He has had similar symptoms before but never this badly; he can recall no trauma.



**Give four differential diagnoses.**

**[2 marks]**

**Which is most likely and why?**

**[1 mark]**

**Give 4 associated diseases.**

**[2 marks]**

**Outline your management plan, in the ED.**

**[2 marks]**

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Name two complications.

[2 marks]

List one further management option.

[1 mark]

**QUESTION 18**

**[A]**

An eight year old boy presents with a history of painful joints, associated with a rash. He had a sore throat two to three weeks ago. You suspect he has acute rheumatic fever.



What are the principles of the diagnosis of this condition? [3 marks]



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**What single laboratory test is required to confirm the diagnosis [1 marks ]**

**Outline four principles of treatment of acute rheumatic fever [2 marks]**

**[B]**

A mother brings her 6 year old child to the ED with lethargy and malaise for a few weeks. She is limping and complaining of hip pain. There is gross limitation of movements of the left hip.

Full count results show:

Hb 8.4

Platelets 20

WBC 28

Reticulocytes 0.5%

**Give 4 possible diagnoses (2 marks)**

**i)**

**ii)**

**iii)**

**iv)**

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Give two investigations you would like to perform? [1]

i)

ii)

iii)

iv)

v)

vi)

Comment on the blood results [1]

i)

ii)

iii)

**QUESTION 19**

[A]

A two week old baby from Africa presents to the ED with jaundice. He is a little lethargic.

Give four causes which should be considered in any neonate presenting with jaundice? [2 marks]

What is the physiological basis of breast milk jaundice? [1 mark]

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What is the peak time for occurrence of breast milk jaundice? [1 mark]

[B]

The patient subsequently develops other lesions (see picture) on the face, trunk, palms, soles, groin, mouth and eyes. He also develops a fever and becomes systemically unwell



What is the diagnosis? [1 mark]

Name 2 other causes? [1 mark]

What is the management principle in treating such patient; name at least two? [1 mark]

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[C]

This 2 year old child with a strong family history of eczema presented to the ED with a 5 day history of this rash. She has been seen by GP 3 days ago and a course of Flucloxacillin commenced then has not helped. Mum thinks it is worse now.



What is the diagnosis? [1 mark]

What causative organism and treatment? [1 mark]

Describe the aetio-pathogenesis of this condition? [1 mark]

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**Clinical SAQ Paper**

**Question 20**

**[A]**

A 6 year old child had drunk colourless liquid found in garage. He was brought in by dad unconscious. He was found to have central cyanosis.

His capillary blood gas showed: Ph 7.2, pCO<sub>2</sub> 2.6, O<sub>2</sub> normal, HCO<sub>3</sub> 12, BE -5 (minus 5)

**What have they ingested? [1 mark]**

**What two things assist your diagnosis? [2 marks]**

**What drug do you give? [1 mark]**

**Explain the cyanosis despite normal O<sub>2</sub>? [2 marks]**

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**[B]**

A three year old child presents to the ED with coryza and a barking cough.

**What is the commonest causative organism for this condition? [1 mark]**

**Name four of the features used in the Westley modified croup score? [2]**

**In a child with severe croup, apart from corticosteroids name one other drug that you are likely to use, giving dose and route of administration? [1]**