• Oral steroids – inhaled steroids
• Antibiotic therapy
• Being pregnant
• Ill fitting dentures

Which patients are suitable to receive treatment with miconazole oral gel?

• Warfarin patients
• Patients on sulphonylureas

• Patients on steroid inhalers
• Patients on phenytoin
• Pregnant or breastfeeding patients

A patient on clenil modulite inhaler comes into the pharmacy with a sore mouth, upon inspection you notice there is a faint white lining to the mucosa. What is happening and how will you treat the patient? (4 marks)

The patient is experiencing oral thrush, (0.5 marks) most likely caused by the use of a steroid inhaler, clenil. (0.5 marks) I would treat the patient with miconazole 20mg/g which is Daktarin oral gel (0.5 marks). Tell them to apply 2.5ml of gel to the area four times a day after food (0.5 marks). They should keep up treatment for two days after the symptoms disappear (0.5 marks). I would also counsel on inhaler technique and tell the patient to rinse their mouth out after the use of the inhaler (0.5 marks). I would also tell them using a spacer could reduce their risk of getting thrush (0.5 marks). And if the thrush doesn’t get better or comes back they should see their doctor (0.5 marks).

When would a patient with an ulcer be able to be treated in the pharmacy?

• If they have recurrent ulcers
• If the ulcer is more than 3 weeks old

• If the patient has a first time mouth ulcer
• If the patient is pregnant
• If the patient is diabetic
• If the patient is on an immunosuppressant drug

Outline how oral cancer may differ from a normal mouth ulcer (3 marks)
A mouth ulcer is a small white patch on the lips, tongue or mucosa (0.5 marks). Mouth cancer can unfortunately look very similar to this, (0.5 marks) however usually cancer will not heal and after three weeks (0.5 marks) or so the patient will see no improvement which they would with an ulcer (0.5 marks). Furthermore there may also be a lump that can be felt either on the lip or in the mouth, (0.5 marks) usually with mouth ulcers there is no lump present so this would be referral (0.5 marks).

How would you expect an IBS patient to present to the pharmacy (3 marks)
Usually a woman as it is twice as likely (0.5 marks). Of adolescent or young adult age (0.5 marks). With alternating bouts of constipation and diarrhea (0.5 marks). Matched with intense abdominal pain (0.5 marks). Incomplete evacuation when they go to the bathroom (0.5 marks). They may also have non colonic symptoms such as nausea, back pain and urinary frequency (0.5 marks).

When and how can we treat a patient with IBS
Patients must be diagnosed by a doctor for us to treat them OTC (0.5 marks). If they have these symptoms and no diagnosis they should be referred (0.5 marks). If they are diagnosed however treatment will depend on the symptoms (0.5 marks). For diarrhea treat with loperamide which will decrease bowel motility (0.5 marks). They should take two 2mg tablets stat then one 2mg after every loose stool with a max of 8 tablets in 24 hours (0.5 marks). A bulking agent may improve constipation and diarrhea so suggest this is alternating is occurring (0.5 marks). Ispaghula husk is appropriate (0.5 marks). For IBS abdominal pain give
invasive (0.5 marks). It however has potential for false negatives and the results take two days (0.5 marks).

What other urease test is there
Urease of HP generates ammonia which causes a colour change (0.5 marks). Sensitivity and specificity is over 90% (0.5 marks). This is the test of choice at endoscopy (0.5 marks). It is easily performed and gives rapid results (0.5 marks). Disadvantages include it requires an endoscopy (0.5 marks). It causes patient discomfort (0.5 marks). It is expensive and can give false negatives (0.5 marks).

Outline some key safety points for PPIS
They can increase the risk of fractures (0.5 marks). Especially in the elderly and smokers (0.5 marks). Can increase the risk of GI infections (0.5 marks). Can cause clostridium difficile so may need to be withheld during antibiotic treatment (0.5 marks). May mask signs of gastric cancer (0.5 marks). If patient is taking anything which can cause hypomagnesaemia or digoxin then measure serum magnesium (0.5 marks). Can rarely cause hypoxaemia (0.5 marks). Omeprazole inhibits the enzyme which activates clopidogrel so it reduces efficacy (0.5 marks).

A patient presents to the pharmacy with severe abdominal pain and diarrhea it has been on and off for three months but has gotten worse and now they have a fever. What would be your first thought and what other symptoms does this disease have?
This patient is likely experiencing crohns disease (0.5 marks). This is a chronic inflammatory disease of the GI track (0.5 marks). Where the patient can experience abdominal pain, diarrhea, fever, fatigue, weight loss and mouth ulcers (0.5 marks). Patients may also experience inflammation of the skin, eyes, joints and liver (0.5 marks).

Which of the following is not a potential complication of crohns disease?

- Anaemia
- Colon cancer
suspected. (0.5 marks). GI, withdraw if stomatitis develops. (0.5 marks). Pretty much all drugs interact but the two main mode of action is drugs which reduce renal excretion and drugs with antifolate activity. (0.5 marks).

Outline how biologics can be used in crohns disease
Tumour necrosis factor alpha is over expressed in crohns disease and is partly responsible for the chronic inflammatory process. (0.5 marks). Infliximab is a chimeric human-murine monoclonal antibody that binds to high affinity TNF and inhibits its activity as well as directly neutralizing cytokines. (0.5 marks).
Indicated when: Treatment in adults for severe crohns which is active (0.5 marks). Patients whose disease has not responded well to conventional therapy (0.5 marks). Patients who are intolerant or have contraindications to normal therapy. (0.5 marks).
It should only be given for: As a planned treatment until treatment failure or surgery. (0.5 marks). 12 months after the start of treatment, whichever is shorter. (0.5 marks).
Contraindicated in patients with: crohns related abscess (0.5 marks), moderate to severe heart failure (0.5 marks), multiple sclerosis (0.5 marks), TB (0.5 marks). Lymphoma (0.5 marks). Recurrent infections (0.5 marks), Hep B (adalimumab only infliximab is fine) (0.5 marks).
Side effects include: headaches, sore throat, swallowing problem, aches and pains, swelling of the legs or face, nausea, diarrhea and abdominal pain. Can remain in the body for up to six months. (0.5 marks).
Long term: Increased risk of lymphoma (0.5 marks). Patients with COPD or heavy smokers may have increased risk of cancer (0.5 marks). May exacerbate MS (0.5 marks).
COPD

A 51 year old male weighing 75kg is admitted to hospital with an acute exacerbation of COPD the patient is started on aminophylline 500mcg/kg/hour. The nurse adds 750mg to 500ml of glucose 5%.

Comment.

We need to work out if the patient has had this before if not they may require a loading dose (0.5 marks) there are age based adjustments for this drug that would need to be checked (0.5 marks) we also need to know of any other medical conditions or things such as heart failure need an adjustment of up to 50% (0.5 marks) dose should be calculated on ideal body weight not actual weight so that would need to be calculated (0.5 marks) glucose 5% or NaCl0.9% is a suitable diluent (0.5 marks) 75*500/100=37.5mg

750mg/37.5mg (max per hour) = 20

500ml/20 = 25 ml/hour

it should be given at a rate of 25ml per hour.

This can cause hypokalaemia, especially if the patient is also taking diuretics, beta agonists or corticosteroids. If given too quickly can cause reduce blood pressure, can cause arrhythmias, headache and insomnia.

Define COPD and suggest how it would present (6 marks)
Characterized by obstructive airflow (0.5 marks) which is progressive and not fully reversible. (0.5 marks) It does not change markedly over several months. (0.5 marks) obstruction is due to a combination of airway and parenchymal
Pulmonary rehabilitation is defined as a multidisciplinary programme of care or patients (0.5 marks) with chronic respiratory impairment (0.5 marks) that is individually tailored and designed to optimize each patient's physical and social performance and autonomy. (0.5 marks) It includes multidisciplinary interventions, physical training, disease education and nutritional, psychological and behavioral interventions. (0.5 marks)

What common complication can occur at end stage COPD which affects the heart

Cor pulmonale is the clinical syndrome of right-sided heart failure secondary to lung disease (0.5 marks) and whose primary pathology is retention of salt and water leading to oedema. (0.5 marks) It will present as peripheral oedema, raised venous pressure, systolic parasternal heave and loud second heart sound. (0.5 marks) Patients will probably need LTOT and a diuretic. (0.5 marks) It is not recommended to give an ACE, CCB alpha blocker or digoxin. (0.5 marks)

Note Carbocisteine can be given as a mucolytic to help break up sputum for expulsion. Be careful that this can cause gastric ulceration so therefore should be used in caution in any
attack as outlined in the NICE guidelines. (0.5 marks) Her PEF is only 200, this is 43.5% of normal, (0.5 marks) acute asthma is stated as 33-50% of normal PEF (0.5 marks). Her respiratory rate is exceeding the diagnostic 25 breaths per minute reaching 29. (0.5 marks) Her heart rate is exceeding the diagnostic marker of 110 beats per minute by reaching 115. (0.5 marks) And SpO2 is defined in acute asthma as equal to or less than 92 and she is on 92. (0.5 marks) The patient can also not speak full sentences which is an indicator. (0.5 marks) The differential diagnosis include: (0.5 marks) chest infection. NSAIDs, lung cancer, heart failure, COPD or GORD or anaemia. (0.5 marks)

**What therapeutic interventions do this patient need? (11 marks)**

The patient requires supplemental oxygen to increase her levels (1 marks) our patients SpO2 is 92 we would aim for 94-98% (1 marks) we would also give a bronchodilator (1 marks) such as salbutamol 5mg nebulized, (1 marks) this preferably would be oxygen driven (1 marks) if not nebulized we could give a spacer 4 puffs salbutamol 100mcg stat followed by 2 puffs every 6 minutes until we reach 10 puffs. The patient would also need a corticosteroid (1 marks) such as oral prednisolone 40-50mg (1 marks) or IV hydrocortisone 100mg every 6 hours (1 marks) this depends on the patients ability to take medication steroids should be given for 5 days or until recovery (1 marks) ipratropium nebules 500mcg (1 marks) every 4-6 hours should be added for treatment in patients with acute asthma (1 marks)

Aminophylline iV 33mg per ours is given after patient doesn’t respond to initial treatment. Is this appropriate and what additional information do we need? (4 marks)

She does not appear to have taken theophylline or aminophylline before (0.5 marks) we would want to confirm this and if so then she needs to be given a loading dose (0.5 marks) this would be based on weight at 5mg/kg therefore for our patient 300mg (0.5 marks) After this for maintenance this should be given as an infusion at a rate of 33mg/hour she would require 500-700mcg/kg/hour this would equate to 30-40mg/hour (0.5 marks) inform the prescriber dose levels should be monitored every 4-6 hours (0.5 marks) after treatment the therapeutic
range is 10-20mg/L (0.5 marks) monitor for toxicity signs (0.5 marks) check nurse is competent to reconstitute with glucose 5% or NaCl 0.9%.

Comment on the blood results and how to manage them if appropriate (3 marks)
Potassium was out of range (0.5 marks) all other blood results were within range (0.5 marks) the reason for this is the high dose beta 2 therapy in addition (0.5 marks) to high dose corticosteroids and theophylline which both cause hypokalaemia (0.5 marks) give K supplementation in the form of sando K tablets 2 TDS for three days (0.5 marks) then review where appropriate to reduce B dose (0.5 marks)

What are the most likely triggers of the event (4 marks)
The likely cause is chest infection (0.5 marks) suggested by green sputum. The ibuprofen is an NSAID (0.5 marks) this could have precipitated this as NSAIDs can cause wheeze and should not be used in asthmatics (0.5 marks) may also have been second hand smoke (0.5 marks) stress (0.5 marks) poor compliance (0.5 marks) and over exercise (0.5 marks)

What lifestyle advice could you give our patient to help improve her symptoms? (3 marks)
Our patient should try to reduce exposure to second hand smoke (0.5 marks) she should avoid known triggers (0.5 marks) she should be ideal body weight and undertake breathing exercises (0.5 marks) she should be counseled on inhaler technique (0.5 marks) and symptoms recognition and compliance (0.5 marks) she should exercise but with caution (0.5 marks)

A patient comes in the pharmacy with a prescription for erythromycin and theophylline. They see the smoking cessation ad and tell you they stopped smoking recently and are very proud, its been making their heart failure so much better. What would you like to clarify and what action needs to be taken? (6 marks)
I would like to clarify if the patient is established on theophylline and if so what is their usual brand (0.5 marks) I would like to clarify allergy status (0.5 marks)
which you can hand in to your pharmacist when it's full (0.5 marks) do not put it in your normal bin (0.5 marks) it can only be used with metformin or gliclazide type drugs (0.5 marks) if you are taking it with a gliptin, pioglitazone or insulin be aware it is not licensed (0.5 marks) it can be kept for four weeks once open at room temperature (0.5 marks)

Which ant diabetic is most likely to cause urinary tract infections and why? (2 marks)
SGLT2 inhibitors such as canagliflozin (0.5 marks) work by increasing the amount of glucose which is excreted in your urine (0.5 marks) therefore because there is more sugar in your urine it is a better environment for bacteria to grow (0.5 marks) this loss of glucose also can result in hypotension and fluid loss trying to dilute the sugar in the blood (0.5 marks)

How would we switch a type 2 diabetic to insulin? (3 marks)
Any secretagogues should be stopped before introducing insulin (0.5 marks) such as glinides, gliptins, pioglitazone and exenatide (0.5 marks) it is safe to continue metformin and sulphonylureas (0.5 mark) but be aware that sulphonylureas with insulin carry a higher risk of hypoglycaemia (0.5 mark). start a human isophane insulin taken at bedtime or twice a day (0.5 marks) such as insulatard or humulin 1 (0.5 marks) consider a long acting insulin for people who's lifestyle is restricted by hypoglycaemic episodes or who want to reduce the amount of daily injections (0.5 marks)

What is diabetic ketoacidosis and how would we handle it in secondary care?
When diabetes is poorly controlled and there is not enough insulin (0.5 marks) your body begins to break down fat and muscle as fuel (0.5 marks) this produces ketones which circulate in the blood (0.5 marks) when they build up this is causes a drop in blood pH leading to diabetic ketoacidosis (0.5 marks) it is often spotted on admission as you can smell the ketones on the breath of the patient (0.5 marks) it presents as excessive thirst (0.5 marks) vomiting (0.5 marks) abdominal pain (0.5 marks) SOB (0.5 marks) and confusion (0.5 marks) we correct the fluid loss with IV fluids (0.5 marks) we correct the hyperglycaemia with IV insulin (0.5 marks) we give potassium due to electrolyte loss (0.5 marks)
months as well as BP. (1 marks). If patient is on long term therapy then ECG monitoring should be done if indicated. (1 marks).

35 year old female patient is admitted to hospital with anorexia, vomiting, fatigue, abdominal pain, dark urine and pruritus. Which of the following drugs would be the MOST likely cause of her presenting complaint?

a) Tolcapone
b) Amantadine
c) Procyclidine
d) Bromocriptine
e) Co-careldopa

Alfred has just started taking a dopamine agonist (bromocriptine) for treatment of his Parkinson’s disease. Which of the following counselling points is NOT relevant?

a) “You may feel a bit dizzy in the first few days of treatment due to lowered blood pressure”
b) “If you feel a desire to take risks such as gambling, you should see a doctor as soon as possible”
c) “You may feel very sleepy or may fall asleep without warning. You should not operate machinery or drive if affected”
d) “If you feel short of breath, develop a persistent cough or develop any abdominal tenderness, you need to see a doctor urgently”
e) “If you develop any unexplained bleeding or bruising, you should see a doctor urgently”
Osteoporosis

How could we diagnose osteoporosis? (4 marks)
Bone mineral density assessment should be undertaken, (0.5 marks) this will provide a Z score and T score. (0.5 marks) A T score of less than -2.5 is confirmed osteoporosis. (0.5 marks) The T score compares to young adults of the same sex (0.5 marks) where the Z score compares to the expected BMD for the patients same age and sex. (0.5 marks) We can also do a dual-energy x-ray absorptiometry or DEXA scan of the spine and hip. (0.5 marks) This is used to measure bone density and quantify the degree of osteopenia or osteoporosis. (0.5 marks) We can also use the WHO definition of osteoporosis however this relates to T scores (0.5 marks). Osteopenia is less between -1 and -2.5. Osteoporosis is less than -2.5. (0.5 marks)

How would you treat osteoporosis? (12 marks)
Usually treatment isn’t needed you just need to remove the aggregating factor (0.5 marks). But if it is very severe then give an IV of 0.9% sodium chloride (0.5 marks). To replace lost electrolytes (0.5 marks).

**Hyponatraemia**

The patient appears to be suffering from hyponatraemia which is low sodium at a serum level less than 135 mmol/L (0.5 marks). This can be caused by medication such as ACE, thiazide and loop diuretics, antidepressants, anti consultants, sulphonylureas and PPIs. (0.5 marks). Our patient is taking two of these medications and ACE ramipril and a loop diuretics furosemide (0.5 marks). It can also be caused by alcohol excess, burns, malnutrition and water excess (0.5 marks). This can cause headache, cramps, weakness, nausea and even coma (0.5 marks). Signs and symptoms vary depending on severity and the rate of electrolyte change (0.5 marks). We need to do U&Es to clarify the severity of the hyponatraemia (0.5 marks).

- Mild is 130-135 (0.5 marks).
- Moderate 121-129 (0.5 marks).
- Severe is less than 120. At this point the patient will experience seizures, coma and respiratory arrest (0.5 mark).

Patients with moderate to severe symptomatic hyponatremia should be given hypertonic saline restores serum sodium concentration to a safe level to correct any cerebral oedema and reduce the risk of complications (0.5 marks). Patients with non symptomatic or mild should have any medications which can cause this stopped unless its an antipsychotic in which case refer to their specialist (0.5 marks).

**Hyperkalaemia**

Hyperkalaemia is an increase in serum potassium over 5.5 mml/L (0.5 marks). It can be caused by medications such as any ACE or ARB, NSAIDs and potassium sparing diuretics such as Amiloride. Eplerenone and Spironolactone, aldosterone antagonists and laxido and fybogel (0.5 marks). It can also be caused by renal failure, severe tissue damage, hormonal effects and haemolysis of sample (0.5 marks).
What types of AF are there and how does this effect treatment plans?
There are three types of AF (0.5 marks) Paroxysmal is patients who experiences episodes lasting longer than 30 seconds but less than 7 days that are self terminating and recurrent (0.5 marks) persistent patients experience episodes lasting longer than 7 days with spontaneous termination unlikely to occur without cardio version (0.5 marks) permanent patients experience AF which cannot terminate even with cardio version (0.5 marks)

What risks is a patient with atrial fibrillation at long term?
Long-term risks include stroke (0.5 marks) due to irregular beating of the heart leading to blood pooling (0.5 marks) patients are also at risk of heart failure (0.5 marks) due to excessive workload on the heart with the tachycardia (0.5 marks) tachycardia induced cardiomyopathy can occur (0.5 marks) there is also reduced quality of life (0.5 marks) due to symptoms such as breathlessness and palpitations (0.5 marks) there is also increased mortality risk due to complications above mentioned (0.5 marks)

What is atrial fibrillation? (3 marks)
An irregularly irregular disorganized electrical activity (0.5 marks) in the atria which causes rapid firing impulses (0.5 marks) and disorganized atrial depolarization (0.5 marks) and ineffective atrial contractions (0.5 marks) The AV node receives more electrical impulses than it can conduct and so gives irregular ventricular rhythm (0.5 marks) There will be a lack of P wave in AF (0.5 marks)

What kind of symptoms might a patient with AF present with? (4 marks)
The patient may experience breathlessness (0.5 marks) due to improper function of the heart (0.5 marks) Palpitations (0.5 marks) due to irregular pulse (0.5 marks) Chest discomfort (0.5 marks) and Syncope or dizziness due to irregular beating of the heart (0.5 marks) Malaise (0.5 marks) Polyuria (0.5 marks) and Reduced exercise tolerance (0.5 marks)

Differential diagnosis – remember to include other things such as infection eg
hours. (0.5 marks) Flecainide or amiodarone should be offered if there is no evidence of structural or ischemic heart disease (0.5 marks) or amiodarone if there is evidence of structural heart disease. (0.5 marks) If longer than 48 hours then delay cardioversion (0.5 marks) until maintained on therapeutic anticoagulation for a minimum of three weeks. (0.5 marks) During this period offer rate control as appropriate. (0.5 marks) Patients who pharmacological treatment fails with lone AF and underlying electrophysiological disorders should have other interventions such as pulmonary vein isolation, pacemaker therapy, atrial defib etc (0.5 marks)

Long term rhythm control:
- First line beta blocker but not sotalol
- If CI then perhaps dronedarone after successful cardioversion in people with paroxysmal or persistent AF. This is given as maintenance of sinus rhythm after successful cardioversion. Patient should not have HF, should not have LVSD and have at least one cardiovascular factor such as diabetes, stroke, over 70 years, HTN with two medications.
- Amiodarone should be given for people with LV impairment or HF
- DO NOT offer class 1c antiarrhythmics such as flecainide or propafenone to people with known ischaemic or structural heart disease

Acute AF in haemodynamically stable patients offer rate or rhythm control if onset is less than 48 hours, if more than 48 it needs to be rate control.

Rate control
There is no difference between rate and rhythm control for mortality, stroke, bleeding risk, HF and quality of life. 1st line for anyone not mentioned in rhythm control. First line is:
- Beta blocker or rate limiting CCB
- Consider digoxin monotherapy for non-paroxysmal AF if patient has a sedentary lifestyle

Outline the CHADVASC score (6 marks)
The CHADVASC score is used to determine a patients risk of developing a thrombotic event (0.5 marks) it is important in terms of atrillial fibrillation as
When should we initiate primary prevention in diabetic patients? (3 marks)

It should be considered in all patients (0.5 marks) but therapy should be offered to everyone who is older than 40 (0.5 marks) has had diabetes more than 10 years (0.5 marks) has established neuropathy (0.5 marks) have any other CVD risk factors (0.5 marks) atorvastatin 20mg is recommended in these patients (0.5 marks)

Should people with CKD and a 10% risk be offered a statin? (2 marks)

Yes patients should receive atorvastatin 20mg (0.5 marks) the use of the dose must be agreed with a renal specialist if the egfr is less than 30 (0.5 marks) if there is not a 40% or greater reduction in non-HDL (0.5 marks) and the EGFR is less than 30 then increase the dose (0.5 marks)

How do statins work and what adverse events are associated with them?

They work by inhibiting HMG-COA (0.5 marks) which is the enzyme responsible for cholesterol synthesis in the liver (0.5 marks) they can also moderately raise the HDL levels (0.5 marks) it is best taken at night (0.5 marks) when the concentrations of total cholesterol and low density lipoproteins may be at their greatest (0.5 marks) they can cause breakdown of muscle tissue leading to myopathy (0.5 marks) which presents as general unexplained muscle pain (0.5 marks) if extensive this can lead to rhabdomyolysis (0.5 marks) which is a medical emergency (0.5 marks) some drugs such as macrolide antibiotics can increase the risk of this (0.5 marks) by decreasing statin breakdown (0.5 marks) statins rarely can induce diabetes (0.5 marks) they can also lead in rare cases to liver toxicity (0.5 marks) therefore LFTs should be monitored regularly (0.5 marks) and any signs of abdominal pain (0.5 marks) jaundice (0.5 marks) or itchy skin should be reported (0.5 marks) as well as unusually dark urine (0.5 marks)

Which of the following is false regarding fibrates?

- They reduce triglycerides
- They can cause muscle toxicity or renal failure if used with statins
A 24 year old female presents with red scaly plaques on her arms and legs. She tells you they are slightly itchy but not causing her much distress. What is this? (5 marks)

Psoriasis (0.5 marks) is an inflammatory skin disease where there is infiltration of the dermis and epidermis (0.5 marks) by activated T lymphocytes and neutrophils (0.5 marks) there is also stimulation of the vasculature (0.5 marks) leading to new blood vessel formation in the plaques (0.5 marks) the epidermal turnover time decreases to cause overproduction of skin cells (0.5 marks) the lesions are typically red, scaly and sharply defined (0.5 marks) they are most common on the elbows, knees and scalp (0.5 marks) you can scrape off the plaque to reveal tiny bleeding points (0.5 marks) often it is triggered by something such as trauma, infection, hormones, lithium, beta blockers, antimalarials, alcohol or smoking (0.5 marks)

What is the first line treatment for this patient and what are the escalations if it doesn’t work? (5 marks)

Emollients are always useful, (0.5 marks) they reduce the harshness of the plaques (0.5 marks). The first line treatment specifically however is topical corticosteroids (0.5 marks) and vitamin D analogues (0.5 marks) these are useful for mild to moderate and can clear psoriasis in only 8 weeks (0.5 marks) they inhibit keratinocyte differentiation and proliferation (0.5 marks) they don’t smell like tar and dithranol (0.5 marks) they are as effective as steroids (0.5 marks) they can be irritant (0.5 marks) and should not be used on the face or flexures (0.5 marks) you apply them thickly but you must not exceed recommended dose or it can cause hypercalcaemia (0.5 marks) dithranol (0.5 marks) they are antiproliferative (0.5 marks) it is profoundly irritant and blisters the skin (0.5 marks) it temporarily stains clothing and skin (0.5 marks) it can be used in fixtures and takes about 3 weeks (0.5 marks) it is paired with phototherapy (0.5 marks) it is thought to modulate the expression of cellular adhesion molecules to kill T cells (0.5 marks) we give 80% of the minimum erythemogenic dose (0.5 marks) it is given three times a week until psoriasis clears but can increase cancer risk (0.5 marks) and tar preparations (0.5 marks)
this stains clothing and smells unpleasant (0.5 marks) it also is less effective than vit D (0.5 marks) if this is not sufficient treatment to control the symptoms then phototherapies can be added (0.5 marks) however this increases long term risk of skin cancer (0.5 marks) systemic non biologics such as DMARDs or ciclosporin can also be added (0.5 marks) finally if all else fails biologics can be trailed such s infliximab (0.5 marks)

Vitamin A analogues can be used such as retinoids. How would you counsel a young female patient on this? (3 marks)
They reduce the over growth of skin cells (0.5 marks) you must get you liver and blood lipids checked at the start of therapy then every 3 weeks for two months then 3 monthly (0.5 marks) it should not be taken with MTX or tetracycline (0.5 marks) it can cause dryness of your eyes and mouth (0.5 marks) they are highly teratogenic and so should be used with a pregnancy prevention program (0.5 marks) prescriptions are hospital only and are only valid for 7 days with a maximum of 30 days treatment (0.5 marks)

What advice is given in terms of steroid use in psoriasis? (3 marks)
Do not use regularly for more than 4 weeks without review (0.5 marks) Do not use potent steroids regularly for more than 7 days (0.5 marks) Review every 3 months (0.5 marks) No more than 100g of a moderately potent or higher potency preparation should be applied per month (0.5 marks) Attempt to rotate topical steroids with alternative non-steroid preparations (0.5 marks)

The patient is diagnosed with chronic psoriasis. 8 months later she comes abck and lets you know she has had a throat infection recently. Is there any information you think is relevant to tell her? (5 marks)
How might a child present with acute otitis media? (4 marks)
Pulling their ear (0.5 marks) sleeplessness (0.5 marks) irritability (0.5 marks) fever (0.5 marks) it can be bacterial or viral (0.5 marks) child can have deafness in the ear for weeks (0.5 marks) antibiotics are generally useless and cause unwanted side effects (0.5 marks) give paracetamol or ibuprofen (0.5 marks) unless clear signs of bacterial infection such as discharge (0.5 marks)

What complication can occur from otitis media and how can we treat it? (6 marks)
The patient can get glue ear (0.5 marks) which is otitis media with effusion (0.5 marks) this is inflammation of the middle ear (0.5 marks) with accumulation of fluid (0.5 marks) 50% of cases resolve in 3 months (0.5 marks) the rest within a year (0.5 marks) it often results in hearing loss (0.5 marks) it is more common in males (0.5 marks) who are exposed to tobacco smoke (0.5 marks) younger than 2 (0.5 marks) who formula feed (0.5 marks) it is more prevalent in the winter (0.5 marks)

What is menieres disease and how is it managed? (4 marks)
It is the progressive build up of fluid (0.5 marks) can last around 20 minutes to hours (0.5 marks) and usually happens once every few months (0.5 marks) the patient will feel dizzy, nauseous, pressure (0.5 marks) they may have migraine like aura (0.5 marks) and their hearing may be affected (0.5 marks) it is treat with prochloperazine 5mg tds for 7 days in acute attacks (0.5 marks) prophylactically we can give betahistine (0.5 marks) 24-48mg od with food (0.5 marks)

Which of the following drugs cannot cause vertigo?

- Antidepressants.
- Anti-seizure drugs.
- NSAIDs.
- Drugs to control high blood pressure.
- Sedatives.
- Tranquilizers.
How can we differentiate between the different types of glaucoma? (8 marks)

Primary is when there is no known cause of the onset (0.5 marks) where secondary is when there is an obvious cause such as disease, drugs or developmental disorders (0.5 marks) there is also closed or open angle glaucoma (0.5 marks) closure is when the angle between the iris and the cornea is partially closed (0.5 marks) this blocks the trabecular meshwork and prevents drainage of the intraocular fluid (0.5 marks) as intraocular fluid continues to be produced the pressure increases (0.5 marks) causing damage (0.5 marks) which can be acute or chronic (0.5 marks) open angle glaucoma is usually insidious in onset and chronic is course (0.5 marks) both eyes are usually affected but the damage may be worse in one eye compared to the other (0.5 marks) IOP can be normal (0.5 marks) open is 10 times more likely than closed (0.5 marks) with treatment most patients will not go blind (0.5 marks) but will have some visual defects (0.5 marks) without treatment it will be asymptomatic until late course and by then most of the nerve will be lost (0.5 marks) full recovery is likely for most people with closed when treated promptly (0.5 marks) loss of vision occurs when there is a delay in getting the IOP down for any reason (0.5 marks)

How would a patient present with acute closed angle glaucoma and how would you treat it? (7 marks)

The eye will be red and painful (0.5 marks) is more common in females, Asian and long sighted people (0.5 marks) as increasing age (0.5 marks) the patient will have blurred vision (0.5 marks) headaches associated with seeing halos around lights (0.5 marks) these are made better by sleeping (0.5 marks) they may use antimuscarinic drugs or adrenergic drugs (0.5 marks) the pupil will be fixed or dilated (0.5 marks) and the eye will be hard to touch and tender (0.5 marks) in emergency situations give one drop of pilocarpine 2% in blue eyes and 4% in brown eyes (0.5 marks) followed by a single dose of acetazolamide 500mg (0.5 marks) in secondary care give topical and IV drugs to reduce IOP (0.5 marks) treatment to cure definitively is often laser surgery (0.5 marks) to allow the humor to flow from the posterior chamber to the anterior chamber (0.5 marks)
A patient has just been prescribed long term timolol for control of COAG. What counseling would you give them? (5 marks)

This has been prescribed for your glaucoma (0.5 marks) it reduces the pressure in your eye (0.5 marks) it is very important to use this medication as it will make sure your sight does not decline (0.5 marks) you will use one to two drops daily (0.5 marks) you may feel a little stinging or pain when you put the drop in (0.5 marks) it might make the eye slightly red and dry (0.5 marks) if you use it for a very long time it can cause some problems with your sleeping (0.5 marks) and it can cause hallucinations (0.5 marks) if any of this occurs speak to your doctor (0.5 marks)

Counsel on brimonidine

This is a sympathomimetic drug (0.5 marks) which reduces the pressure in your eye (0.5 marks) and helps your glaucoma (0.5 marks) drop one drop in affected eye BD about 12 horus apart (0.5 marks) this may cause a slight stinging when you put them (0.5 marks) and it drains into the nasopharynx so may cause a abnormal taste (0.5 marks) if you are taking barbituates, opiates, sedatives, anaesthetics, large amounts of alcohol let your doctor know (0.5 marks)

What general counseling should any glaucoma patient have? (8 marks)

Every patient should be told how to apply their eye drops (0.5 marks) so that they get the full dose of their medicine (0.5 marks) they should remove any contact lenses before application and wait 15vmins to reapply (0.5 marks) wash hands before this (0.5 marks) shake the bottle of drops before each use (0.5 marks) close eyes after you put the drop in and gently press the tear duct against the nose for 1 minute (0.5 marks) replace each bottle after 4 weeks whether you finish the bottle or not (0.5 marks) you must have good visual acuity to drive (0.5 marks) if you have visual defects in both eyes you must inform the DVLA so they can decide if you are safe to drive (0.5 marks) if your eyes become severely itchy and swollen and red then it may be an allergic reaction (0.5 marks) tell your doctor (0.5 marks) store at room temperature unless told by your pharmacist to put them in the fridge (0.5 marks) this is for lantanoprost before opening then once open a cool place is fine (0.5 marks) if using more than one eye drop then allow at least 5 minutes between using different preparations (0.5 marks) use drops before gels and ointments (0.5 marks)
Which of the following is false regarding typhoid?

- It is caused by a salmonella bacteria
- The vaccine is 100% effective – 55-75
- It is fatal if untreated

What is false regarding cholera

- It causes rice water stools
- **It is self limiting and usually resolves on its own without treatment – can cause death**
- Vaccination is only considered for people such as aid workers

What should you counsel a patient who is worried about contracting rabies from a dog bite? (2 marks)

99% of rabies cases are from dog bites (0.5 marks) if you are concerned you should wash wound with soap and water (0.5 marks) then apply antiseptic (0.5 marks) and seek medication attention for vaccination (0.5 marks) make sure you do not have your wound stitched (0.5 marks)
Outline the different types of headaches including risk factors, symptoms and causes. Migraine presents with aura (0.5 marks) and is usually a deep throbbing headache (0.5 marks) with photophobia (0.5 marks) and phonophobia (0.5 marks) it usually has a genetic cause and an environmental trigger (0.5 marks) such as stress or bright lights (0.5 marks) tension headaches can be caused by emotional stress (0.5 marks) anxiety or prolonged concentration (0.5 marks) it is usually a dull but persistent headache with a pressure band around the head (0.5 marks) cluster headaches are severe but boring pain in one eye (0.5 marks) they are unilateral and usually have a hot reddened check on the affected side (0.5 marks) they last around 20 mins - 2 hours and are at a similar time of day (0.5 marks) temporal arteritis is a severe pain around the tempes (0.5 marks) with a prominent red artery and jaw pain (0.5 marks) it also can carry loss of vision (0.5 marks) refer immediately trigeminal neuralgia is nerve pain in the face (0.5 marks) which is shooting and severe (0.5 marks) lasting up to 2 minutes but has several attacks per day (0.5 marks) refer (0.5 marks) chronic daily headaches last over 4 hours for at least 15 days per month (0.5 marks) can be caused by opioid or caffeine dependence (0.5 marks) sinusitis is the inflammation of the mucosal lining (0.5 marks) a secondary bacterial infection then occurs (0.5 marks) and pressure builds up which causes pain (0.5 marks) usually unilateral behind or around eye (0.5 marks) worse on bending forward or lying down (0.5 marks) treat with decongestants (0.5 marks)

What are the risk factors for developing gout?

Any patient with Hyperuricemia is at high risk for developing gout (0.5 marks) uric acid the end product of the breakdown of purines (0.5 marks) and exists as sodium urate (0.5 marks) which should be renally excreted (0.5 marks) when there is impaired renal excretion it can build up in the joint spaces such as the toes (0.5 marks) the longer the patient is Hyperuricemia the higher risk they are for developing gout or gouty arthritis (0.5 marks) risk factors for developing Hyperuricemia include CVD (0.5 marks) RENAL DISEASE (0.5 marks) diabetes (0.5 marks) obesity (0.5 marks) metabolic syndrome (0.5 marks) alcoholism (0.5 marks) high lipids (0.5 marks) and drugs such as diuretics (0.5 marks) acute attacks usually resolve themselves within 3 to 10 days (0.5 marks)
The patient returns a week later, they followed all your advice she has been sleeping a lot better but they are still struggling to actually fall asleep. Is there anything short term you can offer to help them drift off as they have an important meeting on Wednesday morning that they want to be well rested for (5 marks)

Oral antihistamines which are considered drowsy (0.5 marks) such as diphenhydramine or promethazine (0.5 marks) can be taken about 30 minutes before bed time (0.5 marks) to help you fall asleep (0.5 marks) they cant be taken more than 7 – 10 nights (0.5 marks) however be aware this can give you a small hangover effect (0.5 marks) so try them before your meeting (0.5 marks) check the patient doesn’t have glaucoma, is pregnant or breast feeding (0.5 marks) if these do not agree with the patient then they can try herbal remedies such as lavender (0.5 marks) or chamomile (0.5 marks) if non of this works then they can go to the doctor for a Z drug prescription (0.5 marks)

The patient comes in the next day with a prescription for zopiclone. What counseling should you give the patient? (6 marks)

This medication is to help you sleep (0.5 marks) it should only be used short term (0.5 marks) as you can become dependent on it to fall asleep (0.5 marks) it can cause some day time dizziness (0.5 marks) so always be careful when driving or doing other high risk tasks (0.5 marks) use your judgment to deem if you are competent to drive (0.5 marks) you may notice that things will taste a bit funny while taking this medication (0.5 marks) when you stop taking this medication you will notice a few side effects (0.5 marks) you may feel a little anxious (0.5 marks) have some headache and nausea (0.5 marks) and you may experience some insomnia (0.5 marks) this should resolve after a few days to a week (0.5 marks)

If the patient was over 55 what other options could we have had to treat the patient? (2 marks)

Melatonin is produced in the bodies penal gland during darkness to regulate sleep (0.5 marks) levels are lower in the elderly which is why people sleep for less time as they get older (0.5 marks) it can cause abnormal dreams, dry mouth and dizziness (0.5 marks) it rarely can cause aggression just like the Z drugs (0.5 marks) dose should be taken 1-2 hours before bed time (0.5 marks)
A patient has been started on morphine tablets for chronic pain. What counseling would you give? (7 marks)

This medication is for your pain (0.5 marks) if it does not control your pain your doctor will increase your dose (0.5 marks) never take more than your prescribed dose without telling your doctor (0.5 marks) this medication may make you drowsy (0.5 marks) so be careful when driving and doing other skilled tasks (0.5 marks) this medication may also make you constipated (0.5 marks) if this does not resolve speak to your doctor to prescribe you some long term measures (0.5 marks) you will have to be monitored with this drug (0.5 marks) attend all monitoring to make sure all your levels are normal (0.5 marks) do not take any over the counter medication without telling your pharmacist you are taking this drug (0.5 marks) if the levels of this drug become too high this can be dangerous (0.5 marks) you may notice some shortness of breath or nausea (0.5 marks) if someone call look for you may notice you pupils are very very small (0.5 marks) if this happens go straight to hospital (0.5 marks)

Sometimes you may need to change from oral to other types of morphine what rules generally apply? (5 marks)

If going from immediate release oral morphine to SC or IM (0.5 marks) give 50% dose reduction but at the same frequency usually every four hours (0.5 marks) if going from Modified release to SCIM then do give 50% of the daily dose (0.5 marks) but divided and administered every four hours (0.5 marks) if changing to oxycodone generally 10mg morphine is 6.6mg of oxycodone (0.5 marks) when changing to fentanyl you should add together the daily dose and all regular breakthrough (0.5 marks) then reduce this by 25-50% (0.5 marks) give this patch and apply it with your last oral dose to avoid breakthrough pain (0.5 marks) as fentanyl has a long half life and can take 48 hours to work (0.5 marks) the patient should then be monitored 24 hours after patch application for opioid toxicity (0.5 marks)
Counsel a patient on fentanyl patches (10 marks)

Apply this patch to dry, non hairy skin (0.5 marks) which if flat such as the torso or upper arm (0.5 marks) the skin should be cleaned with water and dried before applying patch (0.5 marks) patches that are damaged in any way should not be used (0.5 marks) after 72 hours change to a new patch (0.5 marks) it is recommended that you rotate the site to avoid irritation (0.5 marks) fold patches in half once used and dispose of them (0.5 marks) you should always use the same brand of patch (0.5 marks) if the levels of this drug become too high this can be dangerous (0.5 marks) you may notice some shortness of breath or nausea (0.5 marks) if someone call look for you may notice you pupils are very very small (0.5 marks) if this happens go straight to hospital (0.5 marks) this medication may make you drowsy (0.5 marks) so be careful when driving and doing other skilled tasks (0.5 marks) this medication may also make you constipated (0.5 marks) if this does not resolve speak to your doctor to prescribe you some long term measures (0.5 marks) you will have to be monitored with this drug (0.5 marks) attend all monitoring to make sure all your levels are normal (0.5 marks) do not take any over the counter medication without telling your pharmacist you are taking this drug (0.5 marks)
3. Itch and rash
4. Liver complications - propylthiouracil
5. Bone marrow suppression

Which if the following is not an adverse effect of propylthiouracil?
1. Leucopenia
2. Anaemia
3. Lupus like symptoms
4. Rash
5. Hepatic disorders