**Manufacturers state the elimination half-life for each medicinal product. Which of these statements best captures the meaning of ‘elimination half-life’?**
It is the time required for the concentration of drug in the body to decrease by 50%, at normal doses.

**Antacids should be administered:**

2-4 hours before or after other medicines

**What does the blood-brain barrier do?**
It impedes the entry of some drugs into the tissue fluid surrounding the neurons in the brain

**Opioids like morphine have multiple pharmacologic actions. What is the most serious immediate adverse effect of morphine?**
Depression of vital signs

**What does “withdrawal syndrome” mean?**
A group of signs and symptoms that occurs in physically dependent individuals when they discontinue drug use

**Which statement is true about 40mg furosemide?**
The diuresis begins almost immediately after oral administration. Effects normally last 4 hours.

**Which of these medicines would be most likely to be prescribed for immediate management of *angina pectoris*?**
Glyceryl trinitrate

**In which organ of the human body is insulin produced?**
Pancreas

**Which of these insulins would be fast-acting?**
Lispro (Humalog)

**What is the most serious adverse effect of the combined oral contraceptive?**
Thrombosis

**Men with benign prostatic hypertrophy suffering from urinary problems are sometimes prescribed:**
Tamsulosin

**What is a traditional vaccine?**
A prophylactic agent, given to healthy individuals to prevent disease.

**NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) cause an increased risk of...**
Gastrointestinal bleeding

**Which one of these medicines is generally regarded as safe in pregnancy?**

Low dose aspirin

**What is the best way to administer bronchodilators to patients with COPD?**
With an inhaler with a spacer, because then more medication reaches the lungs.

**How do medicines to manage stomach ulcers work?**
They create conditions conducive to healing

**What is the main therapeutic indication for Vitamin B12 injections?**
Pernicious anaemia

**Some chemotherapeutic agents affect the bone marrow. Myelo-suppression reduces the number of circulating leukocytes, platelets and erythrocytes. Which are the three major consequences due to loss of these cells?**Infection, bleeding, anaemia

Case One

**Mr. X looks disoriented. What is the best way to get to know the current medication schedule?**
All of the above (patient records, ask the patient, ask the physician)

**During admission, you notice that Mr. X has a lot of medication in his bag. What is the right thing to do?**
I would ask Mr. X to pass all his medication to ward managers for safe storage as per unit policy.

**Mr. X wants to quit smoking. The physician prescribes nicotine replacement therapy in the form of nicotine chewing gum. What advice do you give Mr. X to use the nicotine chewing gum correctly?**
To chew the gum slowly and not to eat or drink while chewing the gum

**Mr. X uses an inhaler for asthma. He asks why he should rinse his mouth. You give him the following advice:**
This will reduce the chance of getting a fungal infection in the mouth and throat.

**Antipsychotic therapy such as quetiapine may cause:**
Hyperglycaemia

**Mr. X feels very anxious after taking his new medication (an SSRI). He asks you when his antidepressant will start to take effect. What is your answer?**4-6 weeks

**After a few days, Mr. X’s anxiety isn’t better. You wonder if the SSRI-medication is causing this. Where can you find the most reliable information?**I would look for information in recognised formularies and manufacturers’ literature. (E.g. BNF no.80)

**Mr. X is leaving the hospital. He asks if he can lower or double the dose of his medication, depending on his mental state. What would you suggest?**
Mr. X always needs to take his medication as prescribed.

**Mr. X asks your advice on his antidepressant regimen. He will be attending a friend’s party over the weekend and wants to drink one glass of alcohol. Which of the following statements would be correct with this medication?**
Alcohol is best avoided with antidepressants because users may become sleepy.

Case Two

**Mrs. Y is known to have alcoholic liver cirrhosis. There are concerns that she is at risk of developing Wernicke’s encephalopathy*.* It appears that she has not been taking her vitamin B tablets. Which medication is important to start?**Thiamine hydrochloride 100mg twice a day

**Mrs. Y has a blood pressure of 78/42 mm Hg mean 54mm Hg, pulse 125 bpm, Hb (haemoglobin) of 6.14 mmol/l (99g/litre) and melaena. What would you do?**
I would call the physician, because there is no medication review and this lady is taking blood pressure lowering medication

**Mrs. Y has an oxygen saturation of 91%. On admission to the emergency department, the saturation was normal, 97%. There is no prescribed oxygen and the patient is deteriorating fast. What would you do?**
Commence oxygen therapy as per local protocol

**Mrs. Y, who has hepatic insufficiency, is sub febrile (37.8 °C). Which of the following medicines should you give at reduced dose in patients with hepatic insufficiency?**
Paracetamol

**Who is responsible for the correct medication intake of Mrs. Y?**
Correct medication intake is a shared responsibility of physicians, pharmacists, nurses, possibly other healthcare providers involved and Mrs. Y when she is capable.

**After a couple of days, you are able to start tube feeding. Due to the swallowing problem, you have to give all the medication through the PEG tube. The physician prescribed a film-coated tablet. Is it usual to administer all medicines through the PEG tube?**
No, it is not usual to administer everything through the PEG tube. Most medicines should not be crushed and not all medicines are available as liquids.

**Which route is an example of parenteral administration?**
Answers A and B are correct

**Mrs. Y was prescribed escitalopram once a day. This is an antidepressant. How long does it take for antidepressants to alleviate low mood?**

2-6 weeks

**Mrs. Y is administered amlodipine, which is sometimes prescribed for high blood pressure, and the physician on the emergency room did not discontinue. What do you do about this?**

Wait to administer the amlodipine and contact the physician

**Mrs. Y was given intravenous fluids to compensate for blood loss. She is known to have left ventricular failure. She has increasing symptoms, including oedematous legs. You go through her medication list with her. Which kind of medication that is not on the list, could help her symptoms?**
Diuretics

Case 3

**Mr. Z has pain and paracetamol is prescribed by the physician. However, Mr. Z has a naso-gastric (NG) tube. What would you do?**
I would suggest a change to the doctor, the medicine should be in liquid or intravenous form

**Mr. Z’s heartrate increases and he gets palpitations whilst using the aerosol. What do you do?**

I can observe the vital signs, report to doctor, and suggest a change in aerosol

**Mr. Z has a prescription for paracetamol tablets, 3x1g/day. He also has ibuprofen 3 x 400mg/day if needed. Yet, he says he has no pain at all and asks you if he must take this. What would you recommend?**
I would suggest discontinuing ibuprofen

**Mr. Z takes omeprazole at home. However, he has an NG tube. What would you do/suggest?**

 I would ask the physician to review the indication and, if still needed, temporarily change omeprazole from tablet to oral suspension

**Four days after surgery Mr. Z has had no bowel movements. He’s starting to complain and feels uncomfortable. Macrogol is prescribed as PRN. What is a normal dosage for this medication?**

1 - 3 times a day

**When Mr. Z started to eat, macrogol was prescribed. What would you suggest to Mr. Z?**

 I would suggest to drink 1.5 litres water per day and take short walks in the hallway if possible

**Co-amoxiclav iv 3 x 1.2 g/day is prescribed. Mr. Z weighs 50kg. What do you think about this prescription?**

I think the prescription is correct

**Metformin was stopped 24h before surgery. When would you restart this medication after you contact the physician?**

 I would start when the patient begins to eat and only if renal function within normal limits

**Mr. Z is prescribed ibuprofen PRN. Which of these is the most worrying adverse side effect for Mr. Z?**

 It can increase the risk of bleeding and gastro-intestinal haemorrhage

**Mr. Z takes simvastatin daily. He starts complaining of a headache and muscle strain after his dinner, which disappears after a couple of hours.** **His wife brings him a bottle of freshly squeezed grapefruit juice and coffee every day. What would you do?**

 I would suggest he stops drinking the grapefruit juice and explain why

**Mr. Z is in pain after surgery, what would you do?**

 I would consult the unit’s protocol /standing order on pain medication, and call the physician to ask what pain medication I can administer

**Mr. Z takes clopidogrel but it was temporally stopped for surgery. Whom should you contact about restarting the medication?**

 I would contact the surgeon or the physician

**Which of these represents the first occasion on which the surgical and anaesthetic teams should check the patient’s medication regimen?**

 A preoperative screening before hospitalisation and a recheck on the ward

**At the preoperative screening a nurse takes the patient’s medication history. Mr. Z takes metformin and clopidogrel. What would you suggest?**

 Both answers are correct

**If the physician prescribes a medication over the phone, which of these statements is the most correct?**

 As a nurse I can repeat the order on the phone, write it down in the (electronic) patient notes and execute the prescription. As soon as possible, the physician writes the order.

Case 4

 **To prevent haemolytic disease of the new-born, pregnant women with Rhesus negative blood group receive injections of:**

 Anti-D immunoglobulin

 **To control epilepsy, physicians are recommended to use:**

Just one medicine

**Within a few weeks, Gwen noticed that Morag was putting on weight, and her clothes no longer fitted. Morag was 5 feet tall, and around 9 stone on admission to the care home. Gwen asked for Morag to be weighed. Unfortunately, the care home did not have enough staff available to arrange this. The most likely cause of the weight gain is:**

 Sodium valproate

**At her next consultant review, Gwen mentioned the weight gain, and suggested the increased dose of sodium valproate may be responsible (her cousin was a doctor). The consultant agreed and arranged for Morag to be weighed. She was found to be 13 stone. A dietician review was arranged. The dietician advised a calorie controlled diet, and increased exercise and activity. Weight gain stabilised, but there was no weight loss. This would affect:**

 All of the above (body image, mobility, cardiovascular risk, transfer into Gwen’s car for days out)

**Patients prescribed sodium valproate should be weighed:**

 Weekly and a gain of 0.5 kg reported

**Morag was prescribed antibiotics for urinary tract infections (UTIs). However, they recurred within a few days of the end of each course of antibiotics. Which of these problems would not be caused by UTIs:**

 Weight gain

**The GP prescribed long-term antibiotics. Antibiotics indicated for prophylaxis of recurrent UTIs include:**

 Trimethoprim 100mg daily

**The consultant instigated a ‘pregnancy prevention plan’. This involves:**

 Long-acting implants

**Pregnancy prevention programmes are used in conjunction with sodium valproate because sodium valproate causes:**

 Neurodevelopmental delay in 30-40% of children