

REGISTRATION ASSESSMENT SAMPLE PAPER 2013¹

PART TWO - OPEN BOOK and CALCULATIONS

Instructions to candidates:

1. For each question there are five options **A, B, C, D** and **E**. Choose only one of the options as your answer for each question.
2. You should answer the questions as though you were a registered pharmacist, **not** a pre-registration trainee.
3. Unless otherwise stated you should answer all questions as though a pandemic situation has **not** arisen and is **not** anticipated.
4. There are 30 open book questions in this paper and 10 calculation questions. The time allowance for this paper is 75 minutes.
Please note: This is half the number of questions in the actual registration assessment open book paper, and half the time allowed for the actual paper.
5. You should score one mark for each correct answer; no marks should be deducted for incorrect answers or omissions.
6. The reference sources that may be used in this paper are British National Formulary Number 64 (September 2012 edition) and British National Formulary for Children 2012-13. Please note that some of the questions will require use of these references, others will not.
7. You are not permitted to use a calculator in any part of the assessment.
8. If representations of prescriptions are included in questions you may presume that the prescription is genuine and the prescriber's signature is known to you.

¹*Questions in the sample paper have appeared in exam papers over the last few years (**amendments have been made where necessary to ensure that the questions are still contemporary**). The sample paper is matched to the actual assessment in terms of difficulty, syllabus coverage and ratio of question types.*

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SECTION I
(10 questions)

Directions for questions 1 to 10. Each of the questions or incomplete statements in this section is followed by five suggested answers. Select the best answer in each case.

1. Whilst taking warfarin tablets patients should be advised to avoid drinking which one of the following juices?
 - A cranberry
 - B orange
 - C grapefruit
 - D tomato
 - E apple

2. You are asked to prepare 200 mL of Chloral Elixir, Paediatric, BP 2000. What weight of chloral hydrate is required?
 - A 2 g
 - B 8 g
 - C 12 g
 - D 20 g
 - E 80 g

- 3.** Mrs B is terminally ill, and is prescribed diamorphine and cyclizine to be given as a continuous subcutaneous infusion via a syringe driver. You are asked to recommend a stable infusion. Which one of the following would it be appropriate for you to recommend?
- A** diamorphine 30 mg/mL plus cyclizine 10 mg/mL in 0.9% w/v sodium chloride
 - B** diamorphine 50 mg/mL plus cyclizine 12 mg/mL in 0.9% w/v sodium chloride
 - C** diamorphine 30 mg/mL plus cyclizine 10 mg/mL in water for injections
 - D** diamorphine 30 mg/mL plus cyclizine 12 mg/mL in water for injections
 - E** diamorphine 50 mg/mL plus cyclizine 12 mg/mL in water for injections
- 4.** You see Mr A in your warfarin clinic. His INR is 7.5, and he reports no bleeding. He drank more alcohol than usual two days before his clinic visit.
- The most appropriate action to take would be:
- A** no action, see him again in a week
 - B** advise him to omit his next two doses of warfarin and see him again in two days
 - C** refer him urgently to his GP for further investigation
 - D** give him 3mg of phytomenadione orally
 - E** arrange hospital admission, advise that he receives phytomenadione 3mg IV

5. Which one of the following patients, who do **not** have diabetes mellitus, has a 20-30% risk of cardiovascular disease over the next 10 years?
- A a 45-year-old male patient who smokes, has a systolic blood pressure of 120 mmHg and a serum total cholesterol to HDL cholesterol ratio of 5
 - B a 45-year-old male patient who does **not** smoke, has a systolic blood pressure of 160 mmHg and a serum total cholesterol to HDL cholesterol ratio of 5
 - C a 55-year-old male patient who smokes, has a systolic blood pressure of 160 mmHg and a serum total cholesterol to HDL cholesterol ratio of 6
 - D a 55-year-old male patient who does **not** smoke, has a systolic blood pressure of 150 mmHg and a serum total cholesterol to HDL cholesterol ratio of 7
 - E a 65-year-old male patient who smokes, has a systolic blood pressure of 130 mmHg and a serum total cholesterol to HDL cholesterol ratio of 6

Questions 6 and 7 concern John who is an 11-year-old child with chronic asthma; he is currently using the following prescribed medication:

salbutamol 100 micrograms inhaler	1 or 2 puffs when required
Serevent Evohaler 25 micrograms inhaler	2 puffs twice a day
Qvar 100 micrograms inhaler	1 puff twice a day

6. According to the British Thoracic Society (BTS), John is currently at which step of the BTS guidelines?
- A Step 1
 - B Step 2
 - C Step 3
 - D Step 4
 - E Step 5
7. John's asthma is currently well controlled, his peak flow readings are within the expected range for his age and he has **not** required his salbutamol inhaler for the last 4 months. John is due to visit his GP for a review. What would be the most appropriate action to take with regards to John's treatment regimen, according to the BTS guidelines?
- A the current medication should be continued at the prescribed doses, with further reviews every three months
 - B the dose of the Qvar inhaler should be reduced by up to 50%, with further reviews every three months
 - C the dose of the Serevent inhaler should be reduced by up to 50%, with further reviews every three months
 - D the dose of both the Qvar and Serevent inhalers should be reduced by up to 50%, with further reviews every three months
 - E the salbutamol inhaler should be stopped, as it is no longer required

8. Mr A, a 76-year-old man, presents on your admissions ward with acute kidney injury. His medication history is:

simvastatin 20 mg	1 at night	(started 2 years ago)
atenolol 50 mg	1 daily	(started 1 year ago)
amlodipine 5 mg	1 daily	(started 6 months ago)
paracetamol 500 mg	2 four times a day	(OTC, started 1 week ago)
ibuprofen 400mg	1 three times a day	(OTC, started 1 week ago)

The medication most likely to be responsible for the acute kidney injury is:

- A simvastatin
 - B atenolol
 - C amlodipine
 - D paracetamol
 - E ibuprofen
9. A woman asks for your advice on the use of a fluoride supplement for her 4-year-old son. The fluoride content of the local water supply is 500 micrograms per litre. Which one of the following daily doses of fluoride ion would be most appropriate for you to recommend?

- A 50 micrograms
- B 125 micrograms
- C 250 micrograms
- D 500 micrograms
- E 1000 micrograms

- 10.** Mr E has been taking Priadel tablets (lithium carbonate) for a number of years for bipolar disorder. Serum lithium levels are monitored every three months and are stable. Mr E has suffered a myocardial infarction and following discharge from hospital presents in your pharmacy with a prescription for the medicines listed below. Which of the medicines listed require Mr E to undergo additional lithium level monitoring?
- A** simvastatin
 - B** bisoprolol
 - C** clopidogrel
 - D** ramipril
 - E** isosorbide mononitrate

SECTION II
(6 questions)

Directions for questions 11 to 13. For each numbered question select from the list above it the one lettered option which is most closely related to it. Within each group of questions each lettered option may be used once, more than once, or not at all.

Questions 11 to 13 concern the following

- A** amisulpride
- B** chlorpromazine
- C** clozapine
- D** pericyazine
- E** perphenazine

Select from **A** to **E** which one of the above is:

- 11.** most likely to cause myocarditis
- 12.** likely to cause the most pronounced extrapyramidal side-effects
- 13.** most likely to cause contact sensitisation

Questions 14 to 16 concern the following analgesics:

- A** tramadol
- B** celecoxib
- C** paracetamol
- D** morphine
- E** diclofenac

Select, from **A** to **E**, which one of the above:

- 14.** is a selective cyclo-oxygenase-2 (COX-2) inhibitor
- 15.** can cause severe hepatocellular necrosis when taken in excess of the recommended dosage
- 16.** produces analgesia by an opioid effect and enhancement of serotonin and adrenergic pathways

SECTION III
(8 questions)

Directions for questions 17 to 24. Each of the questions or incomplete statements in this section is followed by three responses. For each question **ONE** or **MORE** of the responses is/are correct. Decide which of the responses is/are correct. Then choose:

- A** if **1, 2** and **3** are correct
- B** if **1** and **2** only are correct
- C** if **2** and **3** only are correct
- D** if **1** only is correct
- E** if **3** only is correct

Directions Summarised				
A 1, 2, 3	B 1, 2 only	C 2, 3 only	D 1 only	E 3 only

- 17.** A woman visits your pharmacy to ask you to recommend something that she can buy for her 10-year-old daughter to treat head lice. The child has asthma but is otherwise well. Which of the following products would it be appropriate for you to recommend?
- 1** Derbac-M liquid (malathion 0.5%)
 - 2** Hedrin lotion (dimeticone)
 - 3** Lyclear Creme Rinse (permethrin)

Directions Summarised				
A 1, 2, 3	B 1, 2 only	C 2, 3 only	D 1 only	E 3 only

18. Regarding Standard Operating Procedures (SOPs), which of the following statements is/are true?

- 1** it is a requirement that all pharmacies have written SOPs for maintaining a record of Schedule 2 Controlled Drugs returned by patients
- 2** SOPs specify what should be done and by whom
- 3** SOPs contribute to the clinical governance process

19. Which of the following medicines should be avoided in a patient with liver disease?

- 1** piperazine
- 2** pizotifen
- 3** propranolol

Directions Summarised				
A 1, 2, 3	B 1, 2 only	C 2, 3 only	D 1 only	E 3 only

20. Regarding the extemporaneous preparation of products which of the following is/are true?
- 1 a product should be dispensed extemporaneously only when there is no product with a marketing authorisation available
 - 2 in a registered pharmacy, preparation of extemporaneous products must be covered in the pharmacy procedures as set out in the Medicines (Pharmacies) (Responsible Pharmacist) Regulations 2008
 - 3 extemporaneously prepared medicines are unlicensed
21. Which of the following statements about prescriptions for pethidine tablets written by a dentist is/are correct?
- 1 a dentist is legally permitted to prescribe a maximum of 5 day's supply of pethidine tablets
 - 2 pethidine tablets may **not** be prescribed by a dentist on an NHS prescription
 - 3 the words 'for dental treatment only' must be written on a dental prescription for pethidine

Directions Summarised				
A 1, 2, 3	B 1, 2 only	C 2, 3 only	D 1 only	E 3 only

- 22.** Regarding the management of hyperthyroidism, which of the following statements is/are true?
- 1** carbimazole is contraindicated in mothers who are breast-feeding
 - 2** the dose of carbimazole should be increased in pregnancy
 - 3** propylthiouracil is preferred to carbimazole during the first trimester of pregnancy
- 23.** Which of the following is a sign/are signs of theophylline toxicity?
- 1** vomiting
 - 2** dilated pupils
 - 3** hyperglycaemia
- 24.** You have arranged for an inspector from the GPhC to witness the destruction of your out-of-date Controlled Drugs. Which of the following statements regarding the destruction of Controlled Drugs is/are true?
- 1** an appropriate amount of cat litter or similar product can be used to absorb liquid dose formulations
 - 2** solid dose formulations can be crushed and placed into a small amount of hot, soapy water
 - 3** aerosol formulations should be punctured and the liquid poured into a Controlled Drug denaturing kit

SECTION IV
(6 questions)

Directions for questions 25 to 30. The following questions consist of a first statement in the left-hand column followed by a second statement in the right-hand column.

Decide whether the **first** statement is true or false.

Decide whether the **second** statement is true or false.

Then choose:

- A** if both statements are true and the second statement is a **correct explanation** of the first statement
- B** if both statements are true but the second statement is **NOT a correct explanation** of the first statement
- C** if the first statement is true but the second statement is false
- D** if the first statement is false but the second statement is true
- E** if both statements are false

Directions Summarised			
	First Statement	Second Statement	
A	True	True	2nd statement is a correct explanation of the first
B	True	True	2nd statement is NOT a correct explanation of the first
C	True	False	
D	False	True	
E	False	False	

Directions Summarised			
	First Statement	Second Statement	
A	True	True	2nd statement is a correct explanation of the first
B	True	True	2nd statement is NOT a correct explanation of the first
C	True	False	
D	False	True	
E	False	False	

Questions 25 concerns the following scenario:

Mrs E has streptococcal endocarditis and has been prescribed gentamicin 80 mg bd. A one-hour ('peak') serum gentamicin level is taken and found to be 4 mg/litre.

25.

FIRST STATEMENT

Mrs E's dose of gentamicin should be increased

SECOND STATEMENT

The one-hour ('peak') serum concentration for gentamicin for the treatment of streptococcal endocarditis should be 5 – 10 mg/litre

26.

FIRST STATEMENT

When it is necessary to administer two different eye-drop preparations at the same time of day the patient should be advised to leave an interval of at least 5 minutes between the two

SECOND STATEMENT

Drainage of excess eye drop preparations down the tear ducts can result in increased systemic side-effects of the medicine

Question 27 concerns the following scenario:

Mr M has been admitted to hospital having suffered an ST-segment elevation myocardial infarction and there is evidence of left ventricular dysfunction

27.

FIRST STATEMENT

Mr M should be prescribed an ACE inhibitor prior to discharge

SECOND STATEMENT

Beta-blockers are contraindicated in patients with left ventricular dysfunction

Directions Summarised			
	First Statement	Second Statement	
A	True	True	2nd statement is a correct explanation of the first
B	True	True	2nd statement is NOT a correct explanation of the first
C	True	False	
D	False	True	
E	False	False	

Question 28 concerns the following scenario:

Mrs Q has recently been diagnosed with chronic lymphocytic leukaemia

28.

FIRST STATEMENT

Fludarabine phosphate should be used as a first line monotherapeutic treatment

SECOND STATEMENT

NICE recommends that bendamustine must never be used as a first line therapy

Question 29 concerns the following scenario:

Mr T is on holiday in the UK and presents at your pharmacy with a prescription for temazepam tablets, issued by his doctor registered in Spain (EEA country). You are able to understand the prescription and are satisfied it is complete.

29.

FIRST STATEMENT

A legal supply can be made against the prescription

SECOND STATEMENT

Prescriptions issued by a doctor registered in an EEA country are valid in the UK in certain circumstances

Directions Summarised			
	First Statement	Second Statement	
A	True	True	2nd statement is a correct explanation of the first 2nd statement is NOT a correct explanation of the first
B	True	True	
C	True	False	
D	False	True	
E	False	False	

Question 30 concerns the following scenario:

A pharmacist colleague at your place of work is currently under investigation by the General Pharmaceutical Council (GPhC) Fitness to Practise Committee and you have been asked to give evidence.

FIRST STATEMENT

It would be appropriate for you to refuse to disclose information about your colleague's fitness to practise

SECOND STATEMENT

It is a requirement of the standards produced by the GPhC that pharmacists must respect and protect the dignity and privacy of others

Turn over for the designated calculation questions

DESIGNATED CALCULATION QUESTIONS START HERE

Some of these questions will require use of the reference sources, others will not.

Directions for questions 31(Calc) to 38(Calc). Each of the questions or incomplete statements in this section is followed by five suggested answers. Select the best answer in each case.

31(Calc). Mrs B presents you with a prescription for warfarin tablets 1 mg. The directions are to take 6 mg at 6pm that evening, followed by alternating daily doses of 4 mg and then 3 mg (as long as her INR remains within the recommended range). What is the exact number of warfarin 1 mg tablets required for a 28 day supply assuming her INR remains in range?

- A** 96
- B** 98
- C** 100
- D** 101
- E** 111

You may use this space for your rough working.

32(Calc). If 150 mL is removed from a bag which contains 500 mL of glucose 5% and replaced with 150 mL of glucose 20%, which one of the following is the strength of the resulting glucose solution?

A 7.5%

B 8%

C 8.5%

D 9%

E 9.5%

You may use this space for your rough working.

33(Calc). An 11-year-old child who weighs 35 kg is travelling to Bangladesh (Chittagong Hill Tracts) for a 21-day holiday and has been prescribed Malarone Paediatric tablets starting 2 days before entering the endemic area. Which one of the following is the number of Malarone Paediatric tablets that he/she will need for the full course of treatment?

A 30

B 46

C 48

D 60

E 90

You may use this space for your rough working.

34(Calc). A cream contains the following ingredients:

Propylene Glycol PhEur	20%
Fractionated Coconut Oil PhEur	12.5%
Sodium Hydroxide PhEur	0.01%
Purified Water PhEur	to 100%.

Which one of the following is the weight of Fractionated Coconut Oil PhEur needed to produce 2500 kg of the cream?

- A** 31.25 mg
- B** 312.5 mg
- C** 3.125 kg
- D** 31.25 kg
- E** 312.5 kg

You may use this space for your rough working.

35(Calc). The paediatric surgery wards at your hospital routinely use ibuprofen (40 mg/kg daily in 3 divided doses) and paracetamol (60 mg/kg daily in 4 divided doses). Which one of the following gives the most appropriate doses of ibuprofen and paracetamol for a child weighing 16 kg?

- A** ibuprofen 160 mg tds + paracetamol 240 mg qds
- B** ibuprofen 200 mg tds + paracetamol 240 mg qds
- C** ibuprofen 200 mg tds + paracetamol 320 mg qds
- D** ibuprofen 320 mg tds + paracetamol 960 mg qds
- E** ibuprofen 640 mg tds + paracetamol 960 mg qds

You may use this space for your rough working.

36(Calc). A patient is prescribed Creon 10 000 capsules. Given that he takes 4 capsules each day, which one of the following is the quantity of amylase that he will take in 1 week?

- A 2,240 units
- B 16,800 units
- C 22,400 units
- D 224,000 units
- E 280,000 units

You may use this space for your rough working.

37(Calc). Mr J, a 56-year-old man, is admitted to hospital with chest pains of two hours' duration. A myocardial infarction is diagnosed and Mr J is started on an accelerated regimen of treatment with alteplase. Mr J weighs 85 kg. How many units of alteplase will he receive in total?

- A** 48.8 million
- B** 50.0 million
- C** 52.2 million
- D** 56.4 million
- E** 58.0 million

You may use this space for your rough working.

38(Calc).

Mr M has developed a corneal ulcer in his right eye and is prescribed ciprofloxacin eye drops. An extract from his prescription is given below:

Ciprofloxacin eye drops 0.3%

Day 1: instil ONE drop into the RIGHT eye every 15 minutes for 6 hours then every 30 minutes

Day 2: instil ONE drop into the RIGHT eye every hour

Days 3 to 21: instil ONE drop into the RIGHT eye every 4 hours

Apply the drops throughout the day and night

Given that 15 drops are equivalent to 1 mL, which one of the following is the number of 5 mL bottles of ciprofloxacin eye drops that Mr M will require for the 3 week course?

- A** 1 bottle
- B** 2 bottles
- C** 3 bottles
- D** 4 bottles
- E** 5 bottles

You may use this space for your rough working.

Directions for question 39(Calc). For each numbered question select from the list above it the one lettered option which is most closely related to it. Within the group of questions each lettered option may be used once, more than once, or not at all.

Question 39(Calc) concerns the following weights:

- A** 0.1 micrograms
- B** 0.01 mg
- C** 1 mg
- D** 10 mg
- E** 100 mg

Select from **A** to **E**, which one of the above is:

39(Calc). the most appropriate total daily dose of Prograf (tacrolimus) capsules following a liver transplant for a 10-year-old child weighing 34 kg?

You may use this space for your rough working.

Directions for question 40(Calc). The question in this section is followed by three responses. **ONE** or **MORE** of the responses is/are correct. Decide which of the responses is/are correct. Then choose:

- A if 1, 2 and 3 are correct
- B if 1 and 2 only are correct
- C if 2 and 3 only are correct
- D if 1 only is correct
- E if 3 only is correct

Directions Summarised				
A 1, 2, 3	B 1, 2 only	C 2, 3 only	D 1 only	E 3 only

40(Calc). Mr C who weighs 80 kg and is 1.8 m in height has been diagnosed with Hodgkin’s disease. His doctor has prescribed lomustine 120 mg/m² once every six weeks for him. Which of the following statements regarding Mr C and his treatment is/are correct?

$$\text{Body surface area (m}^2\text{)} = \sqrt{\frac{\text{weight (kg)} \times \text{height (cm)}}{3600}}$$

- 1 Mr C’s body surface area is 2 m²
- 2 the correct dose of lomustine for Mr C is 240 mg
- 3 Mr C will require 6 capsules for each dose

You may use this space for your rough working.

END OF QUESTIONS
Now go back and check your work