FACULTY OF PHARMACEUTICAL MEDICINE
of the Royal Colleges of Physicians of the United Kingdom

DIPLOMA IN PHARMACEUTICAL MEDICINE PART 2 EXAMINATION
15 OCTOBER 2018

SHORT ANSWER QUESTIONS - INSTRUCTIONS TO CANDIDATES

1. **Two hours and 30 minutes** are allowed for answering this paper.
   Allow 15 minutes for each question.

2. **Answer all 10 questions**.
   You do not have to answer the questions in numerical order.

3. We strongly advise you to **write your answers as brief notes / bullet points**, not in the form of essays.

4. **Each question is worth 10 marks**.

   Where questions have more than one part, the number of marks available for each part is shown.

   The number of marks shown for each part should be taken as a guide to the relative extent of the answer required.

   For some questions, a full answer will require more points to be given than the number of marks available because some questions are marked in increments of <1 marks.

   Where a specific number of answers are requested, you can provide more and they will be marked, however you cannot score more than the maximum mark for that part of the question.

5. Complete the **front cover of the answer book** with your last name, forename(s), candidate number and signature.

6. **Begin each question on a new page and write only on one side**.
   Please do not write outside the margins of the pages.

7. **On each page of your answer book**, write your candidate number, the question number and the page number:

   e.g. candidate 12 starting their second page in answer to question 5 would complete the answer book page as:

Candidate No:	*12*	Short Answer Questions	Question No:	*5*	Page No:	*2*

8. When the Invigilator announces the end of the session, please stop writing **immediately** and stay in your seat until we've collected the question paper, your answer book and any other notes you have made.

SAQ Paper 2018

1 a) List 4 methods for the non-clinical assessment of QT prolongation. **(2 marks)**

b) What information do these tests provide for clinical development? **(3 marks)**

c) Briefly describe the factors that influence the decision to continue clinical development when a positive signal for QT prolongation is seen in non-clinical testing. **(5 marks)**

2 A fixed dose combination (FDC) is a product which combines two or more active substances in one dosage form.

a) Briefly describe the potential benefits of a FDC, giving examples where relevant to illustrate your answer. **(7 marks)**

b) Briefly describe 3 potential disadvantages of a FDC approach. **(3 marks)**
Note: your answer to part b) should not be opposites to your answer for part a)

3 a) Briefly describe the features of a study to evaluate the effect of food on the pharmacokinetics of an oral antibiotic. Include the design, population and endpoints. **(5 marks)**

b) List 3 mechanisms by which food may affect the bioavailability of a drug. **(3 marks)**

c) List 2 physicochemical properties of a drug which make it more likely that food will affect its pharmacokinetics. **(2 marks)**

4 a) What is a 'concurrent control group' in a prospective clinical trial and what is its purpose? **(2 marks)**

b) List 4 different types of treatments that can be used for a control group in clinical trials. **(2 marks)**

c) Describe the considerations when choosing a control group for a clinical trial. **(6 marks)**

5 In a phase 3 clinical trial, 1000 patients were treated for one year with a new investigational drug X, whilst another 1000 patients received placebo for a year. The event of interest for the primary endpoint was a composite of all-cause mortality and non-fatal myocardial infarction (MI). After one year, 50 patients in the Drug X group were dead or had a non-fatal MI versus 100 patients in the placebo group.

a) Briefly describe 2 key safeguards which should make a placebo control arm ethically acceptable in this trial. **(2 marks)**

b) What would be the null hypothesis for this trial? **(1 mark)**

c) What do you understand by a type 1 and a type 2 error and give a typical value you would expect the statistician to assume for the type 2 error in this trial? **(3 marks)**

d) Show how you would calculate the relative risk reduction (RRR) for drug X on death and non-fatal MI in this trial using the information given. *Note: you do not need to calculate the actual value, full marks will be awarded by showing the method.* **(2 marks)**

e) The absolute risk reduction (ARR) in this trial was 5%. Calculate the Number Needed to Treat (NNT) and explain what the NNT means in the context of this trial. **(2 marks)**

6 A new chemical entity (NCE) has just been approved through the European Union (EU) centralised procedure.

a) Apart from patent protection, what <u>types</u> and <u>duration</u> of protection will this new NCE enjoy from generic competition, assuming it is not an orphan drug? **(2 marks)**

b) List 2 ways that you can extend the period of protection in the post-authorisation period. **(2 marks)**

Commonly in the centralised procedure, the applicant is required to submit further data following approval.

c) List 4 different examples of these "Post-Authorisation Measures". *Note: do not include routine requirements, such as renewal applications.* **(4 marks)**

d) For 2 of the examples you have given in part c), explain when/why this measure might be requested. **(2 marks)**

7 You are the global medical affairs physician for a marketed product. A manufacturing issue has occurred.

a) Briefly describe the factors you would need to take into consideration when assessing whether to recall the product from the market? **(8 marks)**

b) List 2 sources of information your company could use to assess the clinical impact of the manufacturing issue. **(2 marks)**

8 a) Briefly describe the role of the European Union Qualified Person for Pharmacovigilance (EU QPPV). **(2 marks)**

b) Briefly describe the requirements a company must meet when appointing an EU QPPV. **(5 marks)**

c) What is the Pharmacovigilance Risk Assessment Committee (PRAC) and its role? **(3 marks)**

9 Transparency is a key principle in pharmaceutical medicine. Briefly describe <u>what</u>, <u>when</u> and <u>how</u> the following should be declared in the UK:

a) Clinical trials. **(4 marks)**

b) Support given to Patient Organisations by a pharmaceutical company. **(1 ½ marks)**

c) Transfers of value made to Healthcare Professionals who work with a pharmaceutical company. **(4 ½ marks)**

10 a) In the context of health technology assessments (HTAs) and economic evaluations, what do you understand by:
   i. Quality-adjusted-life-years (QALYs) **(4 marks)**
   ii. Incremental cost effectiveness ratio (ICER)

b) How does an ICER influence whether an intervention is funded? **(1 mark)**

c) Drug Z is an investigational oral medication for lung cancer about to start phase 3 trials. Current standard of care is intravenous chemotherapy. Apart from traditional efficacy and safety data to achieve registration, briefly discuss the types of data you would expect to see collected in the pivotal phase 3 programme that will support the production of robust economic models for future HTA submissions. **(5 marks)**