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| **Name:**<br>**Enrolment No:** | |

**UPES**

**End Semester Examination, December 2023**

**Course: Drug Discovery and Development** — **Semester: III[rd]**

**Program: Int. (B.Sc.+ M.Sc. Clinical Research)** — **Duration: 3 Hours**

**Course Code: HSCR 2017** — **Max. Marks: 100**

**Instructions: All questions are compulsory.**

| S. No. | Section A<br>Short answer questions/ MCQ<br>(20Qx1.5M= 30 Marks) | Marks | COs |
|---|---|---|---|
| **Q 1** | Which drugs will go through a pharmaceutic phase after it is administered?<br>a. Intramuscular cephalosporins<br>b. Intravenous vasopressors<br>c. Oral analgesics<br>d. Subcutaneous anti-glycemic | **1.5** | **CO2** |
| **Q 2** | Define me-too drug. | **1.5** | **CO1** |
| **Q 3** | What is the role of ethnopharmacology approach in drug design? | **1.5** | **CO2** |
| **Q 4** | Name the software tools used for computer simulation in drug discovery. | **1.5** | **CO1** |
| **Q 5** | Expand COMFA and COMSIA. | **1.5** | **CO2** |
| **Q 6** | What do you understand by the term drug repurposing? | **1.5** | **CO2** |
| **Q 7** | The computer simulation refers to _____.<br>(a) Dry lab<br>(b) In vitro<br>(c) In silico<br>(d) Wet lab | **1.5** | **CO1** |
| **Q 8** | What is SOSA approach? | **1.5** | **CO2** |
| **Q 9** | What is the significance of clinical trials in drug development? | **1.5** | **CO2** |
| **Q 10** | A certain compound X occupied a site of an enzyme exactly opposite to that of the active site. This immediately resulted in the change of shape of the active site. X is called a _____<br>a) competitive inhibitor<br>b) non-competitive inhibitor<br>c) competitive messenger<br>d) receptor | **1.5** | **CO2** |

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| **Q 11** | Define the term "molecular drug targets". | **1.5** | **CO1** |
| **Q 12** | Which of the following compounds has desirable properties to become a drug?<br>(a) Fit drug<br>(b) Lead<br>(c) Fit compound<br>(d) All of the above | **1.5** | **CO1** |
| **Q 13** | What is gene annotation. | **1.5** | **CO1** |
| **Q 14** | What is the primary objective of phase 0 clinical trial? | **1.5** | **CO1** |
| **Q 15** | Define Lipinski rule of 5. | **1.5** | **CO1** |
| **Q 16** | If the bond between the enzyme and inhibiting drug is very strong, which of the following takes place?<br>a) The active site slowly regains its original shape.<br>b) The enzyme develops a new active site.<br>c) The enzyme is blocked temporarily.<br>d) The body synthesizes a new enzyme. | **1.5** | **CO2** |
| **Q 17** | What do you understand by the term "scaffold hopping". | **1.5** | **CO2** |
| **Q 18** | Define partition coefficient. | **1.5** | **CO1** |
| **Q 19** | Enlist the applications of computer aided drug design in early stages of drug discovery. | **1.5** | **CO3** |
| **Q 20** | What is bio-isosterism? | **1.5** | **CO1** |
| | **Section B**<br>**(4Qx5M=20 Marks)** | | |
| **Q 1** | Discuss in detail various phases of drug action. | **5** | |
| **Q 2** | What is QSAR? Explain the electronic and steric parameters to be considered in QSAR analysis. | **1+4** | **CO1, CO3** |
| **Q 3** | Differentiate between biology-oriented synthesis and diversity-oriented synthesis? | **5** | **CO2** |
| **Q 4** | What is fragment based drug design? Describe the advantages and disadvantages of fragment based drug design. | **1+4** | **CO1, CO4** |
| | **Section C**<br>**(2Qx15M=30 Marks)** | | |
| **Q 1** | Write a short note on followings:<br>**a)** Pharmacophore modelling.<br>**b)** Molecular drug targets.<br>**c)** Random and systematic screening. | **5+5+5** | **CO3** |
| **Q 2** | **a)** Define and classify molecular docking.<br>**b)** Discuss the various steps involved in molecular docking.<br>**c)** Highlight the pharmaceutical applications of molecular docking studies. | **3+6+6** | **CO1, CO3, CO4** |

| Section D<br>(2Qx10M=20 Marks) | | | |
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| **Q 1** | What do you understand by rational drug design? Briefly discuss the various types of rational drug design methods used for developing new drug like molecules. | **2+8** | **CO2, CO4** |
| **Q 2** | With schematic representation, discuss various stages involved in drug discovery? | **10** | **CO4** |