

Exam Date & Time: 16-Dec-2022 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

### Pharmacological and Toxicological Screening Methods I [PHA-MPL103T]

Marks: 75

Duration: 180 mins.

#### SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

- 1) Describe the methods to produce transgenic animals. With examples, discuss the applications of transgenic animals. (10)
- 2) A sponsor has identified 2 molecules that can modulate the amyloid beta precursor pathway and cerebral glucose metabolism pathway there by which it can treat Alzheimer's disease. The sponsor wants to verify his claims in animal models of Alzheimer's disease. Can you design a suitable protocol to verify the sponsor's claim? (10)
- 3) List the preclinical *in vivo* screening methods for molecules having *in vitro* proton pump inhibitory effects. Explain any two *in vivo* methods to screen these molecules. (10)
- 4) We all know that streptozotocin induces type-I diabetes in rodents. Can you suggest variations/ modifications in these models to induce type II diabetes in rodents? (10)
- 5) Describe the concepts of extrapolation of preclinical data to humans. With examples, emphasize the limitation of animal experiments. (10)

#### SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

- 6) Explain the principle involved in the working of Actophotometer. (5)
- 7) With principle and procedure, discuss a preclinical *in vivo* experiment where formalin is used to distinguish between pentazocine and Ibuprofen. (5)
- 8) Phytomolecules need to be assessed for cytotoxicity assays in MCF 7 cell line. Name the preferred cell viability assay and mention the rationale for it. (5)
- 9) Discuss the types of immunoassay methods. Write the principle of sandwich immunoassay. (5)
- 10) Explain an *in vivo* model used to differentiate chronic anti-inflammatory and immunosuppressant effects using rats. (5)

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