

Exam Date & Time: 23-May-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

Pharmacological Screening Methods [PHA-BP810ET-S2]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Pentylentetrazole causes convulsion in mice through activation of _____.
- | | | | |
|----------------------|--------------------------|----------------------|---------------------------|
| 1) Glutamate channel | 2) GABA chloride channel | 3) Glycine receptors | 4) T type calcium channel |
|----------------------|--------------------------|----------------------|---------------------------|
- (1)
- 2) Injection of 1% v/v acetic acid by intraperitoneal route in mice will cause _____.
- | | | | |
|----------------------------|----------------------|----------------------|-------------------------|
| 1) Loss of righting reflex | 2) Grooming response | 3) Writhing response | 4) Straub tail response |
|----------------------------|----------------------|----------------------|-------------------------|
- (1)
- 3) An NCE was found have good potential to inhibit the brain acetyl cholinesterase enzyme. This NCE may have potential to treat _____ disorder?
- | | | | |
|-------------------------|------------------------|------------------------|----------------------------------|
| 1) Huntington's disease | 2) Parkinson's disease | 3) Alzheimer's disease | 4) Amyotrophic lateral sclerosis |
|-------------------------|------------------------|------------------------|----------------------------------|
- (1)
- 4) Which among this chemical can cause myocardial infarction in rats?
- | | | | |
|------------|-------------|-----------------|--------------|
| 1) Alloxan | 2) Nicotine | 3) Isoprenaline | 4) Aconitine |
|------------|-------------|-----------------|--------------|
- (1)
- 5) _____ is the depth of anesthesia required to perform surgical procedures in animals while using ketamine and xylazine as a general anesthetic.
- | | | | |
|-----------------------|------------------------|-----------------------|----------------------|
| 1) Stage of analgesia | 2) Stage of excitation | 3) Stage of tolerance | 4) Stage of asphyxia |
|-----------------------|------------------------|-----------------------|----------------------|
- (1)
- 6) The main objective of CPCSEA is to _____.
- | | | | |
|-----------------------------------|-----------------------------------|---|------------------------------|
| 1) Prevent experiments on animals | 2) Provide humane care to animals | 3) Provide guideline to protect the rights of animals | 4) Minimise the animal usage |
|-----------------------------------|-----------------------------------|---|------------------------------|
- (1)
- 7) In tail suspension test, drugs like imipramine, will cause:
- | | | | |
|--------------------------------|--------------------------------|--------------------------------------|--------------------------------------|
| 1) Decrease in immobility time | 2) Increase in immobility time | 3) Decrease in frequency of grooming | 4) Increase in frequency of grooming |
|--------------------------------|--------------------------------|--------------------------------------|--------------------------------------|
- (1)

8) Among the methods mentioned below which method causes pain in animals by mechanical compression?

1) Tail flick method	2) Randall-Selitto method	3) Hot-plate method	4) Tail dip method
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(1)

9) Jumping box is the method used to study _____ in rats.

1) Active avoidance	2) Passive avoidance	3) Conditioned avoidance	4) Loss of memory
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(1)

10) The model of 6-OHDA induced circling behaviour in rats is used to screen _____.

1) Antidepressant drugs	2) Anti-Parkinson's drugs	3) Antiulcer drugs	4) Antipsychotic drugs
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(1)

11) Renal ligation of rats causes hypertension in animals through activation of _____.

1) Renin-angiotensin system	2) Sympathetic nervous system	3) Baroreceptors and baroreflexes	4) Parasympathetic nervous system
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(1)

12) In charcoal meal test, the parameter which used to assess the GI motility in rats is _____.

1) Distance travelled by charcoal meal	2) Adsorption rate by charcoal meal	3) Intestinal fluid content before/after charcoal meal	4) Intestinal weight with/without charcoal meal
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(1)

13) MTT assay is used to assess the _____.

1) Apoptotic index	2) Cell viability	3) Cell size and complexity	4) Cell repair
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(1)

14) In programmed electrical stimulation induced arrhythmia, ischemic injury to myocardium is achieved by occluding _____.

1) Left coronary artery	2) Posterior descending artery	3) Left anterior descending artery	4) Right marginal artery
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(1)

15) Among the following isolated tissue preparation, which preparation is used to screen β_1 selective blockers?

1) Isolated guinea pig ileum	2) Isolated guinea pig tracheal chain	3) Isolated guinea pig thoracic aorta	4) Isolated guinea pig right atria
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(1)

16) Parameter measured in Brewer's yeast suspension rat model is _____.

1) Body composition	2) Body temperature	3) Body fat content	4) Food intake
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(1)

17) Use of _____ as an anaesthetic agent is strongly discouraged in animal

(1)

experimentation because of its mutagenic and carcinogenic potential.

1) Urethane	2) Thiopentone sodium	3) Halothane	4) Isoflurane
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18) Trio mating in animal breeding techniques involves mating _____.

1) Upto four females to one male	2) Two males to one female	3) Upto four males to one female	4) Two females to one male	(1)
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19) Surgical pancreatectomy is not performed in rats to induce insulin dependent diabetes mellitus _____.

1) due to absence of gall bladder	2) due to lack of vomiting center	3) due to presence of diffused pancreas	4) due to presence of insulin antibodies	(1)
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20) Using cerebral cortex homogenate obtained from guinea pigs, tiotidine binding assay performed is used to screen _____.

1) proton pump inhibitors	2) PGE1 analogues	3) H2 receptor blockers	4) antacids	(1)
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II Long Answers

Answer all the questions.

- 1) What is the 4R's approach in animal testing? List the main functions of the CPCSEA. Elaborate on the use of the various forms available with the CPCSEA. (10)
- 2) How can we assess the effectiveness of a therapeutic regimen in a patient diagnosed with cancer using the available animal techniques? (10)

III Short Answers

Answer all the questions.

- 1) Why do we follow GLP? List its advantages and disadvantages. (5)
- 2) MRSD (Maximum Recommended Starting Dose) is estimated using NOAEL method. Discuss. (5)
- 3) While designing animal experiments, what group is included to prevent a false-positive conclusion? Give an example. (5)
- 4) How do we assess the side-effects of anti-inflammatory agents? (5)
- 5) What is ulcer index? Explain how type of animal used and route of administration of a chemical can induce different types of ulcers. (5)
- 6) Describe a chemical-induced experimental model for IDDM. (5)
- 7) Explain tonometry and any two techniques used to measure it. What happens if glaucoma is left untreated? (5)

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