

Question Paper

Exam Date & Time: 15-May-2023 (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) _____ is an inhalant anaesthetic agent that induces cerebral anoxia. (1)
- [Nitrous oxide](#)
[Desflurane](#)
[Carbon dioxide](#)
[Enflurane](#)
- 2) _____ is a terminal method of blood collection in rats. (1)
- [Posterior vena cava](#)
[Jugular vein](#)
[Tarsal vein](#)
[Blood vessel cannulation](#)
- 3) Select the appropriate option to define "Breed". (1)
- [Which have common characteristics and can be divided into subordinate kinds.](#)
[Morphological differences in form and function.](#)
[Presumed common ancestry having clear cut physiological difference.](#)
[Similar individuals capable of exchanging genes.](#)
- 4) Exsanguination as a method of euthanasia is NOT recommended in birds _____. (1)
- [Due to tolerance to hypoxia](#)
[Due to quick clotting tendency](#)
[Due to thickness and density of skull](#)
[Due to slow metabolic rate](#)
- 5) Rats are most used in animal experimentation. Select the appropriate organ/centre absent in them. (1)
- [Hypothalamus](#)
[Gall bladder](#)
[Pancreas](#)
[Adrenal glands](#)
- 6) Tail suspension test reflects _____ in animals and is measured as immobility time. (1)
- [Learned helplessness](#)
[Behavioural despair](#)
[Muricide behaviour](#)

[Presynaptic inactivation](#)

- 7) _____ is used to mimic a treatment without the actual use of the test substance during experimentation. (1)

[Sham control](#)

[Negative control](#)

[Vehicle control](#)

[Positive control](#)

- 8) Histamine elicits triple response when injected _____ in guinea pigs to test conduction anaesthetics. (1)

[Subcutaneously](#)

[Intravenously](#)

[Intradermally](#)

[Intrathecally](#)

- 9) IOP in normal healthy individuals is _____. (1)

[10-20](#)

[mmHg](#)

[40-50](#)

[mmHg](#)

[1-5 mmHg](#)

[60-80](#)

[mmHg](#)

- 10) Fixed ghost red blood cells (GBCs) when injected in the anterior chamber of _____ produce glaucoma. (1)

[Beagle dogs](#)

[Swiss albino mice](#)

[Golden Syrian hamsters](#)

[New Zealand white](#)

[rabbits](#)

- 11) Sciatic nerve of frog is injected with local anaesthetic solution to inhibit nerve transmission to test _____. (1)

[Infiltration anaesthesia](#)

[Surface anaesthesia](#)

[Spinal anaesthesia](#)

[Topical anaesthesia](#)

- 12) Select a response that will NOT occur on electrical stimulation of the sympathetic nerves. (1)

[Dilatation of coronary arteries](#)

[Lowering of blood pressure](#)

[Mydriasis in the eye](#)

[Inhibition of gastric secretion](#)

- 13) Prolapse of nictating membrane in cats is used to test _____. (1)

[Sympatholytics](#)

[Sympathomimetics](#)

[Parasympatholytics](#)

[Parasympathomimetics](#)

- 14) _____ is an *in vitro* test used to screen antihyperlipidemic agents that target the cholesterol biosynthesis pathway. (1)

[CETP activity assay](#)
[PPAR \$\gamma\$ transcriptional activity assay](#)
[HMG-CoA reductase assay](#)
[ACAT2 activity assay](#)

- 15) _____ is a cardiac glycoside. Acute intoxication with this leads to multifocal ventricular arrhythmia in dogs and is used to screen anti-arrhythmic agents. (1)

[Amygdalin](#)
[Aconitine](#)
[Strophanthin](#)
[Digoxin](#)

- 16) _____ of hyperlipidaemia is based on intravenous injection of a surfactant. (1)

[HFD-induced hamster model](#)
[ApoE-deficient mouse model](#)
[Triton WR-1339-induced rat model](#)
[ACAT inhibitory model](#)

- 17) _____ is the *in vivo* model used to measure the urinary excretion of sodium and other ions after administration of a diuretic. (1)

[Saluretic activity](#)
[Lipschitz test](#)
[Stop flow technique](#)
[Clearance method](#)

- 18) _____ is a commonly used endpoint in preclinical screening for anti-arrhythmic drugs. (1)

[Mortality](#)
[Electrocardiogram parameters](#)
[Symptomatic improvement](#)
[Blood pressure parameters](#)

- 19) Which is NOT an aggressive factor that induces gastric ulcers? (1)

[Pepsin](#)
[Bicarbonate](#)
[Alcohol](#)
[NSAIDs](#)

- 20) Bronchospasmolytic activity of NCEs is tested in _____. (1)

[Swiss albino mice](#)
[Golden Syrian hamsters](#)
[Pirbright white guinea pigs](#)
[New Zealand white rabbits](#)

II Long Answers

Answer all the questions.

- 1) An institution is planning to setup an experimental animal research facility in its premises. Illustrate the floor plan and explain the facilities, environment, husbandry systems and other relevant details to be included for its operation. (10)
- 2) Describe a chemical induced animal model of insulin dependent diabetes mellitus for drug (10)

screening. List its advantages and disadvantages.

III Short Answers

Answer all the questions.

- 1) Discuss how we evaluate the effect of drugs on the transient inflammatory phase using a suitable animal model. (5)
- 2) How do we estimate the first in human (FIH) dose from preclinical studies? (5)
- 3) Describe an *in vivo* pain state model using electrical stimuli used to assess analgesics. (5)
- 4) Outline an *in vivo* model to evaluate baclofen, a GABA mimetic that shows muscle relaxant effect. (5)
- 5) Compare and contrast between diet-induced and endocrine hypertensive animal models to screen anti-hypertensive drugs. (5)
- 6) Explain the importance of MTT assay. (5)
- 7) Give details of an *in vivo* model that exhibits skin papillomas used for screening drugs that may be effective against skin cancers. (5)

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