R7299	Sub. Code
	508301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022.

Third Semester

Biomedical Science

PHARMACEUTICAL CHEMISTRY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Antioxidants are

   (a) Substances that protect the cells against free radicals

   (b) Substances that prevent the damage to cells induced by free radicals.

   (c) Both (a) and (b)

   (d) None of the above

2. Zinc sulphate is an

   (a) Astingent (b) Antioxidant

   (c) Antimicrobial (d) Inhalant

3. Expectorant Induces

   (a) Vomitting

   (b) Expulsion of phlegm from lungs

   (c) Forced regurgitation

   (d) Nausea

4. Sodium Fluoride is used in dental products as they are

(a) More resistant to decay and bacteria causing cavities

(b) It neutralizes acids with effervescence

(c) Used as an whitening agent

(d) Lime

5. Which of the following is an antibiotic?

(a) Erythromycin (b) Phenol

(c) Proflavine (d) Formaldehyde solution

6. Antimalarial drug act by

(a) Increasing intravesicular pH with the parasites acid vehicle

(b) Act by accumulating drug in the parasite's food vacuole.

(c) Both Antiparasitic Chemicals.

(d) All the above

7. Which of the following is not a Non steroidal anti-inflammatory drugs?

(a) Acetaminophen or Tylenol

(b) Aspirin

(c) Indomethacin

(d) Phenyl butazone

8. Mercaptopurine a purine antagonist is used in the treatment of

(a) Lymphocytic leukemia

(b) Renal cancer

(c) Testicular cancer

(d) Lung cancer

9. Limit test is done to

(a) Determine he inorganic impurities present in the compound

(b) Determine the organic impurities present in the compound

(c) Both (a) and (b)

(d) None of the above

10. The contrast media used in imaging technique must possess which of the following criteria

(a) It must achieve very high concentration in tissues without producing any adverse effects.

(b) It should not enhance the blood and perfusion in tissues

(c) It should not leave the body with in 24hrs.

(d) It should decrease the constrast of structures.

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Define Astringents. Give the use of alum and zinc sulphate in medical field?

Or

(b) What are buffers? Give example and its significance in biology.

12. (a) Define Inhalants. And Justify the role of nitrous oxide as an inhalant.

Or

(b) Define electrolytes. Write an account on its use in replacement therapy.

13. (a) What is Anesthetics? Comment on the uses of any two general anesthetics? Why it is called as general anesthetics?

Or

(b) Define Diuresis. And give the uses of any two diuretics used in therapy.

14. (a) Differentiate coagulant and Anticoagulants with suitable example.

Or

(b) How are cancers developed, Give the role of actinomycin and mercaptopurine as an anticancer drug.

15. (a) Write on limit test performed for cersenic, chloride, sulfate and why it is done.

Or

(b) Define radioisotope? Give its pharmacological uses.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

All question carry equal marks.

16. Differentiate acid and base on the basis of its properties, storage, uses.

17. Define respiratory stimulant. and discuss on the respiratory stimulant ammonium carbonate.

18. Define the condition called depression? Write elaborately on antidepressant drugs Amitriptyline, nortryptylline.

19. Describe the properties, storage, uses of diagnostic agents – Evans blue and congo red.

20. Why quality control is an important criteria in the preparation of drug by pharmaceuticals? And comment on the methods adopted for quality control.

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R7300	Sub. Code 508302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Biomedical Science

PHARMACOLOGY AND TOXICOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Which of the following does the process of excretion in involving renal route.

   (a) Liver (b) Kidney

   (c) Lung (d) Skin

2. Most of the absorption process occurs good at

   (a) Liver (b) Large intestine

   (c) Small intestine (d) Stomach

3. Antonomic drugs act by

   (a) Irritating/Inhibiting the normal functions of the sympathetic nervous system.

   (b) Irritating/Inhibiting the normal functions of the parasympathetic nervous system

   (c) Act only on motor nervous system

   (d) Act on both (a) and (b)

4. Anesthetics are good as they

(a) Facilitate complete control of the airway, breathing, circulation

(b) Nausea, vomitting are induced

(c) Cause sore throat

(d) Cause difficulty in passing urine

5. Which of the following in an example for systemic antacids used for digestive system disorders.

(a) Aluminium hydroxide

(b) Sodium bicarbonate

(c) Magnesium hydroxide

(d) Calcium carbonate

6. Which of the following is true on antianginal agents.

(a) Nitrates act by constricting smooth muscles with in blood vessels widening them and making it easier for blood and oxygen to reach the heart.

(b) Calcium antagonists act by inhibiting calcium transfer into cells there by inhibiting contraction of vacular smooth muscle.

(c) Beta blockers make the heart function fast.

(d) Ranolazine stimulate the ion channels during cardiac repolarization.

7. Mycotoxins are toxic secondary metabolites produced by

(a) Bacteria (b) Virus

(c) Fungus (d) Humans

8. Which of the following is not teratogenic in nature.

(a) Chemicals (b) Infectious agents

(c) Heparin (d) Ionizing radiations

9. Which of the following enzyme is involved in conjucation process of drug detoxification.

(a) Glutathionee-S-Transferase

(b) Reductase

(c) Hydrolase

(d) Phosphatase

10. ADME is

(a) Absorption, Distribution, Metabolism and Excretion

(b) Absorption, Distribution, Metabolism and Elimination

(c) Adenylate methoxy Eosin

(d) Both (a) and (b)

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Write briefly on factors affecting drug aborption.

Or

(b) Define the term pharmacodynamics and Give its signifcance in pharmacology and toxicology.

12. (a) Write an account on Anticholixergic drugs?

Or

(b) What are adrenergic receptor blockers? Give example and at what coudition these drugs are prescribed to patients.

13. (a) Comment on Cardiotonics with suitable example.

Or

(b) Define the term anticoagulant and with suitable example explain their functions.

14. (a) Write an account on dose-response relationship.

Or

(b) Discuss shortly on invitro mutagenicity tests.

15. (a) What is broncho-pulmonary toxicity. Write shortly on it.

Or

(b) Write briefly on ADME of drugs and chemicals.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe on various drug absorption processes and factors affecting it.

17. Enumerate on drugs acting on central nervous system.

18. Write elaborately on antianginal drugs.

19. What are special toxicity studies? Why are they performed. Explain with special reference to carcinogenicity and teratogenicity.

20. Explain elaborately on the role of GI tract and skin in activation and detoxification of drugs.

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R7301	Sub. Code
	508303

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Biomedical Science

BIOMATERIALS AND TISSUE ENGINEERING

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Biomaterial should have the characteristics of

   (a) biocompatible (b) hemocompatible

   (c) Neurocompatible (d) both (a) and (b)

2. Most of the implantable metal alloys are

   (a) Ti alloy (b) Stainless

   (c) Co-Cr alloy (d) all the above

3. Nanomaterials should have the particle size of

   (a) 1-10nm (b) 1-100nm

   (c) 1-1000nm (d) none of the above

4. Inflammatory response mediated by chemical released by

   (a) Lungs (b) liver

   (c) Kidney (d) none of the above

5. The advantage of dental implants are

(a) Improved appearance

(b) Improved speech

(c) Improved comfort

(d) all the above

6. Vascular implants should have the characteristics of

(a) biocompatible (b) hemoconpatible

(c) both (a) and (b) (d) none of the above

7. What type of tissue is articulate cartilage?

(a) Muscle (b) Epithelial

(c) Connective tissue (d) Nerve cell

8. Chondrocyte is the cell which secretes _____

(a) Liver cells (b) Bone cells

(c) Cartilage cells (d) Heart cells

9. All biological tissues are

(a) elastic (b) plastic

(c) viscoelastic (d) both (a) and (b)

10. Tissue engineering implants are _____ generation implants

(a) first (b) second

(c) third (d) fourth

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write the classification and salient characteristics of biomaterials.

Or

(b) List out the advantages and disadvantages of calcium phosphate biomaterials.

12. (a) Write short note on nano materials used as implant biomaterials.

Or

(b) Write the undesirable reactions of implanted biomaterials.

13. (a) Describe biocompatibility of synthetic cartilage implant materials.

Or

(b) What are the different bases and liners used as restorative materials in dentistry?

14. (a) Write short note an applications of protein adsorption.

Or

(b) Write the role of ECM as a biological scaffold for tissue regeneration.

15. (a) Write the application of tissue engineering.

Or

(b) What are scaffolds? Explain the methods of scaffold fabrications.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about various bioceramic coatings techniques involved on metallic implants.

17. Describe in detail about biological response of implanted biomaterials.

18. Narrate various materials used as cartilage implant. How to identify the failure of cartilage implant.

19. Narrate the fundamentals of protein interaction on well characterized material surface with schematic diagram.

20. Explain different types of polymers used in tissue engineering add a note on the importance degradable polymer in tissue engineering.

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R7302	Sub. Code
	508505

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

Third Semester

Biomedical Sciences

MOLECULAR ADVANCED DIAGNOSTICS

(CBCS – 2019 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

All questions carry equal marks

1. Tans-Isolate (T-I) medium is used for the collection and transport of

   (a) Cerebrospinal fluid

   (b) Sputum

   (c) Stool

   (d) Throat swab

2. ———————— is the most commonly seen in skin areas rich in sebaceous glands.

   (a) *Staphylococcus aureu*

   (b) *Streptococcus pyogenes*

   (c) *Propionibacterium acnes*

   (d) *Pseudomonas aeruginosa*

3. Which of the following is a mismatch?

(a) Polymerase – Taq polymerase

(b) Primer – oligonucleotide

(c) Synthesis —5' to 3' direction

(d) Template – double standed DNA

4. SNP is an example of

(a) a frame shift mutation

(b) transpositional control

(c) a genetic marker

(d) genetic regulation

5. Which of the following technique is suitable for studying mRNA molecule in a sample

(a) Western blotting (b) Southern blotting

(c) Eastern blotting (d) Northern blotting

6. Automated DNA sequencing is an improvement Sanger's method where.

(a) ddNTPs are used for chain termination

(b) PCR is used for making sequencing templates

(c) Fluorescently labelled dNTPs are used for chain termination

(d) Fluorescently labelled ddNTPs are used for chain termination

7. Short stretches of DNA used to identify complementary sequence in a sample is called

(a) markers (b) probes

(c) VNTRs (d) minisatellites

8. In case of carbon monoxide poisoning which preservative is recommended for the preservation of blood samples

(a) Sodium Chloride

(b) Sodium Fluoride

(c) Sodium Carbonate

(d) No preservative

9. To prevent the contamination of microscopes and surrounding areas disenfect/clean used slides, prepared by student, with

(a) 70% ethanol and lens paper

(b) acetone and lens paper

(c) 5% methylene blue and lens paper

(d) water and lens paper

10. After a biohazard spill is covered with paper towels and disinfectant solution, it must sit for———————— minutes?

(a) 5 (b) 30

(c) 60 (d) 20

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out the parasitic and protozoans diseases with their causative agents.

Or

(b) Discuss on the factors predisposing to microbial pathogenicity.

12. (a) Write short notes on the method of DNA isolation and quantification.

Or

(b) Describe on SNP and SSCP.

13. (a) Give an account on the method of massive parallel sequencing.

Or

(b) How microarrays are used in disease diagnostics?

14. (a) Explain about RAPD and how it is used in animals differentiation.

Or

(b) Describe on genetic methods of sex determination.

15. (a) What are good laboratory practices?

Or

(b) Give a detailed account on immuno histochemistry — principles and techniques.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

Each questions carry equal marks.

16. Give a detailed note on normal flora of human body.

17. Elaborate on cytogenetic studies using microarrays.

18. Write an essay on the methods of isotopic and non isotopic methods of DNA labelling.

19. Describe on the molecular diagnostic methods of viral pathogens detection.

20. Write in detail about immuno diagnostic methods with suitable examples.