

22/04/2021

Total No. of printed pages = 3

MPL 104 T

Roll No. of candidate

--	--	--	--	--	--	--	--	--	--

BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatkrishnapara,
Korwahat - 751017

2021

M.Pharm. 1st Semester (Regular) Examination

Pharmacology

CELLULAR AND MOLECULAR PHARMACOLOGY

(New Regulation w.e.f. 2017-18)

Full Marks – 75

Time – Three hours

The figures in the margin indicate full marks for the questions.

Group – A

I. Answer *all* the questions

1. Answer the MCQ

(6 × 1 = 6)

(i) Extron is the

- (a) Translated fraction of the gene
- (b) Non-translated fraction
- (c) None of these
- (d) Both (a) and (b)

(ii) Centimorgan is a unit of

- (a) Recombinant DNA technology
- (b) Cell culture
- (c) Gene mapping
- (d) All of these

(iii) Autophagy mediated by

- (a) Macrophagy
- (b) Microphagy
- (c) Chaperon mediated
- (d) All of these

(iv) Answer the following question

- (a) Caspase pathway is the cause of
- (b) Autophagy
- (c) Apoptosis
- (d) Necrosis

[Turn over

- (v) Sanger sequencing is
- (a) Chain termination method (b) Chemical sequencing
(c) Mechanical sequencing (d) All of these
- (vi) JAK-STAT pathway mediated action is shown by
- (a) Insulin (b) Cytokines and interferon
(c) Acetylcholine (d) All of these

II. Answer in brief (4 × 1 = 4)

- (a) Name a vector used in the transfer of gene in r DNA technology.
(b) Mention a genetic variation in the G-protein receptor affecting drug action or cause disease.
(c) Write one application of metabolomics.
(d) What is SDS PAGE?

III. Answer the following questions (5 × 2 = 10)

- (a) What is Donnan effect? Explain.
(b) What is HAT media? Write an application in cell culture.
(c) Write the principle and name of one instrument in Microarray technique.
(d) Differentiate between linkage mapping and Physical mapping.
(e) Explain in brief about gene splicing.

Group – B

2. Answer any *seven* questions (7 × 5 = 35)

- (a) Write short note on Bio similarities and cryoscopic preservation.
(b) Write in details about Si RNA and Micro- RNA and their application.
(c) Describe in brief about the types of gene sequencing methods.
(d) Differentiate between necrosis and apoptosis in details.
(e) Write down the role of cytometry in cell culture.
(f) What are the check points of cell cycle and the regulatory proteins? Explain in brief.
(g) Write briefly role of some secondary messenger like Cyclic AMP, IP3 and DAG.

- (h) Write briefly on
- (i) Proteomics.
 - (ii) Application of immunotherapeutics in clinical practice.
- (i) Write the principles of
- (i) Cell viable assay.
 - (ii) Glucose uptake assay.
 - (iii) Calcium influx assay.

Group – C

3. Answer any two (2 × 10 = 20)
- (a) What are the basic equipment and media of cell culture? How do you characterize the cell? What are the applications of cell culture? (10)
- (b) Write short note on the following topic (4 × 2.5 = 10)
- (i) Polymorphisms affecting drug metabolism
 - (ii) Genetic variations in drug transporter
 - (iii) G-protein receptor pathway
 - (iv) Tyrosine kinase and RAS- MAP kinase pathway
- (c) Write down the working principle and application of (4 × 2.5 = 10)
- (i) PCR and RT-PCR.
 - (ii) ELISA.
 - (iii) Western blotting.
 - (iv) Recombinant DNA technology.