Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.PHARM/SEM-2/MPT-208(2)/2012

2012

MOLECULAR PHARMACOLOGY

Time Allotted : 3 Hours Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) All the following are tumour suppressor genesexcept

a) P^{53} b) CHK 2

c) BEC 4 d) BCL 2.

ii) Presenilin gene is involved in pathophysiology of

a) Parkinson's disease

b) Myasthenia gravis

c) Huntington's dieseas

d) none of these.

iii) Neurofibrilatory tangles formation in brain is found in
   a) Huntington's diseas b) Parkinson's disese
   c) Alzheimer disease d) Depression.

iv) To detach the adherent cells from petridish which of the following mixtures is used ?
   a) Chymotripsin and EDTA
   b) Trypsin and EDTA
   c) Pepsin and EDTA
   d) Pepsionogen and EDTA.

v) Thymidine kinase enzyme activity is interfered with
   a) Docetaxel b) Dacarbazine
   c) Mitotane d) Gefitinib.

vi) Reverse transcriptase is used to
   a) elongate the primers
   b) convert *m*-RNA to *c*-DNA
   c) prevent RNA degradation
   d) all of these.

vii) In RIA we measure
   a) radiolabelled ligand
   b) cold ligand
   c) radiolabelled ligand bound to antibody
   d) radiolabelled antibody.

viii) Diacyl glycerol (DAG) activates
   a) protein kinase *B* b) protein kinase *C*
   c) Adenylyl cyclase d) all of these.

ix) How many regulatory and catalytic chains does Protein Kinase *A* have ?
   a) 2 & 3 b) 3 & 2
   c) 3 & 3 d) 2 & 2.

x) Gi coupled receptor signaling involves

a) *c*-AMP b) PKC

c) IP3 and DAG d) PKG.

xi) Tyrosine kinase receptors are

a) transmembrane receptors

b) nuclear receptors

c) cytoplasmic receptors

d) all of these.

xii) Affinity of agonist to its receptor is usually measured by its

a) Ki b) EC50

c) Kd d) Km.

xiii) Steroid hormones elicit their response via

a) nuclear receptors

b) nicotinic receptures

c) tyrosire-kinase receptors

d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Explain the regulation of the energy metabolism governed by *c*-AMP with the help of a schematic diagram.

3. Write differences between PCR and RT-PCR.Write the application of PCR.

4. Write in brief about Apo-e 4 gene in precipitating Alzheimer's disease.

5. Write a note on Immunostaining.

6. Explain the following terms : 5 × 1
   a) Partial agonist
   b) Inverse agonist
   c) Spare receptros
   d) EC%0
   e) Ki.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. Discuss in detail about the kinase cascade theory. Enumerate with diagram, the DAG/PKC pathway. Discuss in detail with diagram, how the activation and deactivation of G-Protein occur ? 5 + 5 + 5

8. a) Discuss the role of Dopamine in he behavioural abnormality in human being.
   b) What are the role of Thymidine and HLA in the pathology of Myasthenia gravis ?
   c) Write a short note on Lewy body. 6 + 6 + 3

9. What do you mean by cell culture ? Write down the different steps involved in cell culture technique. How can you preserve cultured cells for a period of time ? What are the applications of cell culture ? 2 + 10 + 1 + 2

10. What is recombinant DNA technology ? What is its application in molecular pharmacology ? How is it applied for the production of insulin ? 2 + 3 + 10

11. Write short notes on the following :
   i) Apoptosis
   ii) Chemoprevention of colorectal cancer. $7\frac{1}{2} + 7\frac{1}{2}$