



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 :

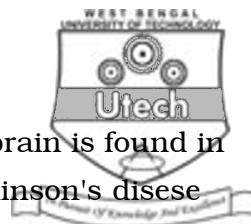
10 × 1 = 10

i) All the following are tumour suppressor genes except

- | | |
|-------------|-----------|
| 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 disease
- d) none of these.



- iii) Neurofibrillary tangles formation in brain is found in
 - a) Huntington's disease b) Parkinson's disease
 - c) Alzheimer disease d) Depression.
- iv) To detach the adherent cells from petridish which of the following mixtures is used ?
 - a) Chymotrypsin and EDTA
 - b) Trypsin and EDTA
 - c) Pepsin and EDTA
 - d) Pepsinogen 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. $3 \times 5 = 15$

- Explain the regulation of the energy metabolism governed by c-AMP with the help of a schematic diagram.
- Write differences between PCR and RT-PCR. Write the application of PCR.
- Write in brief about Apo-e 4 gene in precipitating Alzheimer's disease.
- Write a note on Immunostaining.



6. Explain the following terms :

- a) Partial agonist
- b) Inverse agonist
- c) Spare receptors
- d) EC₅₀
- e) K_i.

5 × 1

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 the 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. $7 \frac{1}{2} + 7 \frac{1}{2}$

