

GUJARAT TECHNOLOGICAL UNIVERSITY
M. PHARM. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 910103**Date: 09/01/2013****Subject Name: Cellular and Molecular Pharmacology****Time: 10.30 am - 01.30 pm****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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| Q.1 | (a) Describe molecular structure, composition and functions of biological membrane | 06 |
| | (b) Describe the role of GABA in CNS physiology. Elaborate the drugs acting via GABA pathway with their clinical application. | 05 |
| | (c) Explain the adaptive cellular and molecular responses in brain ageing and enlist the antiageing drugs. | 05 |
| Q.2 | (a) Describe the following terminologies using dose response curve.
(i) Drug selectivity (ii) Risk-benefit ratio (iii) Drug potency | 06 |
| | (b) Write short note on Purines | 05 |
| | (c) Explain Single nucleotide polymorphism and its importance in gene therapy | 05 |
| Q.3 | (a) What are molecular switches and describe their role in signal transduction pathway giving suitable examples. | 06 |
| | (b) Describe in detail the two main signaling pathways in apoptosis | 05 |
| | (c) Differentiate between:
i) Nuclear receptor and tyrosine kinase receptor
ii) Ligand gated ion channel and voltage gated ion channel | 05 |
| Q.4 | (a) Explain the major functional pathways of G-protein coupled receptor transduction | 06 |
| | (b) Describe receptor theory applying law of mass action | 05 |
| | (c) Write short note on radio ligand binding studies. | 05 |
| Q.5 | (a) What are the important characteristics of the following transport mechanism:
(i) Active transport (ii) Passive transport (iii) Carrier mediated transport | 06 |
| | (b) Describe the role of TNF- α in the in the various immunological and inflammatory disorders. | 05 |
| | (c) Classify the Adrenergic receptors, and describe their signal transduction mechanism citing suitable examples as agonist and antagonist and their functional role. | 05 |
| Q. 6 | (a) Describe the following concepts giving suitable examples :
(i) Inverse agonist (ii) Efficacy (iii) Desensitization | 06 |
| | (b) Describe the physiological role of various types of calcium channels. | 05 |
| | (c) Describe the clinical condition in which nitric oxide may play a significant role | 05 |
| Q.7 | (a) Explain giving examples of various diseases resulting from receptor malfunction involving mutations in genes encoding receptors and protein involved in signal transduction. | 06 |
| | (b) Classify Dopaminergic agonists and antagonists with examples. Write their molecular mechanism in detail. | 05 |
| | (c) Briefly describe the effect of enzymes on drug action | 05 |