

**Birla Institute of Technology and Science, Pilani,  
Pilani-Campus (Rajasthan)**

**Comprehensive Examination: 2<sup>nd</sup> Sem, 2022-2023**

Course No: PHA G 611  
Course Title: Advanced Pharmacology  
Max. Marks: 40 (28+12)  
Date: 06/05/23

Closed Book  
Duration: 180 Min.

Instructions: Short and precise answer with flowchart will be preferred

**PART-A Open Book Max Marks: 28 Max Time: 110 Min**

- Q-1: Comments with suitable reasoning on the following: 9.0 M
- Chordae tendineae rupture/Papillary muscle damage may increase the risk of heart failure?
  - Benzotropine, can be used to treat drug-induced dystonia?
  - Self-administration/excessive use of dexamethasone/ prednisone during Covid 19 was used commonly, the sudden stoppage of steroids by patients without medical advice- may pose and increased a greater risk for the patients.?
  - A group of researchers has developed -NCE which is structurally similar to Herceptin, can it be useful in triple – ve breast cancer?
  - Thalamatomy be useful in Parkinson’s Disease?
  - Most of the drug doses need to be adjusted (reduced) in kidney failure/disease but a few antibiotics (Azithromycin) do not, why?
- Q-2: How does CAR T-Cell therapy work in treating clinical problems which are resistant/failed with available drug treatments? Explain with the help of a suitable example. 2.0 M
- Q-3: How do epigenetics involve in the immune-mediated escape of cancer cells? What are the suitable epigenetic-based approaches that be useful to treat cancer? Explain with the help of a suitable explanation. 3.0 M
- Q-4: A 32 year working woman used to take oral contraceptive pill but after diagnosis with Tuberculosis, the combined drug – INH, R, ETM and PYZ was taken as per the suggestion. Strikingly, after 4 weeks, she was confirmed- pregnant, despite the use of oral contraceptive pill.
- What could be the possible reason, explain with the help of suitable reasoning? 1.0 M
  - For latent TB, Pyrazinamide be preferred and must be for 2 months along with other drugs, why? 1.5 M
  - Why, Isoniazid may have serious toxicity in a few patients, not in all? 1.0 M
  - Write the mechanism of anti-bacterial resistance development and the therapeutic drugs/strategy for Multidrug-Resistant *Pseudomonas aeruginosa* management. 2.0 M
- Q-5: What do you mean by the lung remodeling process? How do  $\beta$ -2 agonists on chronic use develop tolerance? 1.5 M
- ii) Why, anticholinergic agents like atropine not clinically use but few (Ipratropium Bromide) prefer for COPD management? 1.5 M
- Q-6: In the case of drug poisoning, how does the urinary excretion in some clinical situations is manipulated to control the excretion of certain drugs from the body? Explain with the help of the suitable example of acidic/Basic drug. 2.0 M
- Q-7: How, Drug-Eluting Stent and Bio-engineered stents work? 1.5 M
- Q-8: What do you mean by proinflammatory cytokines and oxidative stress? How, ROS are generated and managed in the body? 2.0 M

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**PART-A Closed Book Max Marks:12 (18) Max Time: 70 Minutes**

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Q-1: Explain the following with the help of an example wherever deemed necessary: 5.0 M  
a) Embolism and Aneurysm b) Onpattro (patisiran) and Givlaari c) Tuberculoid and Lepromatous diagnosis d)  
MOA- Cytarabine and 5-Azacytidine d) Pancytopenia and Polycythemia

Q-2: Diabetes is a group of common metabolic disorders characterized by sustained high blood sugar levels which may affect many organs and eventually lead to many complications. (1.5+1+2+ 2)  
i) For treating T1 DM, how will you make longer-acting Insulin analogs if your research group is working for NCE? Explain with the help of a suitable example  
ii) Why do fructosamine tests be done in DM patients?  
iii) What do you mean by LADA and MODY? Suggests the possible therapeutic approach for their management.  
iv) How, DPP-IV inhibitor and GLP-1 analogues work, explain with the help of example?

Q-3: What do you mean by MDR and XDR –TB? Suggests the new drugs –recently approved for the treatment of MDR-TB affecting the lungs? 1.5 M

Q-4: What is the erythema nodosum leprosum (ENL)? How, thalidomide may be useful in ENL? 1.5 M

Q-5: Why is orthostatic hypotension and urinary retention, a common problem with antipsychotic agents? 1.0 M

Q-6: Why, Z-class of drugs does not have muscle relaxant and anticonvulsant effects, despite they work via BZD-GABA receptor? 1.5 M

Q-7: Why, Hemophilia A is more common in male ? 1.0 M

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