

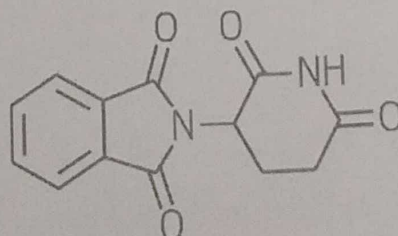
Our health and medicine (CH 405)
End-semester examination, IIT Dharwad

Total Marks: 40

Time allowed: 3 hrs.

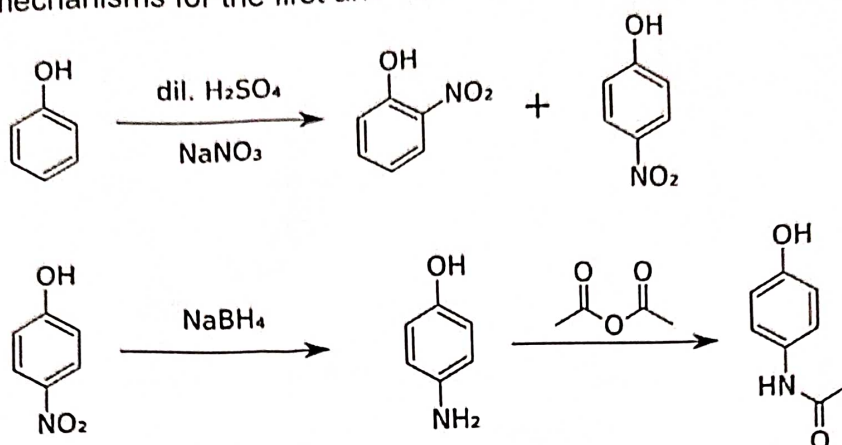
Be brief and to the point in your answers

1. In what context in his talk, Dr. Vishwas compared **leapfrogging to pole vaulting** in biomedical sciences and how interdisciplinary approaches can achieve that target? (3)
2. How can you differentiate **community medicine** from clinical medicine? (2)
3. What are the major roles of the **lymphatic system**? Name the organs associated with this system. How does **lymphocytes** fight pathogens and provide immunity? (3)
4. How **type 1 diabetes** is different from **diabetes mellitus**? Explain how **insulin** and **glucagon** regulate blood glucose levels. How would you treat a diabetic patient? (3)
5. Answer the following questions in relation to **TB**, a dreadful infectious disease. (4)
 - a) How MDR-TB is different from XDR-TB?
 - b) How will a doctor diagnose a TB infection?
 - c) Why are four antibiotics needed to treat TB?
 - d) What are the symptoms of abdominal TB?
6. Compare the **health care policies** of USA and UK. Where does India stand on the world's stage in terms of healthcare and how it can be improved? (3)
7. An important characteristic of drug was discovered after the tragic **thalidomide** incident occurred in 1950s. Explain this incident briefly. How was it rectified later? (2)

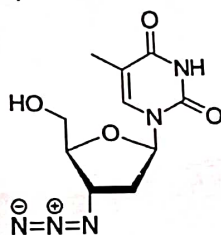


Thalidomide

8. Certain aspects of **cancer cells** differentiate them from normal healthy cells. What are they? What are the major treatment options for cancer and their side effects? (3)
9. Propose mechanisms for the first and third steps in the synthesis of **paracetamol**. (2)



10. What is the mechanism of action of **Azidothymidine (AZT)** in combating HIV? Do you think it is a life saver for people with **AIDS**? Why **HIV vaccine** is elusive so far? (3)



11. Why do you think a drug candidate should be both **hydrophilic** and **lipophilic**? What are some of the **non-covalent forces** involved in drug-solvent interactions? (3)
12. How **SARS-CoV-2** virus interacts with human cells and gains entry inside the body? What is the difference between **covaxin** and **covishield** vaccines in terms of their modes of action? How can you relate **mucormycosis** to Covid-19 pandemic? (3)
13. What are the different ways through which bacteria can gain **resistance** to antibiotics? Explain, in specific, the resistance mechanism for **penicillin** class of antibiotics? (3)
14. **Liver** is implicated in both **malaria** and **hepatitis B**. Explain how (in each case)? (2)
15. Mention in one sentence the meaning of following terms in medicine (any 4): (1)

Analgesic, Antitussive, Antipruritic, Anticonvulsant, Antiemetic