(1) Review & read Chapter 13. Study the questions below in study groups. Do multiple choice questions (1-16), and the concept questions (1-22) at the end of the chapter.

(2) Make “Disease Cards” for: Syphilis, Lyme Disease, Cholera, Campylobacter, Chamydia (see Textbook + www.cdc.gov)

(3) Look up the latest issue of the CDC’s MMWR. www.cdc.gov/mmwr/

1. What general term is used to describe the relationship between two organisms living together? How do the terms commensalist, parasite, mutualist, opportunist, antagonist and pathogen relate to microbes and to their hosts? Where do we find them in humans?

2. What is the difference between contamination, infection, pathogenesis and disease?

3. What is the difference between signs and symptoms? Be able to give examples and relate to some of the diseases you have studied.

4. What is a normal flora or microbiota? What is the typical number of microbes in a person’s normal flora? Where are they found? What would be the effect of losing your normal flora? Can you weigh up the benefits versus the costs of various members of your resident microbiota? How would your analysis change with respect to the type of person/patient being considered in a given situation?

5. How do humans achieve a healthy, normal flora when they are germ-free in-utero?

6. What are Koch’s postulates? What specifically do they prove? What organisms did Koch study? Are his postulates still relevant today? Can we apply them to all etiological agents? Why or why not? (obligate intracellular parasites, fastidious microbes, one disease-many different etiological agents, coinfections etc)

7. Define the terms endemic, epidemic, pandemic and sporadic giving disease examples for each one.

8. What is the typical pattern of a disease? How is it possible to get contamination without pathogenicity?

9. Where do diseases originate? Why do so many seem to originate in the East? What is a reservoir? List some of the commonest types of microbial reservoir? What is the difference between an endogenous and an exogenous infection? What is a symptomless/asymptomless carrier?

10. What are zoonoses and nosocomial infections? Examples? What are the Universal Precautions? Why are they so important in all health facilities? Explain and give examples of living and non-living reservoirs. Can microbes have multiple types of reservoirs? Examples?

11. How are diseases spread/transmitted? What is a fomite? Examples? What is the difference between mechanical vector transmission and biological vector transmission? What diseases survive long distance transmission. Why is disease so common in overcrowded, poor areas of the world? How can transmission be prevented?

12. What is a portal? How do microbes get into the body and how do they get out? Explain the main stages of the disease process, giving details & examples of microbial strategies for each stage (contamination, entry, penetration, adhesion, multiplication, evasion of host defences, tissue damage/necrosis - enzymes & toxins, spread, exit, patient death/survival).

13. What is the difference between pathogenicity and virulence? How are they measured?
14. List factors that would affect microbial pathogenicity and virulence. What is the difference between an extracellular enzyme, an endotoxin and an exotoxin. What does heat-labile mean? Can some pathogens use them all? Why does the destruction of a pathogen often make the host temporarily feel worse?

15. Why are many pathogens so specific to a single host? Some pathogens have evolved strategies to actually use host defence systems as a way of enhancing their success. How?

16. Microbiologists divide the development of a disease in a patient into five distinct stages. What are the five stages and how do they relate to microbial numbers in the body as well as patient signs and symptoms?

17. What is meant when a disease is described as being localized, systemic, focal, acute, or chronic? What are primary and secondary infections? Can you give an example?

18. What is epidemiology? What types of questions do epidemiologists ask? Why do they need to gather all this information? What is the CDC? What do the letters of the weekly CDC online publication MMWR stand for? What is the difference between morbidity and mortality? What is a notifiable disease? A non-communicable disease? A communicable disease? A contagious disease? Give some examples of diseases that fall into these categories.

19. What is the difference between epidemiological correlations versus experiments showing cause and effect? Is one type of data more valid than another? Is it always possible or practical to gather all the data needed? Why or why not?

20. Who collects data on the frequency of diseases within any population? Why is this data of interest? What does CDC stand for? Why did it change its name? Are all infectious diseases notifiable? Give some examples. Be able to define terms such as: incidence, prevalence, morbidity, and mortality.

Remember, you will not be turning these questions in to me, but they are critical for your success!