Microbiology MUHS Questions (2005-2015)

Paper I

CHAPTER 1- GENERAL MICROBIOLOGY

1. Louis Pasteur: Contributions
2. Robert Koch: Contributions; Koch's Postulates
3. Differences between Eukaryotic and Prokaryotic Cells
4. Plasmid: Define, Methods of Genetic Transfer among bacteria (3)
5. Bacterial Growth Curve
6. Culture Media: Transport media; Enrichment Media; Enriched Media; Selective Media; Differentiate between Enriched and Enrichment, two solid media without agar; X and V factors and satellitism
7. Antimicrobial agents: 2 mechanisms of action
8. Endotoxins and Exotoxins: Differentiate
9. Drug Resistance: Differentiate between Mutational and Transferable; Define mutation, significance in Hospital Acquired Infections
10. Antiseptics: Define, examples with spectrum; Define, disinfectants, chemical agents with uses and concentrations; characteristics of ideal antiseptics
11. Food Poisoning: Define, organisms
12. Sterilization: Define, Gaseous agents with use; Tyndallisation, principle and use
13. Methods of Anaerobiasis (4)
14. *Escherichia coli:* Types of diarrhoea causing, one test for identifying each
15. Cell Wall: Differences between Gram Positive and Gram Negative
16. Flagella: Define, methods for demonstration
17. Bacterial Spore: Define, types
18. Capsule: Bacteria producing, Role in human infections; Methods of demonstration (2)
19. Principle of Autoclave
20. Modes of Transmission of Infectious agents with examples

LAQ

1. Sterilization: Methods, Methods of Moist heat; Define, physical methods; Define, methods of heat sterilization, principle and application of autoclave; Define, Disinfection, Principle and working and biological control of Autoclave,
2. Virulence factors of Bacteria; Microbial Pathogenicity and Virulence
3. Classify Microorganisms, various aspects of identification

4. Growth Requirements of Bacteria, Bacterial Growth Curve, Culture Media
5. Structure and function of cell wall
6. Methods of gene transfer in bacteria

CHAPTER TWO - BACTERIOLOGY

SAQ

1. Tuberculin Test: Uses
2. Septicaemia: Define, Bacteria producing; Define bacteraemia and septicaemia
3. Lepromin Test: Uses
4. Cholera toxin: Mechanism
5. *Streptococcus pyogenes*: Virulence Factors, Classification of Strep; Non suppurative lesions
6. *Staphylococcus aureus*: Lesions; Multisystem involvement and florid manifestations in TSS and Food poisoning
7. *Vibrio cholera:* Classify; El Tor and Classical Vibrios Differentiate; Halophilic Vibrios with Examples and Kanagawa phenomenon
8. *Salmonella typhi:* Morphology and Cultural Characteristics; List methods used for diagnosis wrt stages of the disease; Advantages of Clot culture over blood culture; Various lab tests in first week, role of Co-agglutination; Blood culture
9. Significant Bacteriuria, organisms causing urtheritis; Screening tests for UTI
10. Body louse and Rat Flea: Diseases transmitted; 4 Rickettsial Diseases with their agents
11. *Streptococcus pneumoniae* and *viridans:* Differentiate; Morphology and culture; Pneumococcal vaccine
12. Widal's Test: 4 points of history before interpreting the results; factors to be considered for interpretation
13. Acute Pyogenic Meningitis: Causative organisms; Lab diagnosis
14. Syphilis: Serological tests with antigen used; 2 standard and 2 treponemal serological tests; Biological False Positive reactions with examples; Visualization of treponemes; Principle, applications, advantages and disadvantages of VDRL
15. Weil-Felix Reaction: Principle, interpretation, application
16. Diptheria: Immunoprophylaxis; Morphology, methods for testing toxins
17. Atypical Mycobacteria: Classify, Examples
18. *Mycobacterium tuberculosis:* Methods of collection of sputum; Classify typical mycobacterium; Pathogenesis
19. *Mycobacterium leprae:* Morphology, Differences between Tuberculoid and Lepromatous leprosy
20. Gas Gangrene: Importance of primary smear, Laboratory Diagnosis
21. Rheumatic Fever: Secondary Prophylaxis
22. Bacteria Producing STDs; Culture and Morphology of *Neissaria gonorrhoea*
23. *Haemophilus influenzae:* 2 important species with infections; lesions caused
24. *Clostridium tetani:* Tetanus prophylaxis of clean, contaminated and infected wounds; Bacteria producing exotoxin, mechanism of action of tetanus toxin
25. *Chlamydiae:* Define, diseases (2); Morphological types; Characteristics
26. Naegler's Reaction: Principle, procedure and use;
27. Swarming: Define, Bacteria producing, methods to inhibit
28. *Shigella*: Classify and how they produce dysentery

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1. Urinary Tract Infections: Organisms causing, Lab of *Escherichia coli* ; General Laboratory Diagnosis
2. Enteric Fever: Lab Diagnosis; Laboratory Diagnosis, Vaccines for prophylaxis
3. Upper Respiratory Tract Infection: Laboratory Diagnosis of Diptheria; Laboratory Diagnosis of *Streptococcus pyogenes*
4. Gas Gangrene: Causes of wound infection, Laboratory Diagnosis of *Clostridium perfringens*; Organisms causing post-operative wound infections, pathogenesis and Laboratory diagnosis; Classify anaerobes
5. *Staphylococcus aureus:* Morphology, Pathogenicity, Laboratory Diagnosis
6. Syphilis: Organisms producing STDs, Serological methods of diagnosis
7. Leptospirosis: Define Zoonosis, Morphology and Laboratory Diagnosis; 4 routes of infection, Laboratory Diagnosis with utility of tests at different stages
8. *Mycobacterium tuberculosis:* Enumerate pathogenic mycobacteria, Laboratory Diagnosis; Laboratory Diagnosis wrt Collection method, Concentration, Microscopy of sputum
9. *Neissariae gonorrhoea:* Morphology, Pathogenesis, Laboratory Diagnosis, Infections
10. *Vibrio cholera:* Laboratory Diagnosis wrt microscopy, culture and biochemical tests; Bacteria causing diarrhoea, cholera toxin, Laboratory Diagnosis
11. *Shigella:* Define and causes of Dysentry, Differentiate between parasitic and bacillary dysentery, Laboratory Diagnosis of Shigella
12. Meningococcal Meningitis: Laboratory Diagnosis

CHAPTER THREE – CLINICAL MICROBIOLOGY

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1. PUO: Organisms Causing;
2. Nosocomial Infections, Methods of disposal of sharps; Define hospital acquired with two common organisms; 4 common bacteria, antibiotics for treatment of *Pseudomonas aeroginosa*
3. Genital Ulcer Diseases: Name with causative organisms
4. Precautions for preventing sharps injury
5. Biomedical Waste: Colour codes and categories
6. Universal safety precautions

LAQ

1. Acute Pyogenic Meningitis: Morphology, Pathogenesis, Laboratory Diagnosis
2. Food Poisoning: Bacterial causes, Morphology, Pathogenesis, Laboratory Diagnosis
3. Pyrexia of Unknown Origin: Organisms, Laboratory Diagnosis of Enteric Fever