

Paper No- 15
SEMESTER - VI
MEDICAL MICROBIOLOGY

THEORY

MARKS: 100

Unit 1 Normal microflora of the human body and host pathogen interaction

No. of lectures: 6

1.1 Normal microflora of the human body: Importance of normal microflora, normal microflora of skin, throat, gastrointestinal tract, urogenital tract

1.2 Host pathogen interaction: Definitions - Infection, Invasion, Pathogen, Pathogenicity, Virulence, Toxigenicity, Carriers and their types, Opportunistic infections, Nosocomial infections. Transmission of infection, Pathophysiologic effects of LPS

(Chapters 9 & 10, Jawetz, Melnick and Adelberg's Medical Microbiology by Brooks GF, Carroll KC, Butel JS, Morse SA and Mietzner TA, 25th Ed., McGraw Hill Publication, 2010, Pages:145-157;159-163)

Unit 2 Bacterial diseases: Symptoms, mode of transmission, prophylaxis and control

No. of lectures: 14

2.1 Respiratory Diseases: *Streptococcus pyogenes, Haemophilus influenzae, Mycobacterium tuberculosis*

2.2 Gastrointestinal Diseases: *Escherichia coli, Salmonella typhi, Vibrio cholerae, Helicobacter pylori*

2.3 Others: *Staphylococcus aureus, Bacillus anthracis, Clostridium tetani, Treponema pallidum*

(Chapters 11, 14, 15, 17, 18, 23 & 24, Jawetz, Melnick and Adelberg's Medical Microbiology by Brooks GF, Carroll KC, Butel JS, Morse SA & Mietzner TA, 25th Ed., McGraw Hill Publication, 2010, Pages:165-173;195-209;213-225;235-242;245-254;289-299;301-311)

Unit 3 Viral diseases: transmission, symptoms, prophylaxis and control

No. of lectures: 14

Polio, Herpes, Hepatitis, Rabies, Dengue, AIDS, Influenza with brief description of swine flu

(Chapters 33, 35, 36, 38, 39, 42, & 44, Jawetz, Melnick and Adelberg's Medical Microbiology by Brooks GF, Carroll KC, Butel JS, Morse SA and Mietzner TA, 25th Ed., McGraw Hill Publication, 2010, Pages:433-454;471-487;491-504;517-536;539-550;579-588;609-622)

Unit 4 Protozoan diseases: Symptoms, transmission and control

No. of lectures: 4

Malaria, Kala-azar

(Chapter 46, Jawetz, Melnick and Adelberg's Medical Microbiology by Brooks GF, Carroll KC, Butel JS, Morse SA & Mietzner TA, 25th Ed., McGraw Hill Publication 2010, Pages:665-698)

Unit 5 Fungal diseases: Brief description of each of the following types of mycoses and one representative disease to be studied with respect to transmission, symptoms and prevention

No. of lectures: 5

5.1 Cutaneous mycoses: Tinea pedis (Athlete's foot)

5.2 Systemic mycoses: Histoplasmosis

5.3 Opportunistic mycoses: Candidiasis

(Chapter 45, Jawetz, Melnick and Adelberg's Medical Microbiology by Brooks GF, Carroll KC, Butel JS, Morse SA & Mietzner TA, 25th Ed., McGraw Hill Publication, 2010, Pages: 625-661)

Unit 6 Antimicrobial agents: General characteristics and mode of action **No. of lectures: 5**

6.1 Antibacterial agents: Five modes of action with one example each: Inhibitor of nucleic acid synthesis; Inhibitor of cell wall synthesis; Inhibitor of cell membrane function; Inhibitor of protein synthesis; Inhibitor of metabolism

6.2 Antifungal agents: Mechanism of action of Amphotericin B, Griseofulvin

6.3 Antiviral agents: Mechanism of action of Amantadine, Acyclovir, Azidothymidine

(Chapters 28, 30 & 45, Jawetz, Melnick and Adelberg's Medical Microbiology by Brooks GF, Carroll KC, Butel JS, Morse SA & Mietzner TA, 25th Ed., McGraw Hill Publication, 2010: Pages, 339-371; 397-413; 625-661)

PRACTICALS

MARKS: 50

1. To identify pathogenic bacteria (any three of *E. coli*, *Salmonella*, *Pseudomonas*, *Staphylococcus*, *Bacillus*) based on cultural, morphological and biochemical characteristics: IMViC, TSI, nitrate reduction, urease production and catalase tests
2. To study composition and use of important differential media for identification of pathogenic bacteria: McConkey agar, Mannitol salt agar, Deoxycholate citrate agar, TCBS
3. To study bacterial flora of skin by swab met
4. To perform antibacterial testing by Kirby-Bauer method
5. To study symptoms of the diseases with the help of photographs: Polio, anthrax, herpes, chicken pox, HPV warts, AIDS (candidiasis), dermatomycoses (ring worms)

SUGGESTED READING

1. Ananthanarayan R. and Paniker C.K.J. (2009) Textbook of Microbiology. 8th edition, University Press Publication
2. Brooks G.F., Carroll K.C., Butel J.S., Morse S.A. and Mietzner, T.A. (2010) Jawetz, Melnick and Adelberg's Medical Microbiology. 25th edition. McGraw Hill Publication
3. Goering R., Dockrell H., Zuckerman M. and Wakelin D. (2007) Mims' Medical Microbiology. 4th edition. Elsevier
4. Willey JM, Sherwood LM, and Woolverton CJ. (2008) Prescott, Harley and Klein's Microbiology. 7th edition. McGraw Hill Higher Education

ON-LINE READING MATERIAL

1. Baron, S. Medical Microbiology, 4th edition.
http://www.ncbi.nlm.nih.gov/books/NBK7627/?redirect-on-error=__HOME__&depth=2
2. MicrobeWorld (Published by The American Society of Microbiology):
<http://www.microbeworld.org/>