

FIRST YEAR BSC PERFUSION TECHNOLOGY

QUESTION BANK

MICROBIOLOGY

BACTERIOLOGY

ESSAYS: (2×10=20)

- 1. Describe the infections caused by Staphylococci. Discuss their laboratory diagnosis.**
Virulence factors, Pathogenesis, C/F, Lab diagnosis
- 2. Enumerate the causative agents of enteric fever. Describe in detail pathogenesis clinical features and laboratory diagnosis of typhoid**
Agents, Virulence factors, Pathogenesis, C/F, Lab diagnosis
- 3. Describe the clinical features, laboratory diagnosis, and prophylaxis of pulmonary tuberculosis.**
Pathogenesis, C/F, Lab diagnosis, vaccination
- 4. Describe the Staphylococcal infections and the methods of laboratory diagnosis. Add a note on MRSA.**
Virulence factors, Pathogenesis, C/F, Lab diagnosis, MRSA
- 5. Explain in detail about clinical features, laboratory diagnosis and prophylaxis of diphtheria.**
Virulence factors, Pathogenesis, C/F, Lab diagnosis, vaccination
- 6. Discuss in detail about clinical features, laboratory diagnosis and prophylaxis of tuberculosis**
Pathogenesis, C/F, Lab diagnosis, vaccination
- 7. Name the pathogenic clostridia. Briefly describe the cleaning disinfection and monitoring of operation theatre for *Clostridium tetani*.**
Classification, disinfection of OT, sterility test
- 8. Describe the collection and processing of samples for diagnosis of pulmonary tuberculosis. Mention the recent methods for diagnosis tuberculosis**
Specimens, collection, homogenization, recent methods of diagnosis

SHORT NOTES: (6X5=30)

- 1. Salmonella.**
Morphology, biochemical test, diseases
- 2. Leptospirosis**
Pathogenesis, C/F, Lab diagnosis
- 3. Prophylaxis of tetanus**
Vaccination
- 4. MRSA**
Mechanism, diagnosis, treatment, prevention
- 5. Widal test**
Principal, use, procedure, Interpretation
- 6. Lab diagnosis of syphilis**
Specimen, processing
- 7. Corynebacterium diphtheria**
Morphology, biochemical test, diseases
- 8. Lab diagnosis of pulmonary tuberculosis**
Specimen, processing
- 9. Laboratory diagnosis of cholera.**
Specimen, processing
- 10. Meningococcal meningitis**
Agent, pathogenesis, C/F, lab diagnosis briefly
- 11. Tetanus**
Agent, pathogenesis, C/F, lab diagnosis briefly
- 12. Laboratory diagnosis of diphtheria**
Specimen, processing

ANSWER BRIEFLY: (10 X 3 = 30)

- 1. Leptospirosis**
Agent, briefly- pathogenesis, C/F, lab diagnosis
- 2. VDRL test.**
Principal, use, procedure
- 3. Clostridium tetani**
Morphology, biochemical test, diseases
- 4. B C G vaccine**
Use, dosage, preparation, complication
- 5. Pneumococci**
Morphology, biochemical test, diseases
- 6. Syphilis**
Agent, briefly- pathogenesis, C/F, lab diagnosis
- 7. Streptococci**
Morphology, biochemical test, diseases
- 8. Diphtheria**
Agent, briefly- pathogenesis, C/F, lab diagnosis
- 9. Tests of syphilis**
Classification
- 10. Botulism**
Agent, briefly- pathogenesis, C/F, lab diagnosis
- 11. Laboratory diagnosis of Gonorrhoea**
Specimen, processing
- 12. Laboratory diagnosis of enteric fever**
Agent, Specimen, processing
- 13. Widal test**
Principal, use, procedure
- 14. Staphylococcal infections**

Virulence factors, Classification

15. Lab diagnosis of diphtheria

Specimen, processing

16. Mantoux test

Use, procedure, interpretation

17. Clostridium difficile

Morphology, biochemical test, diseases

18. Laboratory diagnosis and prophylaxis of tetanus.

Specimen, processing, vaccination

19. Staphylococcus aureus

Morphology, biochemical test, diseases

20. Laboratory diagnosis of syphilis.

Specimen, processing

21. Vibrio cholera

Morphology, biochemical test, diseases

22. Gas gangrene

Agent, briefly- pathogenesis, C/F, lab diagnosis

23. Streptococcus pyogenes

Morphology, biochemical test, diseases

24. Prevention of tetanus

First aid, vaccination-dosage

25. Typhoid fever

Agent, briefly- pathogenesis, C/F, lab diagnosis

26. Diphtheria

Agent, briefly- pathogenesis, C/F, lab diagnosis

27. Cholera

Agent, briefly- pathogenesis, C/F, lab diagnosis

28. Pulmonary tuberculosis

Agent, briefly- pathogenesis, C/F, lab diagnosis

- 29. Shigella**
Morphology, biochemical test, diseases
- 30. ASO test**
Principal, use, procedure
- 31. Widal test**
Principal, use, procedure
- 32. Streptococcal infections**
Agent, briefly- pathogenesis, C/F, lab diagnosis
- 33. Bacillary dysentery(3**
Agent, briefly- pathogenesis, C/F, lab diagnosis
- 34. Clostridium perfringens**
Morphology, biochemical test, diseases

CLINICAL

ESSAYS: (2×10=20)

- 1. Name the blood borne pathogens. Describe in detail the preventive measures of hospital acquired infections**
Agents, Infection control measures
- 2. Describe in detail about hand washing. Describe briefly about prevention of infection in operation theatre.**
Steps, infection control measures
- 3. Name the organisms transmitted through blood and blood products. Name the mandatory screening tests before blood transfusion.**
Agents, Tests, Test procedure and interpretation
- 4. Define needle stick injury and explain the steps to be taken when there is a needle stick injury is happen**
Definition, Safety measures
- 5. Discuss the bio-waste management in a hospital.**
Definition, segregation, disposal and treatment
- 6. Define nosocomial infection. List the common nosocomial infections. Discuss the laboratory diagnosis of hepatitis B infection.**
Definition, Agents, Diagnostic procedures
- 7. What is bacteremia. Name two conditions where blood culture is done. Describe how you will collect blood for culture and transport it to the laboratory.**
Definition, Name the condition, blood collection procedure, transport
- 8. What is biomedical waste. Describe the different categories of BMW and the methods of disposal**
Definition, segregation, disposal and treatment
- 9. Name four hospital associated infections. Describe the laboratory diagnosis and methods of prevention of HAIs.**
Classification, lab diagnosis, infection control measures

SHORT NOTES: (6 X 5 = 30)

- 1. Carriers.**
Definition, classification
- 2. Iatrogenic infections**
Definition, classification
- 3. Congenital infections**
Definition, example
- 4. Laboratory diagnosis of acute pyogenic meningitis**
Specimen, Processing
- 5. Blood borne infections**
Classification, Pathogenesis, C/F, diagnosis
- 6. Standard precautions**
Definition, classification
- 7. Urinary tract infection**
Definition, agents, pathogenesis, C/F, diagnosis
- 8. Disposal of sharps**
Methods
- 9. Laboratory diagnosis of urinary tract infection**
Specimen, processing
- 10. Universal precautions**
Definition, classification
- 11. Hospital acquired infections**
Definition, classification, pathogens, diagnosis, prevention

ANSWER BRIEFLY: (10X3=30)

- 1. Segregation of biomedical waste**
Classification
- 2. Categorization of biological waste.**
Definition, classification
- 3. Treatment and disposal of infectious waste**
Methods
- 4. Venipuncture procedure**
Blood collection procedure
- 5. Name common pathogens causing hospital acquired infections**
List the pathogens
- 6. Bacterial meningitis**
Agents, pathogenesis, C/F, diagnosis
- 7. Hand washing**
Procedure
- 8. Laboratory diagnosis of urinary tract infection**
Specimen, processing
- 9. Dysentery**
Agents, pathogenesis, C/F, diagnosis
- 10. Methods of collection of urine**
Methods
- 11. Sample collection – blood for culture**
Blood collection procedure, sampling
- 12. Universal precautions**
Classification

MYCOLOGY

ESSAYS: (2 × 10 = 20)

1. **Classify fungal infection. Explain Opportunistic mycosis**
Classification, agents, C/F, lab diagnosis, treatment
2. **Classify fungal infection. Explain dermatophytosis**
Classification, agents, C/F, lab diagnosis, treatment

SHORT NOTES: (6 X 5 = 30)

1. **Cryptococcus**
Morphology, diseases, diagnosis
2. **Opportunistic fungi**
Agents, Morphology, diseases, diagnosis
3. **Candida albicans**
Morphology, diseases, diagnosis
4. **Candida**
Morphology, diseases, diagnosis

ANSWER BRIEFLY: (10 X 3 = 30)

1. **Name four fungi causing skin infections**
Agents
2. **Name four fungi causing ear infection**
Agents
3. **Fungi causing eye infections**
Agents
4. **Aspergillus**
Morphology, diseases, diagnosis
5. **Cryptococcus**
Morphology, diseases, diagnosis

- 6. Candidiasis**
Agents, pathogenesis, C/F, diagnosis
- 7. Opportunistic fungal infections.**
Agents, pathogenesis, C/F, diagnosis
- 8. Cryptococcus neoformans**
Morphology, diseases, diagnosis
- 9. Dermatophytes**
Agents, diseases, diagnosis
- 10. Candida albicans**
Morphology, diseases, diagnosis

IMMUNOLOGY

ESSAYS: (2 × 10 = 20)

1. **Vaccines**
Definition, classification
2. **Immunity**
Definition, classification

SHORT NOTES: (6 X 5 = 30)

1. **ELISA**
Definition, classification, uses
2. **DPT vaccine**
Use, preparation, types, dosage, complication
3. **Acquired immunity.**
Definition, classification
4. **Live vaccines**
Definition, classification
5. **MMR vaccine**
Use, preparation, types, dosage, complication
6. **ELISA principle and procedure with examples**
Definition, classification, principal, example
7. **Types of immunity with examples**
Classification, examples
8. **Passive immunity**
Definition, classification

ANSWER BRIEFLY: (10 X 3 = 30)

1. Active immunity

Definition, classification

2. Live vaccines

Definition, classification

3. Oral polio vaccine

Use, dosage, complication

4. ELISA

Definition, classification, uses

5. BCG vaccine

Use, dosage, complication

GENERAL

Essays: (2×10=20)

- 1. Define sterilization. Explain Spaulding's classification of surgical instruments. Briefly describe plasma sterilization.**

Definition, classification, plasma sterilization

- 2. Name the moist heat methods of sterilization. Briefly discuss the working of an autoclave**

Classification, autoclave-parts, principle, working, uses, sterilization control

- 3. Enumerate the methods of sterilization using dry heat. Describe in detail about hot air oven. Add a note on sterilization control.**

Classification, hot air oven-parts, principle, working, uses, sterilization control

- 4. What do you mean by sterilization. How does it differ from disinfection. What are the different methods of moist heat sterilization and explain in detail about principle and functioning of autoclave.**

Definition, Differentiate sterilization and disinfection, Classification of moist heat methods, autoclave-parts, principle, working, uses, sterilization control

- 5. Name the gaseous disinfectants. Briefly describe about each.**

Definition of disinfectant, Methods of gaseous disinfectants and its explanation

- 6. Define disinfection and antiseptics. Classify the disinfectants. Briefly describe the disinfectants used in the operation theatre**

Definition, classification, disinfectants of OT

- 7. Define disinfectant. Classify the disinfectants. Briefly discuss about chemical sterilant**

Definition, classification, High level disinfectants

SHORT NOTES: (6 X 5 = 30)

1. Differential staining

Definition, gram staining, AFB staining, Alberts staining

2. Hot air oven

Diagram, parts, principle, working, uses, sterilization control

3. Pasteurization

Definition, classification, uses

4. Bacterial growth curve

Diagram, lag, log, stationary, decline phases

5. Discuss the dry methods of sterilization. What are the clinical applications of a hot air oven

Methods, uses of hot air oven

6. With the help of a diagram describe the bacterial spore and its clinical application

Diagram, explanation, sterilization control

7. Antibiotic sensitivity test

Methods, procedure, diagram

8. Anaerobic culture methods

Methods

9. Inspissation

Principle, holding conditions, uses

10. Autoclave

Parts, principle, working, uses, sterilization control

11. Chemical disinfectants

Classification, explanation

12. Filters

Classification, explanation

13. High level disinfectants

Classification, explanation

- 14. Cold sterilization**
Ionising radiation
- 15. Bacterial flagella**
Diagram, parts, examples, demonstration
- 16. Newer autoclaves and its role in blood banks**
Types, decontamination of blood bag
- 17. Bacterial capsule**
Diagram, explanation, examples, demonstration
- 18. Bacterial spore**
Diagram, explanation, examples, demonstration
- 19. Transport media**
Purpose, examples
- 20. Negative staining**
India ink staining, purpose, procedure, principle
- 21. Enriched media**
Purpose, examples, principle
- 22. Hypochlorite solution**
Mode of action, uses
- 23. Ionizing radiation**
Mode of action, uses
- 24. Methods of sterilization by dry heat**
Types, principle, holding condition, uses
- 25. Light microscope**
Picture, parts, principle
- 26. Staining methods for bacteria**
Simple staining, differential, special staining
- 27. Describe the principle and functioning of autoclave**
Principle, parts, functioning, diagram

ANSWER BRIEFLY: (10 X 3 = 30)

- 1. Enrichment media**
Purpose, examples, principle
- 2. Fumigation**
Procedure, holding conditions, purpose
- 3. Anaerobic culture media**
Types
- 4. Disinfectants**
Definition, classification
- 5. Cold sterilization**
Ionising radiation
- 6. Aldehydes in sterilization**
Mode of action, uses
- 7. AFB staining**
Principle, procedure, uses
- 8. Autoclave - its application in a hospital**
Uses
- 9. Incineration**
Holding condition, principle, uses
- 10. Bacterial spore**
Morphology, picture, uses
- 11. Gram's staining**
Principle, procedure, uses
- 12. Gram stain**
Reagents, principle, interpretation
- 13. Selective media**
Purpose, examples, principle
- 14. Ethyl alcohol**

- Mode of action, uses
- 15. Antiseptics**
Definition, examples, uses
 - 16. Tyndallisation**
Holding condition, principle, uses
 - 17. Phenol**
Mode of action, uses
 - 18. Isopropyl alcohol**
Mode of action, uses
 - 19. Flagella**
Picture, parts, examples
 - 20. Hypochlorites as disinfectants**
Mode of action, uses
 - 21. Inspissation & its applications**
Holding condition, principle, uses
 - 22. Antibiotic susceptibility tests**
Classification, picture
 - 23. Bacterial growth curve**
Diagram, phases
 - 24. Halogens**
Mode of action, uses
 - 25. Robertson's cooked meat media**
Holding condition, principle, uses
 - 26. Pastuerization**
Holding condition, principle, uses
 - 27. Hot air oven**
Holding condition, principle, uses, picture

PARASITOLOGY

SHORT NOTES: (6 X 5 = 30)

1. **Trichuris trichura**
Morphology, pathogenesis, C/F, diagnosis
2. **Entamoeba histolytica**
Morphology, pathogenesis, C/F, diagnosis
3. **Complications of falciparum malaria.**
Complication, lab diagnosis
4. **Taenia solium**
Morphology, pathogenesis, C/F, diagnosis
5. **Plasmodium falciparum**
Morphology, pathogenesis, C/F, diagnosis
6. **Falciparum malaria**
C/F, Complication, lab diagnosis
7. **Life cycle of Ascaris lumbricoides**
Host, mode of transmission, infective form, life cycle
8. **Wuchereria bancrofti**
Morphology, pathogenesis, C/F, diagnosis

ANSWER BRIEFLY: (10 X 3 = 30)

9. **Pernicious malaria**
C/F, Complication, lab diagnosis
10. **Entamoeba histolytica**
Morphology, pathogenesis, C/F, diagnosis
11. **Cysts of Entamoeba histolytica**
Picture, characteristics
12. **Life cycle of Plasmodium vivax in man**
Host, mode of transmission, infective form, life cycle

- 13. Ascaris lumbricoides**
Morphology, pathogenesis, C/F, diagnosis
- 14. Name six intestinal nematodes**
List
- 15. Life cycle of Ascaris lumbricoides**
Host, mode of transmission, infective form, life cycle
- 16. Taenia solium**
Morphology, pathogenesis, C/F, diagnosis
- 17. Amoebiasis**
Agent, pathogenesis, C/F, diagnosis
- 18. Name six parasites causing infections in human**
List
- 19. Life cycle of Entamoeba histolytica**
Host, mode of transmission, infective form, life cycle
- 20. Malaria**
Agent, pathogenesis, C/F, diagnosis
- 21. Microfilaria.**
Morphology, diagnostic value
- 22. Life cycle of pinworm (*Enterobius vermicularis*)**
- 23. Host, mode of transmission, infective form, life cycle**
- 24. Life cycle of malaria**
Host, mode of transmission, infective form, life cycle

VIROLOGY

ESSAYS: (2 × 10 = 20)

- 1. Name the viral infections transmitted through blood. Describe the laboratory diagnosis of HIV infection. What are the methods for prevention.**

List, different diagnostic methods and prevention of HIV virus infection

- 2. List the infections screened in the blood bank. Discuss the laboratory methods for screening of disease caused by any one of the blood borne viruses**

List, diagnostic methods of any one of them

- 3. Classify hepatitis viruses. Discuss in detail about modes of transmission, lab diagnosis and prophylaxis of hepatitis B**

Classification, mode of transmission, different diagnostic methods, general prevention and vaccination

SHORT NOTES: (6 X 5 = 30)

- 1. Prophylaxis of rabies**

Categorization, General measures, vaccination

- 2. Lab diagnosis of hepatitis B infection**

Different Methods

- 3. Hepatitis B virus infection**

Causative agent, pathogenesis, C/F, diagnosis

- 4. Rabies**

Causative agent, pathogenesis, C/F, diagnosis

- 5. Hepatitis B vaccine and its indications**

Classification, dosage, complication

- 6. Herpes viruses**

Morphology, C/F, diagnosis of HSV 1 and 2

- 7. Rapid test for HIV**

Immunochromatography, comb test, tridot- principal, procedure

ANSWER BRIEFLY: (10 X 3 = 30)

- 1. Herpes simplex virus**
Morphology, C/F, diagnosis
- 2. Hepatitis C virus**
Morphology, C/F, diagnosis
- 3. Hepatitis B virus**
Morphology, C/F, diagnosis
- 4. Herpes zoster**
Morphology, C/F, diagnosis
- 5. Hepatitis B vaccine**
Classification, dosage, complication
- 6. Viral inclusion bodies**
Definition, examples, diagnostic value
- 7. Negri bodies**
Definition, mention disease condition, diagnostic value
- 8. Varicella zoster**
Morphology, C/F, diagnosis
- 9. Name three RNA viruses and the diseases caused by them**
List out three RNA virus and its disease
- 10. Prophylaxis of poliomyelitis**
General preventive measures, vaccination
- 11. Polio**
Causative agent, pathogenesis, C/F, diagnosis briefly
- 12. Laboratory diagnosis of HIV**
Different types of methods
- 13. Hepatitis A**
Morphology, C/F, diagnosis
- 14. Rapid test for HIV**
Immunochromatography, comb test, tridot

15. Laboratory diagnosis of hepatitis B

Methods

16. Prophylaxis of rabies

Preventive measures

17. Hepatitis E

Morphology, C/F, diagnosis

18. Polio vaccine

Types, dosage, complication

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