MBBS SECOND PROFESSIONAL

MICROBIOLOGY

QUESTION BANK

Chapter-wise · Topic-wise Previous-Year Questions

Paper I & Paper II · Theory Papers & MCQs · 2009 – 2025



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1241 questions · 9 chapters · repeats marked · CBME pattern

By

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MBBS — MICROBIOLOGY

(Second Professional MBBS · Microbiology Paper I & Paper II)

Chapter-wise, Topic-wise Previous-Year Question Bank

Theory Papers · 2009 – 2025 | MCQ Papers · 2022 – 2025

9 chapters · 31 topics · 1241 questions (841 after merging repeats) · 73 case-based questions · 240 MCQs (208 after merging repeats)

Compiled from 70 theory papers and 20 MCQ papers of the Microbiology examination, Amrita Vishwa Vidyapeetham, Kochi

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Preface

Dear students,

Microbiology is the subject that stays with you long after the second year is over. Every fever you investigate, every culture report you read, every antibiotic you choose and every needle-stick you worry about in the wards rests on what you learn now — the organism, how it causes disease, how the laboratory finds it and how we stop it from spreading.

Every question set in the Microbiology Paper I and Paper II theory examinations from January 2009 to 2025 — regular and supplementary sittings — has been collected here, arranged chapter by chapter and topic by topic, and tagged with the examination in which it appeared. The MCQ papers of the CBME pattern (2022 onwards) are included at the end of each chapter. Questions that have been asked more than once are merged and marked, so that you can see at a glance which topics the examiners value most.

Use this book actively. Start each chapter with its most-asked topics. Read the topic from your textbook, then come back and write the answers in your own words, within the time you would have in the examination hall. For the case-based questions, practise the sequence the examiners reward — the probable diagnosis and why, the organism and its morphology, the pathogenesis, the specimen and how it is collected, the laboratory diagnosis, and treatment and prevention. Draw the diagrams until you can draw them from memory.

A question bank is not a substitute for practical classes, the laboratory or a good textbook. It is a map. It shows you where the roads are, how often each road is travelled, and which ones you must know well before you set out. Combined with regular attendance and honest revision, it will help you walk into the examination with confidence.

I wish every one of you the very best for your examinations and for the years of practice ahead, in which a well-chosen specimen and a well-read report will save lives.

With best wishes,



Dr. Gireesh Kumar K.P.
Kochi, November 2026

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How to use this question bank

Coverage. Every question from the 70 Microbiology theory papers (Paper I and Paper II) between 2009 and 2025, regular and supplementary sittings, together with the MCQ papers of the CBME pattern from 2022 onwards.

Organisation. Questions are grouped into 9 chapters, in the order a microbiology textbook would teach them, and inside each chapter into topics. Within a topic, case-based questions come first, then the structured and long questions, then the short notes and finally the short answers. The MCQs are collected at the end of each chapter.

Source tags. Each question ends with the sitting in which it appeared, e.g. “Feb 2024”. (S) marks a supplementary examination. Papers up to January 2022 follow the older 40-mark pattern; the papers from March 2022 onwards follow the 100-mark CBME pattern with a separate MCQ paper.

Repeats = high-yield. A question set in more than one paper is listed once with all its appearances and a count in magenta, e.g. ***[3×]***. Each topic heading shows how many papers asked it, and the box at the top of each chapter lists the most-asked topics.

Note. The papers were scanned and converted to text; obvious scanning and spelling errors have been corrected and the original wording otherwise retained. Where part of a scanned question could not be read, this is marked in square brackets. Check against the original paper if a word looks odd.

Papers covered

Tag	Paper I	Paper II	Sitting	Pattern
Jan 2009	12 Jan 2009	13 Jan 2009	Regular	40 marks
May 2009	19 May 2009	20 May 2009	Regular	40 marks
Jan 2010	19 Jan 2010	20 Jan 2010	Regular	40 marks
Jun 2010	08 Jun 2010	09 Jun 2010	Regular	40 marks
Jan 2011	14 Jan 2011	15 Jan 2011	Regular	40 marks
Jun 2011	24 Jun 2011	Jun 2011	Regular	40 marks
Jan 2012	13 Jan 2012	14 Jan 2012	Regular	40 marks
Jun 2012 (S)	—	26 Jun 2012	Supplementary	40 marks
Jul 2012	Jul 2012	—	Regular	40 marks
Jan 2013	14 Jan 2013	15 Jan 2013	Regular	40 marks
Jun 2013	07 Jun 2013	—	Regular	40 marks
Jun 2013 (S)	—	08 Jun 2013	Supplementary	40 marks
Jan 2014	16 Jan 2014	17 Jan 2014	Regular	40 marks
Jun 2014	12 Jun 2014	13 Jun 2014	Regular	40 marks
Jan 2015	15 Jan 2015	16 Jan 2015	Regular	40 marks
Jun 2015	15 Jun 2015	16 Jun 2015	Regular	40 marks
Jan 2016	21 Jan 2016	—	Regular	40 marks
Jun 2016	17 Jun 2016	18 Jun 2016	Regular	40 marks
Jun 2017 (S)	12 Jun 2017	13 Jun 2017	Supplementary	40 marks
Jan 2018	02 Jan 2018	04 Jan 2018	Regular	40 marks
Jan 2019	18 Jan 2019	21 Jan 2019	Regular	40 marks
Jun 2019 (S)	06 Jun 2019	08 Jun 2019	Supplementary	40 marks
Jan 2020	23 Jan 2020	25 Jan 2020	Regular	40 marks
Aug 2020 (S)	07 Aug 2020	10 Aug 2020	Supplementary	40 marks
Aug 2021	04 Aug 2021	06 Aug 2021	Regular	40 marks
Nov 2021 (S)	26 Nov 2021	29 Nov 2021	Supplementary	40 marks

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Jan 2022 (S)	31 Jan 2022	—	Supplementary	40 marks
Feb 2022 (S)	—	02 Feb 2022	Supplementary	40 marks
Mar 2022	17 Mar 2022	19 Mar 2022	Regular	CBME (100 marks + MCQ)
Jul 2022 (S)	25 Jul 2022	27 Jul 2022	Supplementary	CBME (100 marks + MCQ)
Jan 2023	23 Jan 2023	25 Jan 2023	Regular	CBME (100 marks + MCQ)
Jul 2023 (S)	22 Jul 2023	24 Jul 2023	Supplementary	CBME (100 marks + MCQ)
Feb 2024	05 Feb 2024	08 Feb 2024	Regular	CBME (100 marks + MCQ)
Apr 2024 (S)	27 Apr 2024	30 Apr 2024	Supplementary	CBME (100 marks + MCQ)
Dec 2024	16 Dec 2024	18 Dec 2024	Regular	CBME (100 marks + MCQ)
May 2025 (S)	02 May 2025	05 May 2025	Supplementary	CBME (100 marks + MCQ)
Aug 2025	02 Aug 2025	05 Aug 2025	Regular	CBME (100 marks + MCQ)
Sep 2025 (S)	24 Sep 2025	26 Sep 2025	Supplementary	CBME (100 marks + MCQ)

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Contents and question distribution

#	Chapter	Topics	Questions	MCQs	Page
1.	General Microbiology	4	105	28	7
2.	Immunology	5	128	18	12
3.	Systemic Bacteriology I — Cocci and Gram-positive Bacilli	4	85	22	18
4.	Systemic Bacteriology II — Gram-negative Bacilli	2	46	18	23
5.	Mycobacteria, Spirochaetes and Other Bacteria	4	48	17	27
6.	Virology	4	140	37	31
7.	Mycology	2	74	18	39
8.	Parasitology	3	129	34	44
9.	Applied and Clinical Microbiology	3	86	16	50
	TOTAL	**31**	**841**	**208**	
	Index of major topics				54

“Questions” counts each theory question once after merging repeats; MCQs are counted separately.

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1. General Microbiology *(105 questions)*

> **★ Most-asked topics in this chapter**
>
> - Culture media, culture methods and identification — ***asked in 31 papers***
> - Sterilisation and disinfection — ***asked in 29 papers***
> - History, morphology and physiology of bacteria — ***asked in 28 papers***

1.1 History, morphology and physiology of bacteria *(28 papers)*

1. **Short note [5 marks]** Bacterial growth curve — *May 2009 · Jun 2015 · Jun 2017 (S) · Mar 2022 · Jul 2022 (S) · Apr 2024 (S)* ***[6×]***
2. **Short note [5 marks]** What are the differences between exotoxin and endotoxin? — *Jul 2012 · Jan 2014 · Jun 2019 (S) · May 2025 (S)* ***[4×]***
3. **Short note [5 marks]** Define bacterial capsule. What are the methods to demonstrate capsule? Name two functions of capsule — *Jan 2013 · Aug 2025* ***[2×]***
4. **Short note [5 marks]** Tabulate the differences between exotoxins and endotoxin — *Jan 2023*
5. **Short note [5 marks]** Write a short note on bacterial cell wall — *May 2025 (S)*
6. **Short note [2 marks]** Virulence factors of Staphylococcus aureus — *Jan 2010*
7. **Short note [2 marks]** Dark ground microscopy — *Jan 2013*
8. **Short note [2 marks]** Louis Pasteur — *Jan 2016*
9. **Short note [2 marks]** Fimbria — *Jan 2016*
10. **Short note [2 marks]** Exotoxins — *Jun 2016*
11. **Draw and label [1 mark]** Bacterial spore — *Jun 2011 · Jan 2014 · Jan 2015 · Nov 2021 (S)* ***[4×]***
12. **Draw and label [2 marks]** (a) Bacterial growth curve (b) Staphylococcus aureus in pus — *Jan 2010*
13. **Draw and label [1 mark]** Structure of Bacterial endospore — *Jan 2011*
14. **Draw and label [1 mark]** Pneumococci - Negative staining — *Jan 2012*
15. **Draw and label [1 mark]** Structure of a bacterial cell — *Jan 2013*
16. **Draw and label [1 mark]** Bacterial cell — *Jun 2014*
17. **Draw and label [1 mark]** Flagella — *Jan 2019*
18. **Short answer [2 marks]** Koch's Postulates — *Jun 2010 · Jun 2019 (S) · Jan 2022 (S) · Dec 2024* ***[4×]***
19. **Short answer [2 marks]** Bacterial flagella — *Jun 2015 · Jun 2016 · Nov 2021 (S)* ***[3×]***
20. **Short answer** L forms — *May 2009 · Jun 2014 · Jun 2016* ***[3×]***
21. **Short answer [2 marks]** L forms of bacteria — *Jan 2020 · Aug 2021* ***[2×]***
22. **Short answer [2 marks]** What is pasteurization? — *Jul 2022 (S) · Jan 2023* ***[2×]***
23. **Short answer [2 marks]** List 2 beneficial effects of normal microbial flora — *May 2025 (S)*
24. **Short answer [1 mark]** What are plasmids? — *Jan 2010*
25. **Short answer [1 mark]** Endotoxin — *Jan 2010*
26. **Short answer [1 mark]** Classify organisms based on oxygen requirement — *Jul 2012*
27. **Short answer [1 mark]** How is motility of bacteria demonstrated? — *Jun 2014*
28. **Short answer [1 mark]** Bacterial capsule — *Jan 2015*

1.2 Sterilisation and disinfection *(29 papers)*

1. **Structured question [10 marks]** What are the methods of sterilization by heat? Describe in detail the principle and applications of a hot air oven — *Mar 2022*
2. **Short note [5 marks]** Hot air oven — *May 2009 · Jun 2010 · Jan 2014 · Jun 2014 · Jun 2015 · Jun 2019 (S) · Apr 2024 (S)* ***[7×]***

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3. **Short note [5 marks]** Autoclave — *Jan 2010 · Jan 2014 · Jun 2017 (S) · Jan 2022 (S) · Jul 2023 (S)* ***[5×]***
4. **Short note [5 marks]** Five moments for hand hygiene — *Jul 2023 (S) · Apr 2024 (S) · Sep 2025 (S)* ***[3×]***
5. **Short note [5 marks]** Describe the structure, function and uses of autoclave — *May 2025 (S) · Sep 2025 (S)* ***[2×]***
6. **Short note [5 marks]** Write a short note on Hand hygiene — *Mar 2022*
7. **Short note [5 marks]** Define disinfection and its different levels — *Feb 2024*
8. **Short note [5 marks]** Principle and uses of autoclave — *Dec 2024*
9. **Short note [2 marks]** Tyndallisation — *Jan 2012 · Jan 2016 · Jan 2018* ***[3×]***
10. **Short note [2 marks]** Moist heat sterilisation methods — *Jun 2016*
11. **Short note** Phenol as disinfectant — *Jun 2015*
12. **Short answer [2 marks]** Cold sterilization — *Jan 2016 · Jul 2023 (S)* ***[2×]***
13. **Short answer [1 mark]** Alcohol as disinfectant — *Jun 2010 · Jun 2014* ***[2×]***
14. **Short answer [5 marks]** Chemical disinfectants — *Jan 2019*
15. **Short answer [2 marks]** Importance of Hand washing in infection prevention — *Jun 2017 (S)*
16. **Short answer [2 marks]** Inspissation — *Nov 2021 (S)*
17. **Short answer [2 marks]** Principle of inspissation — *Feb 2024*
18. **Short answer [2 marks]** Application of sodium hypochlorite in healthcare setting — *Dec 2024*
19. **Short answer [2 marks]** State whether true or false with justification: “Enveloped viruses are killed by washing with soap and water” — *Dec 2024*
20. **Short answer [2 marks]** Define High level disinfectant. Give 2 examples — *Aug 2025*
21. **Short answer [1 mark]** What is an antiseptic? Give example — *Jan 2009*
22. **Short answer [1 mark]** Cold sterilisation — *Jan 2011*
23. **Short answer [1 mark]** Name four disinfectants — *Jul 2012*
24. **Short answer [1 mark]** Uses of autoclave — *Jun 2013*
25. **Short answer [1 mark]** What are bacterial filters? — *Jun 2014*
26. **Short answer** Antiseptics — *Jan 2015*

1.3 Culture media, culture methods and identification *(31 papers)*

1. **Short note [5 marks]** Antibiotic susceptibility testing methods — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***
2. **Short note [5 marks]** Enrichment media and its uses — *Jul 2023 (S)*
3. **Short note [5 marks]** Enriched media and its uses — *Feb 2024*
4. **Short note [5 marks]** Blood culture: indications and sample collection — *Feb 2024*
5. **Short note [2 marks]** Germ Tube Test — *Jun 2010 · Jun 2012 (S) · Jan 2014 · Jan 2015 · Jan 2020 · Aug 2021* ***[6×]***
6. **Short note [2 marks]** Coagulase test — *Jan 2013 · Jan 2014 · Jun 2016* ***[3×]***
7. **Short note [2 marks]** Antibiotic sensitive tests — *Jan 2011*
8. **Short note [2 marks]** Enrichment medium Give two examples — *Jan 2012*
9. **Short note [2 marks]** Carpet culture — *Jan 2012*
10. **Short note [2 marks]** Blood culture in enteric fever — *Jun 2014*
11. **Short note [2 marks]** What is transport media. Give two examples — *Jan 2019*
12. **Short note [2 marks]** Enrichment media — *Aug 2020 (S)*
13. **Short note** What is transport media? — *Jun 2015*
14. **Short note** Name 4 anaerobic culture methods — *Jan 2016*
15. **Draw and label [1 mark]** McIntosh–Fildes jar — *Jan 2020 · Aug 2020 (S)* ***[2×]***

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16. **Short answer [2 marks]** What are transport media? Give 2 examples — *May 2009 · Mar 2022* ***[2×]***
17. **Short answer [2 marks]** Enrichment medium — *Jan 2015 · Nov 2021 (S)* ***[2×]***
18. **Short answer [1 mark]** What is Castaneda's method? — *Jan 2012 · Jan 2013* ***[2×]***
19. **Short answer [2 marks]** Blood culture — *Jun 2013*
20. **Short answer [2 marks]** Antibiotic susceptibility testing in bacteria — *Jan 2022 (S)*
21. **Short answer [2 marks]** What are differential media? Give one example — *May 2025 (S)*
22. **Short answer [2 marks]** Define selective media. Give 2 examples — *Sep 2025 (S)*
23. **Short answer [1 mark]** Specimen collection for blood culture — *May 2009*
24. **Short answer [1 mark]** What is enrichment media? Give examples — *Jan 2010*
25. **Short answer [1 mark]** Methods of antibiotic sensitivity testing — *Jan 2010*
26. **Short answer [1 mark]** What is minimum inhibitory concentration? — *Jul 2012*
27. **Short answer [1 mark]** What is a selective medium? Give two examples — *Jun 2013*
28. **Short answer [1 mark]** Hemolysis on blood agar — *Jun 2013*
29. **Short answer [1 mark]** Enriched medium — *Jun 2014*
30. **Short answer** Transport medium — *Jun 2016*

1.4 Bacterial genetics and antimicrobial resistance *(26 papers)*

1. **Short note [5 marks]** What are the mechanisms of drug resistance in bacteria? — *Jul 2022 (S)*
2. **Short essay [5 marks]** What are the methods of genetic transfer in bacteria? Discuss one in detail — *Jan 2023*
3. **Short note [5 marks]** Describe how bacteria become resistant to antibiotics — *Jul 2023 (S)*
4. **Short note [5 marks]** What are the methods of horizontal gene transfer in bacteria? Describe one — *Feb 2024*
5. **Short note [5 marks]** Mechanisms of antimicrobial resistance in bacteria — *Dec 2024*
6. **Short note [5 marks]** Tabulate the differences between mutational and plasmid mediated drug resistance in bacteria — *Aug 2025*
7. **Short note [2 marks]** Conjugation — *Jun 2011 · Jan 2020* ***[2×]***
8. **Short note [2 marks]** Resistance transfer factor — *Jan 2015 · Jun 2015* ***[2×]***
9. **Short note [2 marks]** R factor — *Jan 2012*
10. **Short note [2 marks]** Mechanisms of antibiotic resistance in bacteria — *Jun 2019 (S)*
11. **Draw and label [1 mark]** Bacteriophage — *Jun 2017 (S) · Aug 2020 (S)* ***[2×]***
12. **Short answer [2 marks]** Transduction — *Jan 2016 · Aug 2020 (S) · Aug 2021* ***[3×]***
13. **Short answer [2 marks]** Define antimicrobial stewardship — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***
14. **Short answer** What are transposons? — *May 2009 · Jan 2014* ***[2×]***
15. **Short answer [2 marks]** Name 4 ESKAPE pathogens — *May 2025 (S)*
16. **Short answer [1 mark]** Name the genetic mechanisms of drug resistance in bacteria — *Jan 2009*
17. **Short answer [1 mark]** Mutation in bacteria — *Jun 2010*
18. **Short answer [1 mark]** Transduction and its clinical Significance — *Jan 2011*
19. **Short answer [1 mark]** What is transformation? — *Jun 2013*
20. **Short answer [1 mark]** Transfer factor — *Jun 2016*
21. **Short answer** Mutation — *Jun 2016*

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1.5 MCQs from recent papers (2022–2025) *(28 MCQs)*

1. Which of these can be used to sterilize materials that cannot withstand high temperature? — *Mar 2022*
(a) Autoclave (b) Tyndallization (c) Plasma sterilizer (d) All of these

2. Which of the following culture media is used for antimicrobial susceptibility testing? — *Mar 2022*
(a) Sheep blood agar (b) Mueller Hinton Agar (c) Mac Conkey agar (d) Chocolate agar

3. Dark ground microscopes are used to visualise — *Mar 2022*
(a) Viruses (b) Inclusion bodies (c) Spirochaetes (d) Endospores

4. How many moments of hand hygiene have been laid down by WHO? — *Mar 2022*
(a) 4 (b) 5 (c) 6 (d) 7

5. Which of the following is not an enriched medium? — *Jul 2022 (S)*
(a) Blood agar (b) Macconkey agar (c) Chocolate agar (d) Loeffler's serum slope

6. Which of the following demonstrates bacterial motility? — *Jul 2022 (S)*
(a) Hanging drop method (b) Quellung reaction (c) Negative staining (d) All

7. Lipopolysaccharide is a component of the cell wall of — *Jul 2022 (S)*
(a) Gram positive cocci (b) Gram positive bacilli (c) Gram negative bacteria (d) All

8. Which of the following is true of exotoxins? — *Jul 2022 (S)*
(a) Poorly antigenic (b) Non-specific action (c) Can be toxoided (d) Highly heat stable

9. Which of the following is most resistant to sterilization? — *Jul 2022 (S) · Jul 2023 (S)* ***[2×]***
(a) Cysts -° (b) Prions (c) Spores Oo, (d) Viruses

10. Leishmania donovani is cultured in — *Jul 2022 (S)*
(a) Diamond's medium (b) Non-nutrient agar
(c) Robinson's medium (d) Novyi,McNeal and Nicolle medium(NNN)

11. Which culture medium is used for processing urine samples? — *Jul 2022 (S)*
(a) TCBS agar (b) Chocolate agar (c) CLED agar (d) Mueller Hinton agar

12. Selenite F broth is an example for — *Jan 2023 · Sep 2025 (S)* ***[2×]***
(a) Simple media (b) Enriched media (c) Enrichment media (d) Differential media

13. In which circumstance is hand washing better than hand rub? — *Jan 2023 · Sep 2025 (S)* ***[2×]***
(a) After touching patient's case file
(b) Before performing physical examination
(c) When there is visible soaking of gloves after handling a central line
(d) All of the above

14. L-Forms of bacteria are likely to occur if the following antibiotic is present in cultures — *Jan 2023*
(a) Streptomycin (b) Erythromycin (c) Penicillin (d) Chloromycetin

15. Robertson cooked meat broth is an example: — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***
(a) Enriched media (b) Enrichment media (c) Nutrient media (d) Anaerobic media

16. Which is not present in gram negative bacteria: — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***
(a) Peptidoglycan (b) Teichoic acid (c) Lipopolysaccharide (d) Porin channels

17. Selective media for shigella — *Jul 2023 (S)*
(a) Wilson Blair (b) TCBS (c) DCA (d) Blood agar

18. Which of the following is used to demonstrate capsule?: — *Feb 2024 · May 2025 (S)* ***[2×]***
(a) Leifson's stain (b) India ink stain (c) Gram stain (d) All of these

19. Which of the following is a property of endotoxin? — *Feb 2024*
(a) Protein in nature (b) Highly antigenic (c) Heat stable (d) Can be toxoided

20. The:disinfectant of choice used in spill management is — *Dec 2024*
(a) Alcohol (b) Povidone iodine (c) Sodium hypochlorite (d) Glutaraldehyde

21. Kirby Bauer antimicrobial susceptibility testing method is — *Dec 2024*

(a) Disc diffusion method (b) Broth dilution method (c) Agar dilution method (d) Automated method

22. Endoscope is disinfected by — *Dec 2024*

(a) Alcohol (b) Autoclave (c) Glutaraldehyde (d) Sodium hypochlorite

23. Mechanism of resistance in MRSA is — *Dec 2024*

(a) Production of betalactamase (b) Altered PBP
(c) Efflux pump (d) None of the above

24. Endoscopes are sterilized using — *May 2025 (S)*

(a) Autoclave (b) Hot air oven (c) Glutaraldehyde (d) Formaldehyde

25. Robertson's Cooked Meat Broth is an example for — *Aug 2025*

(a) Enriched media (b) Enrichment media (c) Anaerobic media (d) Nutrient media

26. The plasmids that integrate with chromosomal DNA of bacteria are called as — *Aug 2025*

(a) Episomes (b) Transfer factor (c) Vectors (d) Cosmids

27. Living microorganisms which when administered in adequate amounts leads to health benefits are called as — *Aug 2025*

(a) Prebiotics (b) Probiotics (c) Transient organism (d) Resident organism

28. Antibiotic which acts on the cell wall of bacteria — *Sep 2025 (S)*

(a) Cephalosporins (b) Gentamicin (c) Trimethoprim (d) Fluoroquinolones

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2. Immunology *(128 questions)*

> **★ Most-asked topics in this chapter**
>
> - Immunity, antigens and antibodies — ***asked in 34 papers***
> - Hypersensitivity, autoimmunity, immunodeficiency and transplantation — ***asked in 28 papers***
> - Vaccines and immunisation — ***asked in 26 papers***

2.1 Immunity, antigens and antibodies *(34 papers)*

1. **Structured essay [10 marks]** (a) Define an antigen (b) Describe the factors influencing Immunogenicity (c) Define heterophile antigens and its diagnostic application? — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***
2. **Structured question [10 marks]** Define innate immunity. Describe in detail the properties and mediators of innate immunity — *May 2025 (S)*
3. **Short note [5 marks]** Write a short note on autoimmunity — *Jan 2018 · Jan 2022 (S) · Mar 2022* ***[3×]***
4. **Short note [5 marks]** Draw the structure of immunoglobulin. Write a short note on IgG — *Jan 2023 · Aug 2025* ***[2×]***
5. **Short note [5 marks]** Mechanisms of autoimmunity — *Nov 2021 (S)*
6. **Short note [5 marks]** What are the differences between innate and acquired immunity? — *Feb 2024*
7. **Short note [5 marks]** Major histocompatibility antigen — *Dec 2024*
8. **Short note [5 marks]** What are Heterophile antigen? Name four serological tests which are based on principle of heterophile antigen. Discuss briefly their principles and uses — *Aug 2025*
9. **Short note [2 marks]** Monoclonal antibodies — *Jun 2010 · Jun 2014 · Jan 2019 · Jan 2020 · Dec 2024* ***[5×]***
10. **Short note [2 marks]** What is acquired immunity? — *Jan 2013 · Jun 2015* ***[2×]***
11. **Short note [2 marks]** What is hapten? — *Jun 2015 · Jan 2020* ***[2×]***
12. **Short note [2 marks]** Immunoglobulin M — *Jan 2015*
13. **Short note [2 marks]** Natural passive immunity — *Jan 2015*
14. **Draw and label [1 mark]** Immunoglobulin G — *Jun 2015 · Jun 2016* ***[2×]***
15. **Draw and label [1 mark]** IgM — *Jan 2009*
16. **Draw and label [1 mark]** Secretory IgA — *Jan 2011*
17. **Draw and label [1 mark]** IgM molecule — *Jan 2012*
18. **Draw and label [1 mark]** Immunoglobulin M molecule — *Jun 2013*
19. **Draw and label [1 mark]** IgA antibody — *Aug 2020 (S)*
20. **Draw and label [1 mark]** Structure of IgM — *Aug 2021*
21. **Short answer [2 marks]** What is herd immunity? — *Jan 2011 · Jul 2012 · Jan 2016 · Jun 2019 (S) · Aug 2020 (S) · Jan 2022 (S)* ***[6×]***
22. **Short answer [2 marks]** IgG antibody — *Jun 2010 · Jan 2014 · Jun 2019 (S) · Feb 2024* ***[4×]***
23. **Short answer [2 marks]** Innate immunity — *Jun 2016 · Nov 2021 (S) · Jul 2022 (S) · Sep 2025 (S)* ***[4×]***
24. **Short answer [2 marks]** Monoclonal antibody — *Jun 2015 · Apr 2024 (S)* ***[2×]***
25. **Short answer [2 marks]** Passive immunity — *Jan 2019 · Aug 2021* ***[2×]***
26. **Short answer [2 marks]** IgM antibody — *Jul 2023 (S) · Sep 2025 (S)* ***[2×]***
27. **Short answer [2 marks]** Classify immunity — *Jun 2017 (S)*
28. **Short answer [2 marks]** Draw the structure of immunoglobulin — *Jul 2022 (S)*
29. **Short answer [2 marks]** Name 2 examples of sequestered antigen — *Aug 2025*
30. **Short answer [1 mark]** What are Antigens? Give examples — *Jan 2010*
31. **Short answer [1 mark]** What are haptens? — *Jan 2012*

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32. **Short answer [1 mark]** What is natural passive immunity? Give example — *Jan 2012*
33. **Short answer [1 mark]** What is ‘original antigenic sin’? — *Jun 2012 (S)*
34. **Short answer [1 mark]** Which is the immunoglobulin with the highest molecular weight? — *Jul 2012*
35. **Short answer [1 mark]** What is a super antigen? — *Jan 2013*
36. **Short answer [1 mark]** What is artificial active immunity? — *Jun 2013*

2.2 Complement and the immune response *(16 papers)*

1. **Short note [2 marks]** Alternate complement pathway — *Jan 2009 · Aug 2020 (S)* ***[2×]***
2. **Short note [2 marks]** Complement — *Jan 2012*
3. **Short note [2 marks]** B cell — *Jun 2013*
4. **Short note [2 marks]** Antigen presenting cell(APC) — *Aug 2020 (S)*
5. **Short note** What is opsonisation? — *Jun 2015*
6. **Draw and label [1 mark]** HLA Class 1 molecule — *Jan 2015*
7. **Short answer [1 mark]** What is HLA typing? — *May 2009 · Jun 2014* ***[2×]***
8. **Short answer [1 mark]** MHC restriction — *Jan 2011 · Jan 2015* ***[2×]***
9. **Short answer [1 mark]** Therapeutic uses of interferons — *Jun 2011 · Jun 2014* ***[2×]***
10. **Short answer** What are cytokines? — *May 2009 · Jan 2014* ***[2×]***
11. **Short answer** Functions of complement — *Jul 2012 · Jan 2014* ***[2×]***
12. **Short answer [2 marks]** Interferons — *Jun 2017 (S)*
13. **Short answer [1 mark]** T-lymphocytes — *Jun 2010*
14. **Short answer [1 mark]** What are null cells? — *Jan 2012*
15. **Short answer** Immunocompetent cell — *Jan 2015*
16. **Short answer** Natural killer cell — *Jan 2015*
17. **Short answer** Cytotoxic T Lymphocyte — *Jun 2016*

2.3 Antigen–antibody reactions *(25 papers)*

1. **Short note [5 marks]** Radioimmunoassay — *Jun 2014*
2. **Short note [2 marks]** Widal test — *Jan 2009 · Jan 2019 · May 2025 (S) · Aug 2025 · Sep 2025 (S)* ***[5×]***
3. **Short note [2 marks]** Elek gel precipitation test — *Jul 2012 · Jan 2016 · Aug 2020 (S)* ***[3×]***
4. **Short note [2 marks]** ELISA — *Jan 2010 · Jan 2015* ***[2×]***
5. **Short note [2 marks]** VDRL test — *Jun 2011 · Jan 2014* ***[2×]***
6. **Short note [2 marks]** Radioimmunoassay(RIA) — *Jan 2011*
7. **Short note [2 marks]** VDRL — *Jun 2016*
8. **Short note [2 marks]** Immunofluorescence — *Jan 2018*
9. **Short note [2 marks]** Direct coomb’s test — *Jan 2018*
10. **Short note [2 marks]** What is agglutination — *Jan 2019*
11. **Short note [2 marks]** Coomb’s test — *Aug 2020 (S)*
12. **Short answer [2 marks]** What is prozone phenomenon? — *Jan 2013 · Jan 2015 · Jan 2023 · May 2025 (S)* ***[4×]***
13. **Short answer [2 marks]** What is precipitation? Give 2 examples of precipitation tests — *Jul 2023 (S) · Apr 2024 (S) · Sep 2025 (S)* ***[3×]***
14. **Short answer [2 marks]** Coomb’s(Antiglobulin)test — *Jun 2019 (S) · Jan 2022 (S)* ***[2×]***
15. **Short answer [2 marks]** Define Agglutination? — *Jan 2022 (S)*

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16. **Short answer [2 marks]** Define agglutination and give examples — *Mar 2022*
17. **Short answer [2 marks]** What is agglutination? Give 2 examples — *Feb 2024*
18. **Short answer [2 marks]** Name 2 serological tests based on principle of agglutination — *Aug 2025*
19. **Short answer [1 mark]** Elek's test — *Jan 2009*
20. **Short answer [1 mark]** Cold agglutination test — *Jan 2011*
21. **Short answer [1 mark]** Define agglutination reactions — *Jan 2012*
22. **Short answer [1 mark]** Enumerate antigen–antibody reactions in vitro — *Jun 2014*
23. **Short answer** Agglutination reaction — *Jun 2016*

2.4 Hypersensitivity, autoimmunity, immunodeficiency and transplantation *(28 papers)*

1. **Case-based [10 marks]** A 23 year-old male is brought to casualty with breathlessness, hypotension, rash, swollen lips and tongue one hour after having eaten shellfish at a restaurant. (a) What is the likely diagnosis? (b) Describe the pathogenesis of this condition (c) How is it diagnosed and treated? — *Jul 2022 (S)*
2. **Case-based [10 marks]** A 15-year-old male presents to casualty with breathlessness, edema of the tongue and lips an hour after consumption of prawns from a restaurant. (a) What is the probable diagnosis? (b) Discuss the pathogenesis of this condition (c) How is it diagnosed? (d) Discuss the treatment of this condition — *Jan 2023*
3. **Case-based [10 marks]** A 28 year old hostler was brought to the emergency department with sudden onset of wheeze, tightness of chest, loss of consciousness. O/E he was hypotensive with features of circulatory collapse. His friends gave a history of wasp sting. (a) Identify the clinical condition (b) Discuss the pathogenesis of this condition (c) Name the tests done to detect this condition (d) Write a note on management — *Dec 2024*
4. **Structured essay [10 marks]** (a) Define autoimmunity (b) Describe the pathogenesis and clinical features of systemic lupus erythematosus (c) How is it diagnosed and treated? — *Jul 2023 (S)*
5. **Structured essay [10 marks]** (a) Define hypersensitivity (b) Classify hypersensitivity reactions with examples (c) Explain type IV hypersensitivity in detail with examples — *Aug 2025*
6. **Short essay [5 marks]** Type-I hypersensitivity — *Jun 2013 · Aug 2020 (S)* ***[2×]***
7. **Short note [5 marks]** Type IV hypersensitivity reaction — *Jun 2017 (S)*
8. **Short note [5 marks]** Mechanisms of Type I Hypersensitivity — *Aug 2021*
9. **Short note [2 marks]** Anaphylaxis — *Jun 2011 · Jan 2012* ***[2×]***
10. **Short note [2 marks]** Type-III hypersensitivity — *Jan 2014*
11. **Short note [2 marks]** Allograft reaction — *Jun 2015*
12. **Short note [2 marks]** Serum sickness — *Jan 2016*
13. **Short note [2 marks]** Type-III hypersensitivity — *Jun 2019 (S)*
14. **Short answer [2 marks]** Graft versus host reaction — *Jan 2009 · Jan 2011 · Jun 2011 · Jun 2013 · Nov 2021 (S)* ***[5×]***
15. **Short answer [2 marks]** What is atopy? — *May 2009 · Jan 2020 · Feb 2024* ***[3×]***
16. **Short answer [2 marks]** Delayed hypersensitivity — *Jan 2011 · Jan 2020 · Jan 2022 (S)* ***[3×]***
17. **Short answer [1 mark]** Define hypersensitivity — *Jan 2013 · Jun 2015 · Jun 2016* ***[3×]***
18. **Short answer [2 marks]** Mantoux test — *Jan 2013 · Aug 2021* ***[2×]***
19. **Short answer [5 marks]** Describe two organ specific autoimmune diseases — *Jan 2020*
20. **Short answer [2 marks]** What is hypersensitivity? — *Mar 2022*
21. **Short answer [2 marks]** Name 4 systemic autoimmune disorders — *Jan 2023*
22. **Short answer [2 marks]** Define autoimmunity. List four autoimmune diseases — *Dec 2024*
23. **Short answer [1 mark]** Classification of hypersensitivity — *Jan 2010*
24. **Short answer [1 mark]** Type IV hypersensitivity — *Jun 2010*
25. **Short answer [1 mark]** Immunological tolerance — *Jun 2014*

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26. **Short answer [1 mark]** Contact dermatitis — *Jun 2016*
27. **Short answer** DiGeorge syndrome — *Jun 2016*

2.5 Vaccines and immunisation *(26 papers)*

1. **Short note [5 marks]** MMR vaccine — *Jan 2009 · Jul 2022 (S) · Dec 2024* ***[3×]***
2. **Short note [5 marks]** Live attenuated vaccines — *Jul 2023 (S) · Apr 2024 (S) · Sep 2025 (S)* ***[3×]***
3. **Short note [5 marks]** Polio vaccines — *Mar 2022 · Jul 2023 (S)* ***[2×]***
4. **Short note [5 marks]** Differences between oral polio vaccine and injectable polio vaccine — *May 2025 (S) · Sep 2025 (S)* ***[2×]***
5. **Short note [5 marks]** Write a short note on active and passive immunization against hepatitis B — *Jan 2023*
6. **Short note [5 marks]** Polio vaccine — *Dec 2024*
7. **Short note [2 marks]** Subunit vaccine — *Jan 2015*
8. **Short note [2 marks]** BCG vaccine — *Jan 2018*
9. **Short note [2 marks]** Measles mumps Rubella (MMR)vaccine — *Nov 2021 (S)*
10. **Short note** What is a toxoid? — *Jun 2015*
11. **Short answer [2 marks]** DPT vaccine — *Mar 2022 · Jan 2023 · May 2025 (S) · Sep 2025 (S)* ***[4×]***
12. **Short answer [2 marks]** Pentavalent vaccine — *Aug 2021*
13. **Short answer [2 marks]** Bacillus Calmette–Guérin(BCG) vaccine — *Aug 2021*
14. **Short answer [2 marks]** What are the advantages and disadvantages of live vaccines? — *Mar 2022*
15. **Short answer [2 marks]** Measles vaccine — *Jul 2023 (S)*
16. **Short answer [2 marks]** Varicella vaccine — *Apr 2024 (S)*
17. **Short answer [2 marks]** List two subunit vaccines — *Dec 2024*
18. **Short answer [2 marks]** What is the content of pentavalent vaccine? — *Dec 2024*
19. **Short answer [2 marks]** Why are the contents of influenza vaccines changed every year? — *Dec 2024*
20. **Short answer [2 marks]** Hepatitis B Vaccine — *May 2025 (S)*
21. **Short answer [2 marks]** Name 2 non neural anti rabies vaccine — *Aug 2025*
22. **Short answer [1 mark]** MMR — *Jan 2010*
23. **Short answer [1 mark]** Vaccines — *Jun 2014*
24. **Short answer** What is a live vaccine? — *Jan 2014*
25. **Short answer** Live attenuated Bacterial vaccines — *Jan 2015*

2.6 MCQs from recent papers (2022–2025) *(18 MCQs)*

1. Which of these not agglutination test? — *Mar 2022*
   (a) VDRL (b) Widal (c) Weil felix test (d) Paul bunnell test
2. Which of the following is a primary lymphoid organ? — *Mar 2022*
   (a) Bone marrow (b) Spleen (c) Lymph node (d) Tonsil
3. Contact dermatitis is an example of which type of hypersensitivity? — *Mar 2022 · Sep 2025 (S)* ***[2×]***
   (a) Type I (b) Type II (c) Type III (d) Type IV
4. Which immunoglobulin is elevated during the primary immune response? — *Jul 2022 (S)*
   (a) IgA (b) IgD (c) IgM (d) IgG
5. Which of the following is a systemic autoimmune disease? — *Jul 2022 (S)*
   (a) Graves disease (b) Myasthenia gravis (c) Pernicious anemia (d) Rheumatoid arthritis

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6. Widal test is a example of — *Jan 2023*

(a) Agglutination test (b) Precipitation test (c) Flocculation test (d) Neutralisation test

7. Arthus reaction is — *Jan 2023*

(a) Type-I hypersensitivity (b) Type-II hyper sensitivity
(c) Type-III hypersensitivity (d) Type-IV hypersensitivity

8. Antigen antibody reaction is seen maximum if? — *Jul 2023 (S)*

(a) Excess antibody (b) Antigen and antibody are equal
(c) Excess antigen (d) Antigen and antibody are low

9. Which of the following immunoglobulins can cross placenta? — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***

(a) IgA (b) IgM (c) IgD (d) IgG

10. Widal test is an example of — *Feb 2024*

(a) Precipitation test (b) Flocculation test (c) Agglutination test (d) Neutralization test

11. Which of the following is a live attenuated vaccine? — *Feb 2024*

(a) BCG (b) DPT
(c) Covaxin (d) Pneumococcal conjugate vaccine

12. Antigen antibody reaction is seen maximum in? — *Apr 2024 (S)*

(a) Excess antibody (b) Antigen and antibody are equal
(c) Excess antigen (d) Antigen and antibody are low

13. All of the following vaccines are given at birth except: — *Dec 2024*

(a) DPT (b) BCG (c) Hepatitis B (d) OPV

14. Transfer of IgG antibodies from mother to fetus across placenta is — *Dec 2024*

(a) Natural passive immunity (b) Artificial passive immunity
(c) Natural active immunity (d) Artificial active immunity

15. Which of the following immunoglobulins is responsible for mucosal immunity? — *May 2025 (S) · Sep 2025 (S)* ***[2×]***

(a) IgM (b) IgG (c) IgA (d) IgE

16. Which of the following vaccines is live attenuated? — *May 2025 (S)*

(a) Measles vaccine (b) BCG (c) Oral polio vaccine (d) All of these

17. Which of the following is correct about active immunity — *Aug 2025*

(a) No lag phase (b) Booster doses are useful
(c) Useful in immunodeficient people (d) No memory cells

18. Which of the following vaccine is live attenuated? — *Sep 2025 (S)*

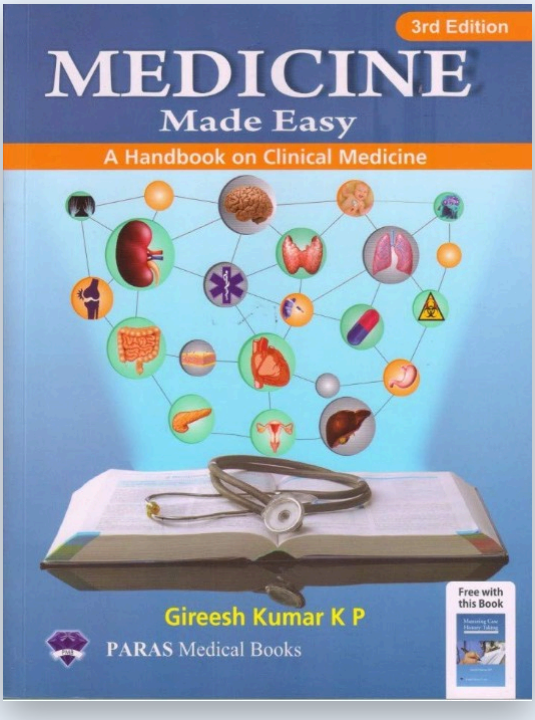
(a) Measles vaccine (b) BCG (c) Oral Polio vaccine (d) All of these

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3. Systemic Bacteriology I — Cocci and Gram-positive Bacilli *(85 questions)*

★ Most-asked topics in this chapter

- Clostridia and non-sporing anaerobes — ***asked in 26 papers***
- Staphylococcus and Streptococcus — ***asked in 25 papers***
- Corynebacterium, Bacillus and Listeria — ***asked in 20 papers***

3.1 Staphylococcus and Streptococcus *(25 papers)*

1. **Case-based [10 marks]** [Opening line of the case illegible in the scanned paper] … the extremities. Gram stain of exudate reveals numerous pus cells and Gram-positive cocci in grape-like clusters. (a) What is your diagnosis? (b) What are the virulence factors released by the organism? (c) What are the other infections caused by this organism? (d) How will you identify this organism in the laboratory? (e) Which is the other bacterial agent causing similar illness? — *Jun 2011*
2. **Case-based [10 marks]** A 15 year old boy presented with migratory polyarthritis, fever, subcutaneous nodules and a loud cardiac murmur. (a) What is your diagnosis? (b) Classify the organisms responsible (c) What are the clinical features of the disease? (d) What are the laboratory findings? (e) What is the prophylaxis? — *Jun 2014*
3. **Case-based [10 marks]** A 10-year-old girl comes to OPD with complaints of sore throat, fever & difficulty in swallowing of 2 days duration. She has had similar episodes of illness earlier. O/E temp.100°F pulse 100/min. Tonsils enlarged, congested with white patches. CVS,RS, and GIT within normal limits. (a) What is your clinical diagnosis? Name the bacterium causing this infection (b) What are the non suppurative sequelae of the above infection and its pathogenesis (c) What serological tests can be done to diagnose this infection (d) What is the antibiotic of choice to treat this child and what is the prophylaxis to prevent sequelae? (e) Name another bacterial cause of the infection — *Jan 2019*
4. **Case-based [10 marks]** A 2-year-old child is admitted with high-grade fever, headache, neck stiffness and altered sensorium. Her CSF Gram stain shows plenty of neutrophils and gram positive cocci in pairs. (a) What is the probable clinical diagnosis and etiological agent? (b) How is this condition diagnosed in the laboratory? (c) Write a short note on treatment and prevention of this condition (d) What are the other agents that can cause this clinical condition? — *Jan 2023*
5. **Case-based [10 marks]** A 10 year-old girl is brought to casualty with fever, neck stiffness, projectile vomiting and altered sensorium. CSF Gram stain showed plenty of pus cells and Gram positive cocci in pairs. (a) What is your provisional diagnosis? (b) Describe in detail the laboratory diagnosis of this condition (c) Name the vaccines available against this infection (d) Name 2 other agents that cause the same condition — *May 2025 (S)*
6. **Short note [5 marks]** Methicillin resistant staphylococcus aureus — *Jan 2019 · Jan 2020 · Apr 2024 (S) · Sep 2025 (S)* ***[4×]***
7. **Short note [5 marks]** Non-suppurative complications of Streptococcus pyogenes infection — *Jan 2009 · Aug 2025* ***[2×]***
8. **Short note [5 marks]** Write a short note on infections caused by Group A beta-hemolytic streptococci — *Mar 2022 · Sep 2025 (S)* ***[2×]***
9. **Short note [5 marks]** Etiology, pathogenesis and laboratory diagnosis of acute rheumatic fever — *Jul 2023 (S) · Sep 2025 (S)* ***[2×]***
10. **Short note [5 marks]** What are the non-suppurative complications of group A streptococcal infections? — *Jan 2023*
11. **Short note [5 marks]** What are the skin and soft tissue infections caused by staphylococcus aureus? Write a short note on MRSA — *Jan 2023*
12. **Short note [5 marks]** Staphylococcal scalded skin syndrome and toxic shock syndrome — *Jul 2023 (S)*
13. **Short note [5 marks]** Streptococcus pneumoniae: laboratory identification and vaccines — *Jul 2023 (S)*
14. **Short note [5 marks]** Methicillin resistant staphylococcus aureus: Laboratory identification and treatment options — *Feb 2024*
15. **Short note [2 marks]** Enumerate the lesions produced by Streptococcus pyogenes — *Jun 2011*
16. **Short note [2 marks]** Scarlet fever — *Jun 2013*
17. **Short note [2 marks]** MRSA — *Jun 2015*
18. **Short note [2 marks]** Group B Streptococci — *Jun 2016*

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19. **Short note [2 marks]** Classify streptococci — *Aug 2020 (S)*
20. **Draw and label [1 mark]** Pus smear showing staphylococci — *Jan 2020 · Jan 2022 (S)* ***[2×]***
21. **Draw and label [1 mark]** Streptococci in pus — *Jun 2013*
22. **Draw and label [1 mark]** Streptococcus in pus — *Jun 2015*
23. **Draw and label [1 mark]** Gram smear of streptococcus in pus — *Jun 2017 (S)*
24. **Draw and label [1 mark]** Gram smear of pneumococci — *Jan 2019*
25. **Draw and label [1 mark]** Pneumococcal meningitis- Cerebrospinal Fluid (CSF) Gram's stain — *Aug 2021*
26. **Short answer [2 marks]** Toxic shock syndrome — *Aug 2020 (S) · Aug 2025* ***[2×]***
27. **Short answer [2 marks]** Infections caused by staphylococcus aureus — *Jun 2017 (S)*
28. **Short answer [2 marks]** Complications of recurrent group A streptococcal throat infection — *Feb 2024*
29. **Short answer [2 marks]** Non-suppurative sequelae of group A streptococcal infections — *May 2025 (S)*
30. **Short answer [1 mark]** Ritter's disease — *Jan 2011*
31. **Short answer [1 mark]** ASO test — *Jun 2013*
32. **Short answer** Enumerate lesions produced by Staphylococcus aureus — *Jan 2014*

3.2 Neisseria *(15 papers)*

1. **Case-based [10 marks]** An 18 year old male presented with fever, headache vomiting and altered sensorium. On examination pulse slow, neck rigidity +, Kernig's sign positive and petechial rashes all over the body. (a) What is your diagnosis? (b) Name the causative organism (c) Briefly discuss the pathogenesis (d) What are the complications? (e) Discuss the laboratory diagnosis (f) What is the prophylaxis and treatment? — *Jan 2011*
2. **Case-based [10 marks]** A 3 year old boy is referred to hospital with a history of lethargy, irritability and poor feeding. On examination, he is pyrexial, drowsy, has neck stiffness and there are purplish red lesions on the trunk and extremities. (a) What is the most likely diagnosis? (b) What investigations should be carried out to confirm it? (c) Classify the organism responsible (d) What are the laboratory findings? (e) What is the antibiotic of choice here? — *Jan 2014*
3. **Case-based [10 marks]** A 30 year old lorry driver complains of pain in testes, yellowish pus discharge from penis and soreness of penile tip of 12 days duration. Gram's smear prepared from the pus discharge showed intracellular Gram negative diplococci. (a) What is the most likely clinical diagnosis and etiological agent? (b) What is the pathogenesis of this condition? (c) Discuss the lab diagnosis (d) List four complications of this condition (e) Name two sexually transmitted diseases (f) What is the drug of choice? — *Dec 2024*
4. **Case-based [10 marks]** A 10 year boy was admitted to emergency department with high grade fever of 2 days duration along with headache, vomiting and disorientation. CSF was collected and examined by gram stain which shows capsulated GRAM NEGATIVE cocci in pairs. (a) Name the causative agent and describe its morphology (b) Write about the pathogenicity of causative agent (c) How is the disease diagnosed in the laboratory? (d) Write a short note on treatment and prevention of this condition — *Aug 2025*
5. **Short note [5 marks]** Clinical features and lab diagnosis of gonorrhea — *Jul 2023 (S) · May 2025 (S)* ***[2×]***
6. **Short note [5 marks]** Gonorrhea: Etiology, clinical features, complications and treatment — *Apr 2024 (S)*
7. **Short note [5 marks]** Discuss the laboratory diagnosis of gonorrhea — *Aug 2025*
8. **Short note [2 marks]** Non gonococcal urethritis — *Jun 2010 · Jun 2014 · Jun 2015* ***[3×]***
9. **Short note [2 marks]** Non-specific urethritis — *Jan 2018*
10. **Draw and label [1 mark]** Gram staining appearance of urethral discharge in gonorrhoea — *Jan 2009*
11. **Draw and label [1 mark]** Meningococcus in CSF — *Jul 2012*
12. **Draw and label [1 mark]** Gram smear of pus in gonococcal urethritis — *Jan 2016*
13. **Draw and label** Meningococci in CSF — *Jun 2011*
14. **Short answer [2 marks]** Name 4 etiological agents of non gonococcal urethritis — *Apr 2024 (S)*
15. **Short answer [2 marks]** Name 4 agents that cause non-gonococcal urethritis — *May 2025 (S)*

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3.3 Corynebacterium, Bacillus and Listeria *(20 papers)*

1. **Case-based [10 marks]** A 6-year-old child presents with fever and difficulty in swallowing. On examination child is toxic. A thick pseudomembrane is seen in the throat. Albert's staining of smear from pseudomembrane shows green coloured bacilli arranged in Chinese letter pattern showing metachromatin granules. (a) What is your diagnosis? Which is the etiological agent? (b) Name the virulence factor produced by this organism and what is the mode action? (c) Name two colour media used for the isolation of this organism, (d) What is the prophylaxis for above condition? (e) Which is the other bacteria causing acute pharyngitis? — *Jan 2010*
2. **Case-based [10 marks]** A 10 year old male child with unknown immunization history, living away from his parents presented with high-grade fever, cough with expectoration, and mild swelling of the neck. On examination the tonsils were congested, partially covered with a grayish-white membrane and severely tender. (a) What is the most likely clinical diagnosis and give reasons thereof? (b) Describe the pathogenesis of this disease (c) How is the condition diagnosed in the laboratory? (d) Describe in brief treatment and prevention of the infection — *Apr 2024 (S)*
3. **Case-based [10 marks]** A 6 year old patient presents with complaints of throat pain,high grade fever. Clinical examination indicated cervical lymph node enlargement and dirty looking membrane in throat.Throat swab. Microscopy showed GRAM POSITIVE bacilli under grams stain. (a) Name the causative agent and describe the morphology of causative agent (b) Describe the pathogenesis of this condition (c) Write in detail about laboratory diagnosis of this disease — *Aug 2025*
4. **Short note [5 marks]** Corynebacterium diphtheriae — *Jan 2020 · Jan 2022 (S)* ***[2×]***
5. **Short note [5 marks]** Actinomycosis — *Aug 2021 · Aug 2025* ***[2×]***
6. **Short note [5 marks]** What are the modes of transmission and the clinical features of anthrax? — *Jul 2022 (S)*
7. **Short note [5 marks]** Clinical features of anthrax — *Feb 2024*
8. **Short note [5 marks]** Anthrax: etiology, clinical types and lab diagnosis — *Apr 2024 (S)*
9. **Short note [5 marks]** Pathogenesis and lab diagnosis of diphtheria — *Dec 2024*
10. **Short note [5 marks]** Human anthrax — *Dec 2024*
11. **Short note [2 marks]** Cutaneous anthrax — *Jun 2014*
12. **Draw and label [1 mark]** Corynebacterium diphtheriae – Gram stain — *Jan 2018*
13. **Draw and label [1 mark]** Corynebacterium diphtheriae – methylene blue staining — *Nov 2021 (S)*
14. **Short answer [2 marks]** What is malignant pustule? — *Jan 2009 · Jan 2013 · Jan 2015 · Aug 2021 · Mar 2022* ***[5×]***
15. **Short answer [1 mark]** What is woolsorter's disease? — *Jun 2010 · Jan 2014* ***[2×]***
16. **Short answer [1 mark]** What is McFadyean's reaction? — *Jan 2012*
17. **Short answer [1 mark]** Albert's stain — *Jul 2012*
18. **Short answer [1 mark]** What are sulphur granules? — *Jan 2013*

3.4 Clostridia and non-sporing anaerobes *(26 papers)*

1. **Case-based [10 marks]** A 70-year-old man presents with high fever and very painful cellulitis of the right buttock. The skin appears necrotic and there are several fluid filled bullae. Crepitus can be felt, indicating gas in the tissue. Gram staining of the exudate reveals large gram positive rods. (a) Which organism is the most likely cause? (b) How do you classify these organisms? (c) Write a note on the laboratory diagnosis (d) What is the treatment? — *Jun 2010*
2. **Case-based [10 marks]** A 10 year old child was brought to the casualty with irritability, muscle spasm & difficulty in breathing. Mother gave a history of deep seated injury on the foot 10 days back. (a) What is the diagnosis? (b) Describe the pathogenesis in detail (c) Briefly mention the lab diagnosis (d) What is the prophylaxis? (e) What is the treatment? — *Jan 2016*
3. **Short note [5 marks]** Tetanus:Etiology, clinical features, risk factors and treatment — *Feb 2024*
4. **Short note [5 marks]** Name 2 anaerobic bacteria. Discuss in detail about anaerobic culture methods — *Aug 2025*
5. **Short note [5 marks]** Write a short note on pathogenesis and laboratory diagnosis of Tetanus — *Aug 2025*
6. **Short note [2 marks]** Botulism — *May 2009 · Jul 2012 · Jun 2013 · Jun 2014 · Jan 2016* ***[5×]***
7. **Short note [2 marks]** Nagler reaction — *Jan 2011 · Jan 2013 · Jan 2014 · Jan 2018* ***[4×]***

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8. **Short note [2 marks]** Prophylaxis against tetanus — *May 2009*
9. **Short note [2 marks]** Laboratory diagnosis of gas gangrene — *Jan 2010*
10. **Short note [2 marks]** Pathogenesis of tetanus — *Jun 2011*
11. **Short note [2 marks]** Prophylaxis of tetanus — *Jan 2015*
12. **Short note [2 marks]** Non sporing anaerobes — *Jan 2016*
13. **Short note [2 marks]** Clostridium difficile — *Jan 2019*
14. **Short answer** Describe the clinical features and lab diagnosis of gas gangrene — *Jul 2022 (S) · Jan 2023 · Jul 2023 (S) · May 2025 (S)* ***[4×]***
15. **Short answer [2 marks]** What is pseudomembranous colitis? — *Jan 2016 · Jan 2023* ***[2×]***
16. **Short answer [2 marks]** Gas gangrene — *Jan 2020*
17. **Short answer [2 marks]** Tetanus — *Nov 2021 (S)*
18. **Short answer [2 marks]** What is antibiotic-associated diarrhea? — *Jul 2022 (S)*
19. **Short answer [1 mark]** Anaerobic myositis — *Jan 2009*
20. **Short answer [1 mark]** Name pathogenic non-sporing anaerobic bacteria — *Jun 2014*

3.5 MCQs from recent papers (2022–2025) *(22 MCQs)*

1. Streptococcus pneumoniae is identified by sensitivity to — *Mar 2022*
   (a) Bacitracin (b) Novobiocin (c) Optochin (d) Co-trimoxazole
2. Which of the following samples is not appropriate for anaerobic culture? — *Mar 2022*
   (a) Pus (b) Sputum (c) Tissue (d) Aspirated fluid
3. Erysipelas is caused by — *Mar 2022*
   (a) Streptococcus pyogenes (b) Corynebacterium minutissimum
   (c) Pseudomonas aeruginosa (d) Mycobacterium tuberculosis
4. The drug of choice for the prevention of acute rheumatic fever is — *Jul 2022 (S)*
   (a) Vancomycin (b) Metronidazole (c) Penicillin (d) Ciprofloxacin
5. Methicillin Resistant Staphylococcus Aureus (MRSA) detection is done using — *Jul 2022 (S)*
   (a) Methicillin disk (b) Nafcillin disk (c) Oxacillin disk (d) Cefoxitin disk
6. Trismus and opisthotonus are features of — *Jul 2022 (S)*
   (a) Pyogenic meningitis (b) Tetanus (c) Botulism (d) Neurosyphilis
7. Coagulase is produced by — *Jan 2023*
   (a) Staphylococcus aureus (b) Streptococcus pyogenes (c) Gonococcus (d) Meningococcus
8. Positive CAMP test is produced by — *Jan 2023*
   (a) Streptococcus pyogenes (b) Streptococcus agalactiae
   (c) Streptococcus pneumoniae (d) Viridans streptococci
9. Waterhouse Friderichsen syndrome is caused by — *Jan 2023*
   (a) Hemophilus influenzae (b) Streptococcus pneumoniae
   (c) Neisseria meningitidis (d) Streptococcus agalactiae
10. Food poisoning after eating fried rice and vanilla sauce is due to which bacteria — *Jul 2023 (S)*
    (a) Clostridium perfringens (b) Bacillus cereus
    (c) Staphylococcus aureus (d) Clostridium botulinum
11. A child presents with sepsis. Bacteria isolated showed B hemolysis on blood agar, resistant to bacitracin and a positive CAMP test. The most probable organism is: — *Feb 2024*
    (a) Streptococcus pyogenes (b) Streptococcus agalactiae
    (c) Enterococcus (d) Pneumococcus

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12. Metachromatic granules seen in: *— Feb 2024 · Sep 2025 (S)* ***[2×]***

(a) C.diphtheriae (b) Mycoplasma pneumoniae (c) Gardnerella vaginalis (d) Chlamydia trachomatis

13. Neonatal meningitis acquired during passage through birth canal is due to *— Feb 2024 · Sep 2025 (S)* ***[2×]***

(a) Streptococcus agalactiae (b) Streptococcus equisimilis
(c) Streptococcus pyogenes (d) Streptococcus pneumoniae

14. Wool sorters disease is caused by: *— Apr 2024 (S) · Aug 2025 · Sep 2025 (S)* ***[3×]***

(a) S.pneumoniae (b) Coxiella Burnetii (c) S.aureus (d) B.anthracis

15. A patient presented with trismus and opisthotonus posture. What is the probable cause? *— Apr 2024 (S)*

(a) Clostridium tetani (b) Plasmodium falciparum (c) Rabies virus (d) Neisseria meningitidis

16. A 25-year old female presented to the hospital on the third day of menstruation with complaints of high fever, vomiting and rash on her trunk and extremities. On investigation she had leucocytosis and a negative blood culture. She is diagnosed as: *— Apr 2024 (S)*

(a) Staphylococcal food poisoning (b) Scalded skin syndrome
(c) Toxic shock syndrome (d) Varicella zoster infection

17. Most common causative agent of prosthetic device related infection *— Dec 2024*

(a) Staphylococcus aureus (b) Staphylococcus epidermidis
(c) Staphylococcus saprophyticus (d) Staphylococcus intermedius

18. Which of the following shows Chinese letter pattern on Albert stain? *— May 2025 (S)*

(a) Mycobacterium tuberculosis (b) Corynebacterium diphtheriae
(c) Nocardia asteroides (d) Actinomyces israelii

19. Which of the following is responsible for most of the clinical features of tetanus? *— May 2025 (S)*

(a) Tetanospasmin (b) Tetanolysin (c) Lecithinase (d) Tetanus spore

20. Causative agent of pseudomembranous colitis is *— Aug 2025*

(a) Clostridium tetani (b) Clostridium perfringens
(c) Clostridium botulinum (d) Clostridium difficile

21. Treatment of gas gangrene includes all of the following except: *— Aug 2025*

(a) Immediate wound closure after application of antiseptics
(b) Early surgical! debridement
(c) Administering Penicillin and clindamycin
(d) Passive immunization with antiserum

22. Gas gangrene and Tetanus caused by which group of bacteria: *— Sep 2025 (S)*

(a) Clostridium spp (b) Campylobacter spp (c) Citrobacter spp (d) Cardiobacterium spp

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4. Systemic Bacteriology II — Gram-negative Bacilli *(46 questions)*

> **★ Most-asked topics in this chapter**
>
> - Vibrio, Pseudomonas and other Gram-negative bacilli — ***asked in 31 papers***
> - Enterobacteriaceae — ***asked in 22 papers***

4.1 Enterobacteriaceae *(22 papers)*

1. **Case-based [10 marks]** A 5-year-old child presents with fever, headache and abdominal pain of two weeks duration. The fever has a step-ladder pattern. On examination there is mild hepatosplenomegaly. (a) What is the probable diagnosis? (b) Describe the pathogenesis of this condition (c) How is this condition diagnosed in the laboratory? (d) Mention in brief the prophylaxis of this infection — *Jul 2022 (S)*
2. **Case-based [10 marks]** A 15 year old student presented with history of fever spikes, abdominal pain and diarrhea for the past 2 days. On examination the patient had a coated tongue and hepatomegaly. The temperature chart showed a step ladder pattern and his hemogram showed leucopenia. (a) What is the likely diagnosis? (b) Describe the various tests for laboratory diagnosis of this disease (c) List the preventive measures against this disease (d) Briefly describe the treatment — *Jul 2023 (S)*
3. **Case-based [10 marks]** A 15-year-old student presented with history of fever spikes, abdominal pain and dysentery for the past 2 days. Stool cultures were sent to the laboratory. On the 5% sheep blood agar plate, non-hemolytic colonies appeared. On MacConkey agar the colonies were noted to be non-lactose fermenting. Gram negative bacilli, catalase positive and oxidase negative. (a) What is the likely diagnosis? (b) Describe the pathogenesis of this disease (c) Describe the lab diagnosis (d) List the preventive measures against this disease — *Apr 2024 (S)*
4. **Short note [5 marks]** Plague: etiology, clinical types and lab diagnosis — *Apr 2024 (S)*
5. **Short note [5 marks]** Clinical features and lab diagnosis of enteric fever — *Dec 2024*
6. **Short note [2 marks]** What is presumptive coliform count? — *Jan 2009 · Jan 2011 · Jan 2013 · Jan 2019* ***[4×]***
7. **Short note [2 marks]** Plague — *Jan 2018 · Jun 2019 (S)* ***[2×]***
8. **Short note [2 marks]** Prophylaxis of typhoid — *Jun 2010*
9. **Short note [2 marks]** Bacillary dysentery — *Jan 2013*
10. **Short note [2 marks]** Typhoid carrier — *Jun 2013*
11. **Short note [2 marks]** E. coli diarrhoea — *Jan 2015*
12. **Short note [2 marks]** Salmonella carrier — *Jan 2016*
13. **Short note [2 marks]** Eijkman test — *Aug 2020 (S)*
14. **Short answer [2 marks]** Lab diagnosis of Enteric fever — *Aug 2021 · Jan 2022 (S)* ***[2×]***
15. **Short answer [2 marks]** Types of diarrheagenic Escherichia coli — *Feb 2024*
16. **Short answer [2 marks]** Clinical types of plague — *Feb 2024*
17. **Short answer [1 mark]** Enterotoxigenic E.coli — *Jun 2015*

4.2 Vibrio, Pseudomonas and other Gram-negative bacilli *(31 papers)*

1. **Case-based [10 marks]** A 35 year old lady was admitted with complaints of vomiting and watery diarrhea. On examination, severe dehydration was noticed and stool was like rice water. (a) What is the diagnosis and name the endemic areas for this disease in Kerala? (b) Name the organism and describe the morphology? (c) Describe the pathogenesis (d) What are the media used to transport and identifying the organism? (e) What is the treatment? (f) Mention prophylactic measures to be followed to prevent the spread of infection? — *Jun 2019 (S) · Jan 2022 (S)* ***[2×]***
2. **Case-based [10 marks]** 18-year-old college student came to emergency department complaining of profuse watery diarrhoea for 2 days. No history of fever, abdominal pain or passage of blood in stools. He has intense thirst and leg cramps. On examination he is dehydrated. (a) What is your diagnosis? (b) Name causative organism/s that can cause this disease (c) Describe the pathogenesis (d) Write in detail laboratory diagnosis of the condition? (e) Briefly describe the treatment and prophylaxis. — *Jun 2016*

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3. **Case-based [10 marks]** A 40 year old tribal was brought to casualty with profuse watery diarrhoea of one day duration. On examination pulse 120/min, BP 80/50 mmHg, eyes sunken and dehydrated. (a) What is the diagnosis? Name the etiological agent (b) What is the pathogenesis of the condition (c) What are the methods to confirm this disease in the laboratory? (d) What is the prophylaxis for this condition — *Jan 2018*
4. **Case-based [10 marks]** A 25 year old man presented with a history of watery diarrhea of two days duration. There were no associated fever or abdominal pain. On examination, he had signs of dehydration. (a) What is the clinical diagnosis (b) Enumerate organisms causing diarrhea (c) Describe the lab diagnosis for the above clinical condition (d) What is the drug of choice? (e) Add a note on its prophylaxis — *Aug 2020 (S)*
5. **Case-based [10 marks]** A 15 year-old boy developed severe watery diarrhoea and vomiting. He has muscle cramps. He shows signs of dehydration. Stool sample appears like rice water. (a) What is your diagnosis? Name the causative organism (b) Describe the pathogenesis of this disease (c) Write in detail laboratory diagnosis of this condition (d) Mention the prophylactic measures that has to be taken? — *Aug 2021*
6. **Case-based [10 marks]** A 5-year-old child presents to casualty with watery diarrhea since 2 days. The child has hypotension, reduced urine output and parched tongue. The stool resembles rice-water. (a) What is the likely diagnosis and possible etiological agent? (b) Describe the pathogenesis of this disease (c) Describe the laboratory diagnosis in detail (d) Name 4 other infections that cause watery diarrhea — *May 2025 (S)*
7. **Case-based [10 marks]** A 17-year-old male develops severe watery diarrhoea and vomiting. The stool collected had a rice-water appearance and was sent for culture. (a) What is the probable diagnosis? Name the causative organism (b) Describe the pathogenesis of this disease (c) Add a note on its laboratory diagnosis — *Aug 2025*
8. **Short note [5 marks]** Clinical features and lab diagnosis of Helicobacter pylori infection — *Jul 2023 (S) · Apr 2024 (S) · Sep 2025 (S)* ***[3×]***
9. **Short note [5 marks]** Describe the clinical features and lab diagnosis of brucellosis — *Jul 2023 (S) · May 2025 (S) · Sep 2025 (S)* ***[3×]***
10. **Short note [5 marks]** Describe the laboratory diagnosis of cholera — *Mar 2022*
11. **Short note [5 marks]** Describe the epidemiology, pathogenesis and clinical features of cholera — *Jan 2023*
12. **Short note [5 marks]** Pathogenesis and lab diagnosis of Cholera — *Dec 2024*
13. **Short note [2 marks]** Helicobacter pylori — *May 2009 · Jan 2014 · Jun 2016* ***[3×]***
14. **Short note [2 marks]** Brucellosis — *Jan 2018 · Jun 2019 (S)* ***[2×]***
15. **Short note** What are halophilic vibrios? — *Jan 2010 · Jan 2016* ***[2×]***
16. **Short note [2 marks]** Vibrio parahaemolyticus — *Jan 2011*
17. **Short note [2 marks]** Prophylaxis against cholera — *Jun 2011*
18. **Short note [2 marks]** Haemophilus influenzae — *Jul 2012*
19. **Short note [2 marks]** Clinical picture in Brucellosis — *Jul 2012*
20. **Short answer [2 marks]** Satellitism — *Jan 2014 · Jan 2015 · Jan 2018 · Jan 2023* ***[4×]***
21. **Short answer [2 marks]** Describe the pathogenesis of cholera — *May 2009 · Jan 2013 · Jul 2022 (S)* ***[3×]***
22. **Short answer [1 mark]** What is soft sore? — *May 2009 · Jan 2014* ***[2×]***
23. **Short answer [2 marks]** Cholera — *Jun 2017 (S)*
24. **Short answer [2 marks]** Chancroid — *Aug 2021*
25. **Short answer [2 marks]** What are the clinical features of brucellosis? — *Mar 2022*
26. **Short answer [2 marks]** Name 2 bacteria which cause pneumonia. What is satellitism — *Aug 2025*
27. **Short answer [1 mark]** Pseudomonas aeruginosa — *Jun 2010*
28. **Short answer [1 mark]** Differentiate between classical and El Tor vibrio — *Jun 2014*
29. **Short answer [1 mark]** What is melioidosis — *Jan 2016*

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4.3 MCQs from recent papers (2022–2025) *(18 MCQs)*

1. Which pathogen causes food poisoning within 1-6 hours of ingestion of food? — *Mar 2022*

(a) Shigella flexneri (b) Vibrio cholerae (c) Staphylococcus aureus (d) Campylobacter jejuni

2. Urea breath test is used in the diagnosis of infections caused by — *Mar 2022*

(a) Clostridioides difficile (b) Helicobacter pylori
(c) Clostridium botulinum (d) Campylobacter jejuni

3. Rise of TO and AH antibodies in widal indicates — *Mar 2022*

(a) Early typhoid (b) Late typhoid (c) Paratyphoid A (d) Carrier state

4. Bamboo stick appearance on Gram stain is produced by — *Mar 2022*

(a) Brucella Melitensis (b) Bordetella pertussis (c) Bacillus anthracis (d) Yersinia pestis

5. Pontiac fever is caused by — *Mar 2022*

(a) Brucella melitensis (b) Yersinia pestis (c) Legionella pneumophila (d) Hemophilus influenza

6. Traveler's diarrhea is caused by — *Jul 2022 (S)*

(a) Shigella flexneri (b) Shigella sonnei
(c) Enterohaemorrhagic E.coli (d) Enterotoxigenic E.coli

7. Urea breath test is done to diagnose infection due to — *Jul 2022 (S)*

(a) Helicobacter pylori (b) Clostridium botulinum
(c) Vibrio parahemolyticus (d) Yersinia enterocolitica

8. Satellitism is a feature.of — *Jul 2022 (S)*

(a) Streptococcus pneumoniae (b) Hemophilus influenza
(c) Streptococcus agalactiae (d) Neisseria meningitides

9. Soft chancre is caused by — *Jul 2022 (S)*

(a) Hemophilus ducreyi (b) Treponema pallidum
(c) Chlamydia trachomatis L1-3 (d) Neisseria gonorrhoeae

10. All of the following are clinical forms of plague except: — *Jul 2022 (S)*

(a) Bubonic plague (b) Pneumonic plague (c) Haemorrhagic plague (d) Septicaemic plague

11. Chancroid is caused by: — *Jan 2023 · Feb 2024 · May 2025 (S) · Sep 2025 (S)* ***[4×]***

(a) HSV (b) Treponema pallidum (c) Gonococcus (d) Haemophilus ducreyi

12. Milk ring test is performed. to detect the presence of which bacteria in milk? — *Jan 2023*

(a) Mycobacterium tuberculosis (b) Brucella species
(c) Mycobacterium bovis (d) Coxiella burnetii

13. Stool showing bacteria exhibiting darting motility is suggestive of: — *Jul 2023 (S)*

(a) Vibrio cholera (b) E.coli (c) Salmonella Typhi (d) Shigella

14. Traveller's diarrhoea is caused by? — *Jul 2023 (S)*

(a) Enterohaemorrhagic E.coli (b) Shigella dysenteriae typel
(c) Enterotoxigenic E.coli (d) Enteroinvasive E.coli

15. In a patient with typhoid, diagnosis after 15 days of onset of fever is best done by — *Jul 2023 (S)*

(a) Blood culture (b) Widal (c) Stool culture (d) Urine culture

16. In a patient with typhoid, diagnosis in the second week of onset of fever is best done by: — *Apr 2024 (S)*

(a) Blood culture (b) Widal (c) Stool culture (d) Urine culture

17. Satellitism is demonstrated by — *May 2025 (S)*

(a) Legionella pneumophila (b) Streptococcus pneumoniae
(c) Hemophilus influenzae (d) Bacillus anthracis

18. All of the following are member of HACEK group except: — *Aug 2025*

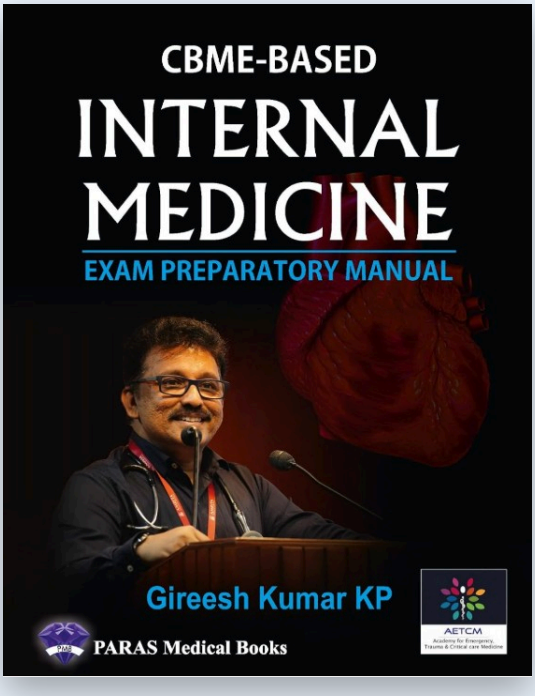
(a) Actinobacillus (b) Cardiobacterium hominis
(c) Hemophilus influenzae (d) Eikenella corrodens

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5. Mycobacteria, Spirochaetes and Other Bacteria *(48 questions)*

> **★ Most-asked topics in this chapter**
>
> - Spirochaetes — ***asked in 24 papers***
> - Mycobacterium tuberculosis and NTM — ***asked in 21 papers***
> - Rickettsiae, Chlamydiae and Mycoplasma — ***asked in 15 papers***

5.1 Mycobacterium tuberculosis and NTM *(21 papers)*

1. **Case-based [10 marks]** A middle-aged man was brought to casualty with haemoptysis, He gave history of cough and fever for last three months. On examination there was evening rise of temperature and shadows on X-ray chest. (a) What is the probable clinical diagnosis? (b) What are the microbiologically relevant investigations to be done in this case? (Write details about collection of the sample and processing) (c) What are the treatment and prophylactic measures? — *Jan 2009*
2. **Case-based [10 marks]** A 45 year old man came to medicine OP with complains of evening rise of temperature and productive cough for the last two months. Chest X-ray showed nodular infiltration in the apical region of the right upper lobe. Blood tests-ESR 120mm/hr lymphocytosis present. (a) What is your diagnosis? (b) Name and classify the causative organism (c) Describe the pathogenesis (d) How will you investigate and confirm the diagnosis microbiologically? (e) Briefly describe the treatment and prophylaxis — *Jan 2015*
3. **Case-based [10 marks]** A 35-year-old male presents with history of cough, low-grade fever, weight loss and night sweats for the last six weeks. His chest X-ray shows consolidation in the left upper and middle lobes. (a) What is the clinical diagnosis and aetiology (b) Describe the pathogenesis of this condition in brief (c) Write a short note on laboratory diagnosis (d) Name the first-line drugs used in treatment (e) Write briefly on the prophylaxis of this condition — *Mar 2022*
4. **Case-based [10 marks]** A 48 year old chronic smoker presented with chronic cough (3 weeks), fatigue, evening rise of temperature, unintentional weight loss and occasional haemoptysis. X ray lung show cavitary lesion in left apical area. Sputum examination revealed acid fast bacilli. (a) What is the clinical diagnosis? (b) Detail the pathogenesis (c) Discuss the lab diagnosis in detail (d) Write a note on drug resistance that can develop in the causative agent (e) Expand NTEP — *Dec 2024*
5. **Case-based [10 marks]** A 50 year old male presents with history of low-grade fever, hemoptysis, weight loss and night sweats for the last 6 months. Chest X-ray shows consolidation and cavitation. (a) What is the probable diagnosis? (b) Describe the laboratory diagnosis of this condition (c) Describe treatment in a case where no resistance is detected (d) How is latent infection detected? — *May 2025 (S)*
6. **Short note [5 marks]** Describe the laboratory diagnosis of pulmonary tuberculosis in detail — *Jul 2012 · Jun 2017 (S) · Jun 2019 (S) · Aug 2020 (S) · Jan 2022 (S) · Jul 2022 (S) · Jan 2023 · Feb 2024 · Aug 2025* ***[9×]***
7. **Short note [2 marks]** Atypical Mycobacteria — *May 2009 · Jun 2014* ***[2×]***
8. **Short note [2 marks]** Pathogenesis of tuberculosis — *Jun 2010*
9. **Short note [2 marks]** MDR tuberculosis — *Jan 2019*
10. **Short answer [2 marks]** Culture of mycobacterium tuberculosis — *Jul 2023 (S) · Apr 2024 (S) · Sep 2025 (S)* ***[3×]***
11. **Short answer [2 marks]** National tuberculosis elimination program — *Jul 2023 (S)*

5.2 Mycobacterium leprae *(2 papers)*

1. **Short note [5 marks]** Leprosy — *Dec 2024*
2. **Short answer [2 marks]** What are the clinical features of lepromatous leprosy? — *May 2025 (S)*

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5.3 Spirochaetes *(24 papers)*

1. **Case-based [10 marks]** A 16 year old girl presented with symptoms of conjunctival suffusion, photophobia, non-bloody, watery stools, and dark tea-colored urine. The patient also noticed yellowing of his eyes and face and onset of abdominal pain. The patient reported walking in muddy water in a nearby rat infested rice field 2 weeks prior to admission. An abrasion was noticed on her left leg. (a) What is the most likely clinical diagnosis and give reasons thereof? (b) Describe the pathogenesis of this disease (c) How is the condition diagnosed in the laboratory? (d) Describe in brief treatment and prevention of the infection — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***
2. **Case-based [10 marks]** A 40-year-old paddy field worker was admitted to the hospital with acute onset of fever with rigor, headache, vomiting and intense injection of the eyes. He complains of severe myalgia. He also developed jaundice and oliguria. (a) What is the clinical diagnosis? Name the causative agent (b) Briefly describe the pathogenesis specifying the source and mode of infection (c) Discuss the laboratory diagnosis (d) How will you treat this condition? — *Jan 2012*
3. **Case-based [10 marks]** A 40-year-old agricultural worker presents with fever, headache, myalgia and prostration associated with conjunctival suffusion, oliguria, jaundice and skin rash. (a) What is your diagnosis? (b) Describe how his profession is a risk factor for acquiring this disease (c) How will you investigate this case? (d) What is the treatment and prophylaxis? (e) What is zoonosis? Enumerate two zoonotic infections — *Jul 2012*
4. **Case-based [10 marks]** A 20 year old man presents with a single 2cm ulcer on his glans penis. The lesion had a raised border and indurated base. It is painless. Patient had history of exposure two weeks back. (a) What is the probable diagnosis? Name the etiological agent (b) What are the other clinical features of this disease? (c) Describe the laboratory diagnosis of this case? (d) Enumerate other sexually transmitted bacterial disease — *Jan 2013*
5. **Case-based [10 marks]** A 24 year old came to STD clinic with fever, malaise, and mucocutaneous rash. He gave past history of sexual exposure and painless ulcer over the genitalia. (a) What is your diagnosis? (b) Describe the pathogenesis and the stages of the disease (c) Enumerate the serological test for diagnosing this condition? (d) What is the treatment of this condition? (e) What are the complications if the condition is left untreated? — *Jan 2020*
6. **Case-based [10 marks]** A 33-year-old male presents with a maculopapular rash and generalized lymphadenopathy. He gives history of having a painless indurated genital ulcer 4 weeks ago associated with non-tender inguinal lymphadenopathy. He also gives history of travel and frequent unprotected sex. (a) What is the clinical diagnosis and causative agent? (b) Describe the clinical stages of this disease (c) How is it diagnosed in the laboratory? (d) How is confidentiality maintained while issuing the report of this patient? (e) How is this disease treated? — *Mar 2022*
7. **Short note [5 marks]** Laboratory diagnosis of primary syphilis — *Nov 2021 (S)*
8. **Short note [5 marks]** Describe the clinical features and laboratory diagnosis of leptospirosis — *Jan 2023*
9. **Short note [5 marks]** Syphilis: etiology, clinical features and lab diagnosis — *Apr 2024 (S)*
10. **Short note [5 marks]** Discuss the lab diagnosis of syphilis in detail. List 4 sexually transmitted infections — *Dec 2024*
11. **Short note [5 marks]** Describe the laboratory diagnosis of syphilis — *May 2025 (S)*
12. **Short note [5 marks]** Write in brief about laboratory diagnosis of venereal syphilis — *Aug 2025*
13. **Short note** What is Lyme disease? — *Jan 2009 · Jul 2012 · Jan 2016* ***[3×]***
14. **Short note [2 marks]** Specific tests for syphilis — *Jan 2010 · Jan 2019* ***[2×]***
15. **Short note [2 marks]** Immunity in syphilis — *Jun 2010*
16. **Short note [2 marks]** Non-venereal treponematoses — *Jan 2011*
17. **Short note [2 marks]** Weil's disease — *Jun 2016*
18. **Short answer [2 marks]** Leptospirosis — *Jun 2019 (S) · Jan 2022 (S)* ***[2×]***
19. **Short answer [2 marks]** Write a short note on laboratory diagnosis of leptospirosis — *Jul 2022 (S) · Aug 2025* ***[2×]***
20. **Short answer [2 marks]** Name 4 features of congenital syphilis — *Jul 2023 (S)*
21. **Short answer [1 mark]** Chancre — *Jun 2010*
22. **Short answer [1 mark]** Name 2 specific tests for syphilis — *Jan 2016*

5.4 Rickettsiae, Chlamydiae and Mycoplasma *(15 papers)*

1. **Short note [5 marks]** Scrub typhus — *Jan 2020 · Jan 2023* ***[2×]***

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2. **Short note [5 marks]** Atypical pneumonia: etiology, risk factors and lab diagnosis — *Feb 2024*
3. **Short note [5 marks]** Name 2 agents of atypical pneumonia. Describe one in detail — *May 2025 (S)*
4. **Short note [5 marks]** Discuss atypical pneumonia. Name agents causing atypical pneumonia — *Sep 2025 (S)*
5. **Short note [2 marks]** TRIC agents — *Jun 2015 · Jun 2016* ***[2×]***
6. **Short note [2 marks]** Lymphogranuloma venereum — *Jan 2009*
7. **Short note [2 marks]** Atypical pneumonia — *Jan 2015*
8. **Short answer [2 marks]** Write a short note on Weil Felix test — *Nov 2021 (S) · Jul 2022 (S) · Jan 2023* ***[3×]***
9. **Short answer [2 marks]** Mycoplasma pneumoniae — *Nov 2021 (S)*
10. **Short answer [2 marks]** Inclusion conjunctivitis — *Nov 2021 (S)*
11. **Short answer [2 marks]** Etiology of atypical pneumonia — *Apr 2024 (S)*
12. **Short answer [1 mark]** Frei's test — *Jun 2010*
13. **Short answer [1 mark]** What is Mycoplasma? — *Jun 2011*

5.5 MCQs from recent papers (2022–2025) *(17 MCQs)*

1. Which of the following is an obligate intracellular pathogen? — *Mar 2022*
   (a) Vibrio cholerae (b) Streptococcus agalactiae
   (c) Bacillus anthracis (d) Rickettsia
2. Mycobacterium species which produce pigment even in the absence of light are called — *Mar 2022*
   (a) Photochromogens (b) Scotochromogens (c) Non-chromogens (d) Atypical mycobacteria
3. Eschar at the site of bite is seen in — *Mar 2022*
   (a) Epidemic typhus (b) Scrub typhus
   (c) Endemic typhus (d) Rocky mountain spotted fever
4. Body louse is a vector of — *Jul 2022 (S)*
   (a) Epidemic typhus (b) Scrub typhus
   (c) Endemic typhus (d) Rocky mountain spotted fever
5. Buruli ulcer is caused by — *Jul 2022 (S)*
   (a) Corynebacterium ulcerans (b) Nocardia asteroides
   (c) Mycobacterium ulcerans (d) Actinomyces israelii
6. Which of the following is a non-specific serological test for syphilis? — *Jul 2022 (S)*
   (a) VDRL (b) TPHA (c) FTA-ABS (d) TPI
7. MDR tuberculosis is resistant to — *Jan 2023*
   (a) Rifampicin,INH,Pyrazinamide and ethambutol (b) Rifampicin,INH,Ethambutol
   (c) Rifampicin, pyrazinamide (d) Rifampicin, INH
8. Inclusion conjunctivitis is caused by — *Jan 2023*
   (a) Chlamydia trachomatis A-C (b) Chlamydia trachomatis D-K
   (c) Chlamydophila pneumoniae (d) Chlamydophila psittaci
9. Lyme's disease is caused by: — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***
   (a) Borrelia parkeri (b) Borrelia burgdorferi (c) Borrelia recurrentis (d) Borrelia hermsii
10. Weil's disease is caused by? — *Jul 2023 (S)*
    (a) Leptospira (b) Plague (c) Yersinia (d) Rickettsial fever
11. Sterile pyuria is present in: — *Feb 2024*
    (a) Renal tuberculosis (b) Chronic hydronephrosis (c) Wilm's tumor (d) Neuroblastoma
12. Fish tank granuloma is caused by: — *Apr 2024 (S)*
    (a) Mycobacterium kansasii (b) Mycobacterium gordonae (c) Mycobacterium xenopi (d) Mycobacterium marinum
13. Chancre is a feature of — *Apr 2024 (S)*
    (a) Primary syphilis (b) Secondary syphilis (c) Neuro syphilis (d) Tertiary syphilis

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14. Mycobacteria tuberculosis is considered as multi drug resistant if it is resistant to? *— Apr 2024 (S)*

(a) Isoniazid+Ethambutol
(b) Isoniazid+Ethambutol-+rifampicin
(c) Isoniazid+rifampicin
(d) Isoniazid+Ethambutol+levofloxacin

15. Latent tuberculosis can be detected by *— Dec 2024*

(a) ELISA test for TB
(b) Interferon gamma release assay
(c) CBNAAT
(d) Sputum smear microscopy

16. Mycobacterium leprae is cultured in *— May 2025 (S)*

(a) Loeffler's serum slope
(b) Lowenstein Jensen medium
(c) Sabouraud's dextrose agar
(d) None of these

17. Chlamydia trachomatis is associated with the following except? *— Aug 2025*

(a) Endemic trachoma
(b) Inclusion conjunctivitis
(c) Lymphogranuloma venereum
(d) Community acquired pneumonia

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6. Virology *(140 questions)*

> **★ Most-asked topics in this chapter**
>
> - General virology — ***asked in 35 papers***
> - Respiratory, enteric, arbo and other RNA viruses — ***asked in 34 papers***
> - Hepatitis viruses and HIV — ***asked in 30 papers***

6.1 General virology *(35 papers)*

1. **Short note [5 marks]** Write briefly on viral inclusion bodies — *Jan 2012 · Jan 2020 · Feb 2022 (S) · Aug 2025* ***[4×]***
2. **Short note [5 marks]** Inclusion bodies — *Jun 2010 · Apr 2024 (S) · Dec 2024* ***[3×]***
3. **Short note [5 marks]** Oncogenic viruses — *Jun 2011 · Jun 2019 (S) · Apr 2024 (S)* ***[3×]***
4. **Short note [5 marks]** Describe prion disease with two examples — *Jul 2023 (S) · Apr 2024 (S) · Sep 2025 (S)* ***[3×]***
5. **Short note [5 marks]** Types of cell lines used in viral culture — *May 2025 (S) · Sep 2025 (S)* ***[2×]***
6. **Short note [5 marks]** Types of cell lines — *Jan 2023*
7. **Short note [2 marks]** What is prion? — *Jan 2009 · May 2009 · Jan 2014 · Jun 2019 (S) · Feb 2022 (S)* ***[5×]***
8. **Short note [2 marks]** Prions — *Jan 2010 · Jan 2013 · Jan 2018* ***[3×]***
9. **Short note [2 marks]** Name 4 emerging viral infections — *Mar 2022 · Sep 2025 (S)* ***[2×]***
10. **Short note [2 marks]** Name 4 infectious agents that can cause cancer — *May 2025 (S) · Sep 2025 (S)* ***[2×]***
11. **Short note** What is continuous cell culture? — *Jun 2012 (S) · Jun 2015* ***[2×]***
12. **Short note [2 marks]** Methods of viral cultivation — *Jan 2013*
13. **Short note [2 marks]** Slow virus diseases — *Jan 2014*
14. **Short note [2 marks]** Oncogenic DNA viruses — *Jan 2018*
15. **Short answer [2 marks]** Continuous cell lines — *Jan 2014 · Jul 2023 (S) · Apr 2024 (S)* ***[3×]***
16. **Short answer [2 marks]** Name 4 oncogenic viruses — *Jun 2013 · Jan 2023* ***[2×]***
17. **Short answer [2 marks]** What are continuous cell lines? Give examples — *Jul 2022 (S)*
18. **Short answer [2 marks]** What are prions? Name 2 prion diseases of humans — *Jul 2022 (S)*
19. **Short answer [2 marks]** Name 4 viruses causing cancer — *Feb 2024*
20. **Short answer [1 mark]** What are prions? Enumerate the human prion diseases — *Jan 2011*
21. **Short answer [1 mark]** Define haemadsorption — *Jan 2012*
22. **Short answer [1 mark]** What is a continuous cell line? — *Jan 2012*
23. **Short answer [1 mark]** Define cytopathic effect — *Jun 2016*
24. **Short answer** What are anti-oncogenes? Give example — *Jan 2011*
25. **Short answer** What are oncogenes? — *Jun 2014*
26. **Short answer** Name two oncogenic viruses and their significance — *Jan 2015*
27. **Short answer** What are inclusion bodies? Give two examples — *Jun 2016*

6.2 DNA viruses *(17 papers)*

1. **Short note [5 marks]** Monkey pox: Etiology, clinical features and lab diagnosis — *Jul 2023 (S)*
2. **Short note [2 marks]** Epstein Barr virus — *Jan 2014 · Jun 2016* ***[2×]***
3. **Short note [2 marks]** Herpes simplex virus — *May 2009*
4. **Short note [2 marks]** Cytomegalovirus — *Jan 2010*
5. **Short note [2 marks]** Ramsay Hunt syndrome — *Jan 2020*
6. **Short note [2 marks]** Pathogenesis of herpes virus — *Aug 2020 (S)*

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7. **Short note [2 marks]** Pathogenesis of herpes zoster — *Nov 2021 (S)*
8. **Short answer [1 mark]** What is glandular fever? — *Jun 2011 · Jan 2014* ***[2×]***
9. **Short answer [5 marks]** Herpes virus — *Jun 2019 (S)*
10. **Short answer [2 marks]** What is herpes zoster — *Jan 2023*
11. **Short answer [2 marks]** Infectious mononucleosis — *Feb 2024*
12. **Short answer [2 marks]** Clinical features of herpes zoster infection (shingles) — *Feb 2024*
13. **Short answer [2 marks]** Epstein-Barr associated malignancies — *Dec 2024*
14. **Short answer [2 marks]** Mpox — *May 2025 (S)*
15. **Short answer [1 mark]** HBsAg carrier — *May 2009*
16. **Short answer [1 mark]** Herpes zoster virus — *Jun 2010*
17. **Short answer [1 mark]** Classify Herpes Viruses — *Jan 2015*
18. **Short answer [1 mark]** Name 4 DNA viruses — *Jun 2016*
19. **Short answer** What are Tzanck cells? — *Jan 2011*

6.3 Hepatitis viruses and HIV *(30 papers)*

1. **Case-based [10 marks]** A 35 year-old male presented with history of fever, weight loss and exposure to multiple sex partners. On examination he is pale, has lymphadenopathy and CD4 cell counts are markedly low. (a) What is your tentative diagnosis? (b) Describe the morphology of virus causing infection (c) Write in brief about pathogenesis of the disease (d) Describe the laboratory tests to be done (e) What are the opportunistic bacterial infections encountered in this disease? — *Jun 2011 · Jun 2019 (S) · Feb 2022 (S) · Mar 2022* ***[4×]***
2. **Case-based [10 marks]** A 35-year-old man presented with fever, arthralgia and jaundice. There is history of blood transfusion six months ago. On examination there is tender hepatomegaly. (a) What is your diagnosis? (b) What are the clinical features? (c) Describe the structure of the causative organism, (d) What are the laboratory findings? (e) What is the prophylaxis? — *Jun 2010 · Jun 2014* ***[2×]***
3. **Case-based [10 marks]** A 40 year old man presented with fever of long duration, malaise, loss of weight, loss of appetite, cough and chronic diarrhoea. He also gave a history of having unprotected sex with commercial sex worker 6 years ago. On examination he is pale, febrile with generalized lymphadenopathy. (a) What is the probable diagnosis and the aetiological agent? (b) Mention the methods of transmission of this disease (c) What is the pathogenesis of this disease? (d) Describe the different methods for laboratory diagnosis in this case (e) Enumerate the opportunistic infections seen in this case — *Jan 2013*
4. **Case-based [10 marks]** A 55-year-old man was admitted to the hospital with fatigue, nausea and abdominal discomfort. He had a slight fever, his urine was dark yellow and his abdomen was distended and tender. He is a traveling sales person who has returned from a trip within the previous month. (a) Classify Hepatitis viruses, name the viruses causing acute hepatitis (b) What is the pathogenesis of this illness? (c) What laboratory tests will be helpful in distinguishing the different hepatitis infections? (d) What was the likely means of the viral acquisition in this case? (e) What personal and public health precautions should be taken to prevent the transmission of this virus? — *Jun 2013*
5. **Case-based [10 marks]** A 24 year old man is admitted to the hospital because of jaundice. On workup he is found to have HCV infection. (a) Enumerate the properties of the virus (b) What are the complications of this infection? (c) Describe the laboratory diagnosis (d) List 4 other viruses causing hepatitis (e) What are the control measures for prevention? — *Jun 2015*
6. **Case-based [10 marks]** A 48 year old nurse presented with a history of jaundice. He also gave a history of two percutaneous injuries while assisting surgery on a patient 2 months back. He does not remember being vaccinated for viral hepatitis. (a) What is the clinical diagnosis (b) Enumerate viruses causing hepatitis (c) What are the clinical presentations of this viral infection (d) Describe the lab diagnosis for the above clinical condition (e) Write a note on prophylaxis of viral hepatitis — *Aug 2020 (S)*
7. **Case-based [10 marks]** A 35 year old male presented with history of fever, weight loss and exposure to multiple sex partners. On examination he is pale, has lymphadenopathy and CD4 cell counts of 150. (a) What is your presumptive diagnosis? (b) Describe the morphology of virus causing infection (c) Write briefly about pathogenesis of the disease (d) Describe the laboratory tests to be done to confirm the infection — *Sep 2025 (S)*

8. **Short note [5 marks]** Discuss the use of serological markers in the diagnosis of hepatitis B viral infections — *Mar 2022 · Sep 2025 (S)* ***[2×]***
9. **Short note [5 marks]** Laboratory diagnosis of hepatitis B — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***
10. **Short note [5 marks]** The laboratory diagnosis of Human Immunodeficiency Virus(HIV) — *Jul 2022 (S)*
11. **Short note [5 marks]** Transmission, clinical manifestations and lab diagnosis of hepatitis C — *Feb 2024*
12. **Short note [5 marks]** Write a short note on the laboratory diagnosis of HIV — *May 2025 (S)*
13. **Short note [2 marks]** Serological markers of hepatitis B — *Jan 2013 · Jan 2018* ***[2×]***
14. **Short note [2 marks]** Laboratory diagnosis of HIV infection — *Jan 2009*
15. **Short note [2 marks]** Laboratory diagnosis HIV/AIDS — *Jan 2010*
16. **Short note [2 marks]** Hepatitis E virus — *Jun 2011*
17. **Short note [2 marks]** Prophylaxis of type B hepatitis — *Jan 2014*
18. **Short note [2 marks]** What is window period. How is HIV infection diagnosed during window period? — *Jan 2019*
19. **Short note** List 4 opportunistic infections seen in AIDS — *Jun 2015*
20. **Draw and label [1 mark]** Hepatitis B virus — *Jan 2009 · Jan 2011 · Jun 2014* ***[3×]***
21. **Draw and label [1 mark]** Human immunodeficiency virus — *Jun 2010 · Jun 2012 (S) · Jan 2014* ***[3×]***
22. **Short answer [5 marks]** Laboratory diagnosis of Hepatitis B virus infection — *Jun 2019 (S) · Feb 2022 (S)* ***[2×]***
23. **Short answer [2 marks]** What is window period in HIV? — *Jan 2020 · Jan 2023* ***[2×]***
24. **Short answer** Hepatitis D Virus — *Jun 2012 (S) · Jan 2014* ***[2×]***
25. **Short answer** Dane particle — *Jan 2014 · Jun 2014* ***[2×]***
26. **Short answer [5 marks]** Viral markers of Hepatitis B infection — *Nov 2021 (S)*
27. **Short answer [2 marks]** How is hepatitis B transmitted? — *Jul 2022 (S)*
28. **Short answer [2 marks]** How is patient confidentiality maintained during HIV testing? — *Jul 2022 (S)*
29. **Short answer [2 marks]** List the clinical stages of HIV infection — *Jul 2023 (S)*
30. **Short answer [2 marks]** List 4 AIDS-defining illnesses — *Feb 2024*
31. **Short answer [2 marks]** Opportunistic infections in AIDS patient — *Apr 2024 (S)*
32. **Short answer [2 marks]** Interpreting serological markers of Hepatitis B virus infection — *Dec 2024*
33. **Short answer [2 marks]** Write 4 important predisposing factors for development of opportunistic infections — *Dec 2024*
34. **Short answer [2 marks]** Name 2 opportunistic bacterial infections in HIV — *Aug 2025*
35. **Short answer [2 marks]** Name 2 antiretroviral drugs — *Aug 2025*

6.4 Respiratory, enteric, arbo and other RNA viruses *(34 papers)*

1. **Case-based [10 marks]** A 30-year-old man was brought to casualty with bizarre behavior, seizures and difficulty in drinking with past history of being bitten by a stray dog two months back. (a) What is your diagnosis and name the etiological agent? (b) Describe the laboratory diagnosis (c) Describe the pre exposure and post exposure prophylaxis (d) How will you manage the patient? — *Jan 2009*
2. **Case-based [10 marks]** A 35-year male presents with intermittent hyperactivity, seizures and history of dog bite two months back. (a) What is your diagnosis? (b) Describe the structure of the pathogen (c) Write the pathogenesis of this disease (d) What are the laboratory diagnosis? (e) Add a note on prophylaxis — *May 2009*
3. **Case-based [10 marks]** A 10-year-old boy who was bitten by a stray dog one month ago developed painful spasms of the throat muscles on swallowing, seizures and paralysis. He went into coma and died despite intensive care. (a) What is your diagnosis and name the etiological agent? What is the source? What are the two important modes of transmission? List three methods of diagnosis of human infections caused by this pathogen (b) What is the prophylaxis for the above condition? List one preparation each used for active and passive immunization — *Jan 2010*

4. **Case-based [10 marks]** A 25-year-old man presented with difficulty in drinking water which provoked painful spasms of larynx. His farm dog had bitten him three weeks back and dog subsequently died. (a) What is your diagnosis? (b) Describe the morphology of the aetiological agent (c) What are the stages of the disease? (d) What are the methods of antemortem diagnosis? (e) Name the different vaccines available along with its schedule of administration — *Jan 2011*

5. **Case-based [10 marks]** A 30 year old man was bitten by a stray dog. The dog which was observed under captivity died after 5 days showing symptoms like drooling of saliva, restlessness and snapping at imaginary objects. (a) What is the clinical diagnosis? Name the aetiological agent (b) Give an account of the clinical features and course of the disease in human beings — *Jan 2012*

6. **Case-based [10 marks]** A 27-year-old woman who is two months pregnant develops low grade fever, malaise and arthralgia. A fine maculopapular rash appears on her face, trunk and extremities. She also has lymphadenopathy. (a) What is your preliminary diagnosis? (b) Name two other viral fevers with rash (c) How will you confirm your diagnosis? (d) How will you prevent this illness? (e) What are the complications? — *Jun 2012 (S)*

7. **Case-based [10 marks]** An 8-year-old boy brought to casualty complaining of pain and weakness of right lower limb. He had fever and malaise for 10 days. He was not immunized. On examination - Flaccid paralysis of right lower limb. (a) What is your diagnosis? (b) Name causative agent that cause this disease. Classify the pathogen (c) Describe the pathogenesis (d) Briefly discuss laboratory diagnosis of the condition (e) Describe prophylaxis in detail and measures taken to eradicate this illness — *Jan 2015*

8. **Case-based [10 marks]** A 23 year old woman was bitten by her domestic dog without provocation. The dog died on the third day. She turned up on the third day in OPD with an infected wound at the bite site. (a) What infections is the patient at risk from? (b) How is the patient managed? What vaccinations are advised and what is the schedule? (c) What diagnostic tests could have been done on the dog? (d) Describe the morphology of the organism that caused death of the dog — *Jan 2018*

9. **Case-based [10 marks]** A 7 year-old child was admitted in paediatric ward with fever. Headache, malaise of 4 days duration and difficulty in moving his lower limb of 1 day duration. History taking revealed that he was unimmunized. On examination there was flaccid paralysis of right lower limb with no sensory loss. (a) What is the clinical diagnosis? (b) What are the types of clinical presentations in this condition? (c) What are the laboratory methods to diagnose this case? (d) What are the prophylactic measures for this? (e) Name two agents causing aseptic meningitis — *Jan 2019*

10. **Case-based [10 marks]** A 32 year-old man brought to medical OP with fever, headache, pain around eyes. On examination petechial lesions seen on the forearm. Tourniquet test positive. Platelet count 30000/mm. (a) What is your diagnosis? How is the disease classified (b) Describe the pathogenesis of the disease (c) Describe the laboratory investigations to confirm the diagnosis (d) Prophylaxis and treatment of the disease (e) Name four arboviral diseases commonly seen in India and their vectors — *Aug 2021*

11. **Case-based [10 marks]** A 34-year-old male presents with complaints of difficulty in swallowing liquids, agitation and confusion 4 weeks after being bitten by a stray dog. (a) What is the probable diagnosis? (b) Elaborate on the laboratory diagnosis of this condition (c) Write a short note on post-exposure prophylaxis of this condition (d) Name 4 other zoonotic diseases — *Jul 2022 (S)*

12. **Case-based [10 marks]** A 32 year old nurse working in COVID ward presents with fever, headache, myalgia, dry cough, loss of taste and smell. (a) What is your diagnosis? (b) Discuss the specimen collection and laboratory diagnosis of the condition (c) Write a short note on the various types of vaccines available for the condition (d) Name 4 other respiratory viruses — *Jan 2023*

13. **Case-based [10 marks]** A 23 year old boy complains of fever, body ache, nasal stuffiness and loss of taste and smell for the past three days. (a) What is the most likely diagnosis? (b) How is it diagnosed in the laboratory? (c) Describe in brief treatment and prevention of the infection (d) List three causes of seasonal flu — *Jul 2023 (S)*

14. **Case-based [10 marks]** A 45-year-old female was admitted with weakness, fever and headache which progressed to anxiety, confusion, agitation, photophobia and hydrophobia. The patient gave a history of being scratched by a stray cat one month ago for which no treatment was sought. (a) What is the likely diagnosis? (b) Describe the pathogenesis of this disease (c) How is it diagnosed in the laboratory? (d) Write a short note on treatment and prevention of the condition — *Feb 2024*

15. **Case-based [10 marks]** An 18 years old student from Delhi was admitted in emergency department with history of high fever, vomiting, retro orbital pain & gum bleed. O/E he had maculopapular rash over upper limbs, hepatomegaly, platelet count of 20000 cells/mm3. He also gives history of high mosquito density in his neighborhood. (a) What is the most probable diagnosis, vector & mode of transmission? (b) How is the disease classified based on severity? (c) Detail on the lab diagnostics to confirm the infection (d) Enumerate 4 viruses causing hemorrhagic fever (e) Write a note on prophylaxis of the above condition — *Dec 2024*

16. **Structured question [10 marks]** (Rabies — continued) (a) Describe the structure of the causative agent (b) Discuss the laboratory diagnosis in humans (c) Discuss briefly the prophylaxis — *Jan 2012*

17. **Short note [5 marks]** Describe the pathogenesis and laboratory diagnosis of dengue — *Mar 2022 · Jul 2022 (S) · Sep 2025 (S)* ***[3×]***

18. **Short note [5 marks]** Laboratory diagnosis of COVID — *Jul 2022 (S) · Dec 2024* ***[2×]***

19. **Short note [5 marks]** Nipah virus disease: Transmission, clinical features and lab diagnosis — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***

20. **Short note [5 marks]** Write a short note on the clinical features and laboratory diagnosis of measles — *Mar 2022*

21. **Short note [5 marks]** Name 2 arboviral infections found in India. Write a short note on any one — *Jan 2023*

22. **Short note [5 marks]** Rubella: clinical features, congenital anomalies and prevention — *Jul 2023 (S)*

23. **Short note [5 marks]** Explain the clinical features and lab diagnosis of Influenza — *Dec 2024*

24. **Short note [5 marks]** Write a short note on pathogenesis of SARS-COV-2 infection — *Aug 2025*

25. **Short note [5 marks]** Name 2 arboviral diseases transmitted by mosquito in India. Write a short note on any one of them — *Aug 2025*

26. **Short note [2 marks]** Viral Diarrhoea — *Jun 2010 · Jun 2016 · Jan 2018* ***[3×]***

27. **Short note [2 marks]** Prophylaxis of poliomyelitis — *Jan 2011 · Jun 2011 · Jun 2014* ***[3×]***

28. **Short note [2 marks]** Rotavirus — *Jan 2011 · Jun 2014 · Aug 2021* ***[3×]***

29. **Short note [2 marks]** Negri bodies — *Jan 2023 · May 2025 (S) · Sep 2025 (S)* ***[3×]***

30. **Short note [2 marks]** Dengue fever — *Jun 2013 · Jun 2016* ***[2×]***

31. **Short note [2 marks]** Measles — *Jun 2013 · Jun 2015* ***[2×]***

32. **Short note [2 marks]** Ebola virus — *Jan 2015 · Jun 2015* ***[2×]***

33. **Short note [2 marks]** Dengue virus infection — *Jan 2009*

34. **Short note [2 marks]** Dengue virus — *May 2009*

35. **Short note [2 marks]** Chikungunya virus — *Jun 2010*

36. **Short note [2 marks]** Mumps virus — *Jun 2014*

37. **Short note [2 marks]** Rabies prophylaxis — *Jan 2015*

38. **Short note [2 marks]** What is antigenic shift and drift — *Jan 2019*

39. **Short note [2 marks]** Mumps — *Jan 2020*

40. **Short note [2 marks]** Teratogenic viruses — *Aug 2021*

41. **Short note [2 marks]** Polio — *Feb 2022 (S)*

42. **Draw and label [1 mark]** Rabies Virus — *May 2009 · Jun 2013 · Jun 2016 · Jun 2019 (S) · Nov 2021 (S) · Feb 2022 (S)* ***[6×]***

43. **Draw and label [1 mark]** Structure of influenza virus — *Jan 2010 · Jan 2013 · Jun 2015* ***[3×]***

44. **Draw and label [1 mark]** Influenza virus — *Jun 2011 · Jan 2015 · Aug 2021* ***[3×]***

45. **Short answer [1 mark]** What is antigenic shift? — *Jun 2010 · Jan 2012 · Jun 2013 · Jun 2014 · Nov 2021 (S)* ***[5×]***

46. **Short answer [2 marks]** What is Kyasanur Forest disease? — *May 2009 · May 2025 (S)* ***[2×]***

47. **Short answer [2 marks]** Negri body — *Jun 2014 · Dec 2024* ***[2×]***

48. **Short answer [5 marks]** Rabies — *Jan 2020*

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49. **Short answer [5 marks]** Prophylaxis of rabies — *Aug 2021*

50. **Short answer [2 marks]** What are the differences between antigenic shift and antigenic drift? — *Jul 2022 (S)*

51. **Short answer [2 marks]** Name 4 etiological agents of viral encephalitis — *Jul 2023 (S)*

52. **Short answer [2 marks]** What are arboviruses? Name 2 arboviral infections found in India — *Feb 2024*

53. **Short answer [1 mark]** Name important paramyxoviruses — *Jan 2009*

54. **Short answer [1 mark]** What is aseptic meningitis? — *Jan 2010*

55. **Short answer [1 mark]** What are arboviruses? Name three arboviruses prevalent in India — *Jan 2013*

56. **Short answer [1 mark]** Viruses causing diarrhea — *Jun 2015*

57. **Short answer [1 mark]** H5N1 — *Jun 2016*

58. **Short answer** Name four arbovirus infections prevalent in India — *Jan 2015*

59. **Short answer** Elaborate on the laboratory diagnosis of COVID — *May 2025 (S)*

6.5 MCQs from recent papers (2022–2025) *(37 MCQs)*

1. Which of these is not a continuous cell line? — *Mar 2022*

(a) Monkey kidney cell line (b) HeLa cell line
(c) Hep-2 cell line (d) Vero cell line

2. Which viral hepatitis is transmitted through food and water? — *Mar 2022*

(a) Hepatitis A (b) Hepatitis B (c) Hepatitis C (d) Hepatitis D

3. Which of the following is not a viral haemorrhagic fever? — *Mar 2022*

(a) Kyasanur forest disease (b) Nipah
(c) Ebola (d) Lassa fever

4. Owl's eye inclusion bodies are a feature of infection due to — *Mar 2022*

(a) Epstein Barr virus (b) HSV-2 (c) Cytomegalovirus (d) Varicella Zoster virus

5. Positive tourniquet test is a feature of — *Mar 2022*

(a) Japanese encephalitis (b) Chikungunya (c) West Nile fever (d) Dengue

6. A 43-year-old lady presented with soft pedunculated wart on the labia. It was diagnosed as condyloma acuminatum. What is the causative agent of this condition? — *Mar 2022*

(a) Molluscum contagiosum virus (b) Human Papilloma virus
(c) Epstein-Barr virus (d) Herpes simplex virus-2

7. Gradual sequential change in viral antigenic structure at regular intervals is known as: — *Mar 2022*

(a) Antigenic shift (b) Antigenic drift
(c) Point mutation (d) Antigenic recombination

8. National vector borne disease control Programme[NVBDCP] includes all the following except: — *Mar 2022*

(a) Malaria (b) Filariasis (c) Japanese encephalitis (d) Zika

9. Western blot is used to detect — *Jul 2022 (S)*

(a) DNA (b) RNA (c) Lipids (d) Proteins

10. Both intracytoplasmic and intranuclear inclusion bodies are seen in — *Jul 2022 (S)*

(a) Rabies (b) Measles (c) Yellow fever (d) Polio

11. Risk of transmission of HIV following needle stick injury is — *Jul 2022 (S)*

(a) 0.3% (b) 1% (c) 3% (d) 30%

12. Which of the following hepatitis viruses is transmitted through food and water? — *Jul 2022 (S)*

(a) Hepatitis B (b) Hepatitis C (c) Hepatitis D (d) Hepatitis E

13. Shingles or herpes zoster occurs following reactivation of — *Jul 2022 (S)*

(a) Herpes simplex virus-1 (b) Herpes simplex virus-2
(c) Varicella zoster virus (d) Molluscum contagiosum virus

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14. Antiviral therapy for influenza includes — *Jul 2022 (S)*

(a) Acyclovir (b) Ganciclovir (c) Remdesivir (d) Oseltamivir

15. Which of these countries has eradicated poliomyelitis? — *Jul 2022 (S)*

(a) India (b) Pakistan (c) Afghanistan (d) All

16. All of the following viruses are oncogenic except: — *Jul 2022 (S)*

(a) Epstein Barr virus (b) Hepatitis B virus (c) Human papilloma virus (d) Varicella zoster virus

17. Tissue origin of He La cell line — *Jan 2023*

(a) Embryonic lung (b) Carcinoma cervix (c) Connective tissue (d) Monkey kidney

18. Which of the following is the first to appear in acute hepatitis B? — *Jan 2023*

(a) HBs Ag (b) Anti HBs Ag (c) IgM anti HBc (d) Anti HBe Ag

19. The virus strain for varicella vaccine is — *Jan 2023*

(a) Edmonston Zagreb strain (b) Oka strain
(c) RA 27/3 (d) Jery Lynn strain

20. Infection of hepatitis B virus is commonly diagnosed by: — *Jul 2023 (S)*

(a) HBeAg (b) HBV DNA (c) HBsAg (d) Anti HBsAg

21. Which is the hepatitis virus that spreads by feco-oral route? — *Jul 2023 (S)*

(a) Hepatitis D (b) Hepatitis B (c) Hepatitis C (d) Hepatitis A

22. HIV infects:which of the following cells? — *Jul 2023 (S)*

(a) T-helper cells (b) NK cells (c) T-suppressor cells (d) Plasma cells

23. All are mosquito borne viral fevers except: — *Feb 2024*

(a) Dengue (b) Kyasanur forest disease
(c) Yellow fever (d) Japanese encephalitis

24. Most common opportunistic infection in HIV positive patient in India is: — *Feb 2024*

(a) Mycobacterium tuberculosis (b) Cryptococcus
(c) Toxoplasmosis (d) Cryptosporidiosis

25. Parotitis and orchitis are common manifestations of: — *Feb 2024*

(a) Measles (b) Mumps (c) Rubella (d) Diphtheria

26. Koplik's spots are pathognomonic of — *Dec 2024*

(a) Mumps (b) Measles (c) Rubella (d) Varicella

27. Viruses causing exanthems are all except: — *Dec 2024*

(a) HSV (b) VZV (c) Rubella (d) HBV

28. Which of the following is a continuous cell line? — *May 2025 (S) · Sep 2025 (S)* ***[2×]***

(a) He La cell line (b) Monkey kidney cell line
(c) Chick embryo cell line (d) Human fibroblast cell line

29. Antibody dependent enhancement is a feature of — *May 2025 (S)*

(a) Typhoid (b) Weil's disease
(c) Dengue haemorrhagic fever (d) Scrub typhus

30. Which of the following is transmitted by food and water? — *May 2025 (S)*

(a) Hepatitis A (b) Hepatitis B (c) Hepatitis C (d) Hepatitis D

31. Antigenic shift is a feature of — *May 2025 (S)*

(a) SARS-Cov-2 (b) Influenza virus A
(c) Respiratory syncytial virus (d) Mumps virus

32. All of the following are examples of arboviral encephalitis except: — *May 2025 (S) · Sep 2025 (S)* ***[2×]***

(a) Japanese encephalitis (b) Rabies
(c) West Nile fever (d) Eastern equine encephalitis

33. Which among them is transmitted by FECO oral route — *Aug 2025*

(a) Hepatitis-B (b) Hepatitis-D (c) Hepatitis-E (d) Hepatitis-C

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34. All of the following are examples of continuous cell line except: *— Aug 2025*

(a) HeLa cell line (b) Chick embryo cell line (c) Hep-2 cell line (d) KB cell line

35. The causative agent of Erythema infectiosum(fifth disease) is: *— Aug 2025*

(a) BK virus (b) Parvovirus B19
(c) Herpes simplex type I virus (d) Cytomegalovirus

36. Gene targets for COVID-19 detection includes all except: *— Aug 2025*

(a) Spike protein(S) (b) Envelope protein(E)
(c) Membrane protein(M) (d) Reverse transcriptase gene

37. African Burkitt's lymphoma is caused by *— Aug 2025*

(a) Epstein Barr virus (b) Cytomegalovirus
(c) Human immunodeficiency virus (d) Herpes zoster virus

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7. Mycology *(74 questions)*

> **★ Most-asked topics in this chapter**
>
> - General mycology and superficial/subcutaneous mycoses — ***asked in 36 papers***
> - Systemic and opportunistic mycoses — ***asked in 36 papers***

7.1 General mycology and superficial/subcutaneous mycoses *(36 papers)*

1. **Short essay [5 marks]** Lab diagnosis of dermatophytes — *Aug 2020 (S)*
2. **Short note [5 marks]** Write a short note on eumycetoma — *Mar 2022*
3. **Short note [5 marks]** Describe the clinical features and laboratory diagnosis of dermatophyte infections — *Jan 2023*
4. **Short note [5 marks]** Mycetoma: Etiology, risk factors and lab diagnosis — *Feb 2024*
5. **Short note [5 marks]** Sporotrichosis: Risk factors, clinical features and lab diagnosis — *Feb 2024*
6. **Short note [5 marks]** Describe the clinical features and lab diagnosis of mycetoma — *Sep 2025 (S)*
7. **Short note [2 marks]** Dermatophytes — *Jan 2009 · Jan 2010 · Jun 2011 · Jun 2013 · Jan 2014 · Jun 2014 · Jun 2016 · Jun 2017 (S) · Jan 2018 · Jan 2020 · Aug 2021 · Feb 2022 (S)* ***[12×]***
8. **Short note [2 marks]** What is mycetoma? — *Jan 2010 · Jun 2010 · Jun 2013 · Jun 2015 · Jun 2016 · Jan 2020 · Nov 2021 (S)* ***[7×]***
9. **Short note [2 marks]** What is piedra? — *Jun 2011 · Jan 2014 · Jan 2015 · Jun 2019 (S)* ***[4×]***
10. **Short note [2 marks]** Sporotrichosis — *Jun 2012 (S) · Aug 2021* ***[2×]***
11. **Short note [2 marks]** What are sclerotic bodies — *Jun 2016 · Jan 2019* ***[2×]***
12. **Short note [2 marks]** Rhinosporidiosis — *May 2009*
13. **Short note [2 marks]** Madura foot — *Jan 2012*
14. **Short note [2 marks]** Name four dimorphic fungi — *Jan 2018*
15. **Short note** What is mycotic keratitis? List 2 causative agents — *Jun 2015*
16. **Short answer [2 marks]** What are dimorphic fungi? Give two examples — *Jun 2010 · Jan 2012 · Jan 2013 · Mar 2022 · Jul 2022 (S) · May 2025 (S)* ***[6×]***
17. **Short answer [2 marks]** Dermatophytosis — *May 2009 · Jan 2014 · Jul 2022 (S) · Apr 2024 (S)* ***[4×]***
18. **Short answer [5 marks]** Dimorphic fungal infections — *Jan 2019 · Feb 2022 (S)* ***[2×]***
19. **Short answer [2 marks]** Chromoblastomycosis — *Aug 2021 · Jul 2023 (S)* ***[2×]***
20. **Short answer [1 mark]** What is ‘id’ reaction? — *Jan 2011 · Jan 2012* ***[2×]***
21. **Short answer [1 mark]** What are dematiaceous fungi? Give two examples — *Jan 2011 · Jan 2013* ***[2×]***
22. **Short answer [2 marks]** What is mycotoxicosis? — *Jul 2022 (S)*
23. **Short answer [2 marks]** What is rose gardener’s disease? — *Jul 2022 (S)*
24. **Short answer [2 marks]** Name four dermatophytes — *Feb 2024*
25. **Short answer [2 marks]** Enumerate four superficial mycotic infections — *Dec 2024*
26. **Short answer [1 mark]** Dimorphic fungi — *Jan 2009*
27. **Short answer [1 mark]** Name the agents which cause mycetoma — *May 2009*
28. **Short answer [1 mark]** Classification of fungi — *Jun 2010*
29. **Short answer [1 mark]** What is tinea corporis? — *Jun 2015*
30. **Short answer [1 mark]** What is mycetism? — *Jun 2016*
31. **Short answer** What are arthrospores? — *Jan 2014*
32. **Short answer** What are true yeasts? Give example — *Jan 2015*

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33. **Short answer** Name two fungi that infect nails — *Jan 2015*

34. **Short answer** Describe the clinical features and lab diagnosis of dermatophytosis — *May 2025 (S)*

7.2 Systemic and opportunistic mycoses *(36 papers)*

1. **Case-based [10 marks]** A 32-year-old businessman brought to the emergency room with fever, headache, and altered sensorium. On examination: Neck rigidity+. HIV seropositive. CSF India ink preparation showed capsulated budding yeast cells. (a) What is your diagnosis? Name the causative agent (b) Describe the laboratory investigations to confirm the diagnosis (c) Draw and label HIV (d) Describe the pathogenesis of HIV infection? (e) Prophylaxis of blood-borne infections — *Jun 2016*

2. **Case-based [10 marks]** A 34-year-old worker brought to emergency room with fever, headache, altered sensorium. On examination he has signs of meningitis. He is HIV seropositive. CSF India ink preparation showed capsulated budding yeast cells. (a) What is your diagnosis? Name the causative agent (b) Describe the laboratory investigations to confirm the diagnosis (c) Draw and label human immunodeficiency Virus(HIV) (d) Describe the pathogenesis of HIV? (e) Write about prophylaxis of blood borne infections — *Nov 2021 (S)*

3. **Case-based [10 marks]** A 35-year-old male with HIV presents with white patches on the tongue and buccal mucosa. A scraping from the lesion is sent to the lab and shows budding yeast cells and pseudohyphae on microscopy. (a) What is the probable diagnosis? (b) How is the diagnosis confirmed in the laboratory? (c) How is this condition treated? (d) Name the predisposing factors for this condition (e) Name 4 other opportunistic infections that occur in HIV-AIDS — *Jul 2022 (S)*

4. **Case-based [10 marks]** A 40 year old patient with HIV-AIDS presents with headache, low-grade fever, altered sensorium and neck stiffness. CSF sent for microscopy and culture shows round capsulated budding yeast cells. (a) What is the probable diagnosis? (b) What are the virulence factors of the causative organism? (c) Describe the laboratory diagnosis of this condition (d) Name 4 other opportunistic fungi — *Feb 2024*

5. **Short note [5 marks]** Cryptococcal meningitis: Risk factors, lab diagnosis and treatment — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***

6. **Short note [5 marks]** Write a short note on cryptococcal infections — *Jan 2023*

7. **Short note [5 marks]** Aspergillosis: Etiology, risk factors and lab diagnosis — *Jul 2023 (S)*

8. **Short note [5 marks]** Clinical features and lab diagnosis of histoplasmosis — *Feb 2024*

9. **Short note [5 marks]** Rhinocerebral mucormycosis: Etiology, clinical features lab diagnosis and risk factors — *Feb 2024*

10. **Short note [5 marks]** Pneumocystis pneumonia: risk factors, lab diagnosis and treatment — *Apr 2024 (S)*

11. **Short note [5 marks]** Name 4 risk factors for candidiasis. Describe the laboratory diagnosis of candidiasis — *Dec 2024*

12. **Short note [5 marks]** List the clinical features and describe the laboratory diagnosis of candidiasis — *May 2025 (S)*

13. **Short note [5 marks]** Describe the clinical features and lab diagnosis of cryptococcal meningitis — *May 2025 (S)*

14. **Short note [2 marks]** Candida albicans — *Jan 2010 · Jan 2011 · Jun 2014 · Jun 2017 (S) · Jan 2019 · Feb 2022 (S)* ***[6×]***

15. **Short note [2 marks]** Cryptococcus neoformans — *Jun 2011 · Jan 2013 · Jun 2015 · Jun 2019 (S) · Aug 2020 (S)* ***[5×]***

16. **Short note [2 marks]** Histoplasmosis — *Jun 2010 · Jan 2011 · Jun 2014* ***[3×]***

17. **Short note [2 marks]** Mucormycosis — *Jan 2013 · Nov 2021 (S)* ***[2×]***

18. **Short note [2 marks]** Aspergillosis — *Jan 2015 · Aug 2020 (S)* ***[2×]***

19. **Short note [2 marks]** Candidiasis — *Jun 2015 · Nov 2021 (S)* ***[2×]***

20. **Short note** Enumerate fungi causing systemic mycoses — *Jun 2011 · Jun 2015* ***[2×]***

21. **Short note [2 marks]** Pulmonary Aspergillosis — *Jun 2011*

22. **Short note [2 marks]** Reynolds–Braude phenomenon — *Jan 2019*

23. **Short note** What is aspergilloma? — *Jun 2015*

24. **Draw and label [1 mark]** Aspergillus species — *Jan 2012 · Jun 2016* ***[2×]***

25. **Draw and label [1 mark]** Cryptococcus neoformans(India ink stain) — *Jan 2020 · Feb 2022 (S)* ***[2×]***

26. **Draw and label [1 mark]** Candida albicans – Gram smear — *Jan 2018*

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27. **Draw and label [1 mark]** Rhizopus — *Aug 2020 (S)*

28. **Short answer [1 mark]** What are opportunistic mycoses? — *May 2009 · Jun 2013* ***[2×]***

29. **Short answer [5 marks]** Opportunistic mycotic infections — *Jan 2019*

30. **Short answer [2 marks]** Name 4 fungal agents of pneumonia — *Mar 2022*

31. **Short answer [2 marks]** Name 4 opportunistic fungal infections — *Mar 2022*

32. **Short answer [2 marks]** What are the clinical features of histoplasmosis? — *Jan 2023*

33. **Short answer [2 marks]** Name 4 fungal opportunistic infections that occur in HIV-AIDS — *Jan 2023*

34. **Short answer [2 marks]** List four opportunistic fungus — *Dec 2024*

35. **Short answer [2 marks]** Name 4 fungus which cause opportunistic infection — *Aug 2025*

36. **Short answer [1 mark]** Pneumocystis jirovecii infection — *Jan 2009*

37. **Short answer [1 mark]** Laboratory diagnosis of cryptococcal meningitis — *Jan 2010*

38. **Short answer [1 mark]** Define Reynolds–Braude phenomenon — *Jan 2012*

39. **Short answer [1 mark]** Name four opportunistic fungal infections associated with HIV infection — *Jun 2012 (S)*

40. **Short answer [1 mark]** What are the lesions produced by Candida albicans? — *Jun 2014*

7.3 MCQs from recent papers (2022–2025) *(18 MCQs)*

1. Positive germ tube test is diagnostic of a — *Mar 2022*
   (a) Candida tropicalis
   (b) Cryptococcus neoformans
   (c) Candida krusei
   (d) Candida albicans

2. Aflatoxin is produced by — *Mar 2022*
   (a) Amanita phalloides
   (b) Fusarium solani
   (c) Aspergillus flavus
   (d) Claviceps purpurea

3. Which is not a feature of mycetoma? — *Mar 2022*
   (a) Swelling
   (b) Granules
   (c) Discharging sinuses
   (d) Rapid progression

4. Otomycosis is usually caused by — *Mar 2022*
   (a) Aspergillus niger
   (b) Histoplasma capsulatum
   (c) Candida albicans
   (d) Cryptococcus neoformans

5. Cysts with crushed pingpong ball appearance on GMS stain of bronchial washing from a patient with AIDS is suggestive of pneumonia caused by — *Mar 2022*
   (a) Pneumocystis jirovecii
   (b) Histoplasma capsulatum
   (c) Toxoplasma gondii
   (d) Blastomyces dermatitidis

6. Which of the following shows broad-based budding? — *Jul 2022 (S)*
   (a) Cryptococcus neoformans
   (b) Blastomyces dermatitidis
   (c) Candida albicans
   (d) Histoplasma capsulatum

7. Mycetoma is characterized by — *Jul 2022 (S)*
   (a) Swelling
   (b) Discharging sinuses
   (c) Granules
   (d) All

8. Medlar bodies or copper penny bodies are a feature of — *Jul 2022 (S) · Sep 2025 (S)* ***[2×]***
   (a) Sporotrichosis
   (b) Histoplasmosis
   (c) Chromoblastomycosis
   (d) Cryptococcosis

9. Which of the following is a feature of Cryptococcus neoformans — *Jul 2022 (S)*
   (a) Capsulated yeast
   (b) Urease positive
   (c) Brown colonies on bird seed agar
   (d) All of these

10. Keratitis associated with wearing contact lenses is caused by — *Jul 2022 (S)*
    (a) Aspergillus
    (b) Acanthamoeba
    (c) Pseudomonas
    (d) Candida

11. What type of fungal skin lesion would show only hyphae and possible arthroconidia in a specimen? — *Jan 2023*
    (a) Blastomycosis
    (b) Chronic mucocutaneous candidiasis
    (c) Dermatophytosis
    (d) Coccidioidomycosis

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12. Nasal polyps are produced by — *Jan 2023*

(a) Rhinosporidium seeberi
(b) Penicillium marneffei
(c) Pneumocystis jirovecii
(d) Cryptococcus neoformans

13. The most common organism amongst the following that causes meningitis in an AIDS patient is: — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***

(a) Streptococcus pneumoniae
(b) Streptococcus agalactiae
(c) Cryptococcus neoformans
(d) Listeria monocytogenes

14. Which of the following is not a mould? — *Feb 2024*

(a) Aspergillus
(b) Mucor
(c) Cryptococcus
(d) Penicillium

15. The capsule of Cryptococcus neoformans in a CSF sample is best seen by: — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***

(a) Gram stain
(b) Giemsa stain
(c) India ink preparation
(d) Methenamine-silver stain

16. Tumour like swellings with discharging sinuses containing granules is characteristic of — *Dec 2024*

(a) Dermatophytosis
(b) Mycetoma
(c) Chromoblastomycosis
(d) Tuberculosis

17. Medlar bodies are a feature of — *May 2025 (S)*

(a) Chromoblastomycosis
(b) Histoplasmosis
(c) Sporotrichosis
(d) Cryptococcosis

18. Which of the following is TRUE about Histoplasma capsulatum — *Aug 2025*

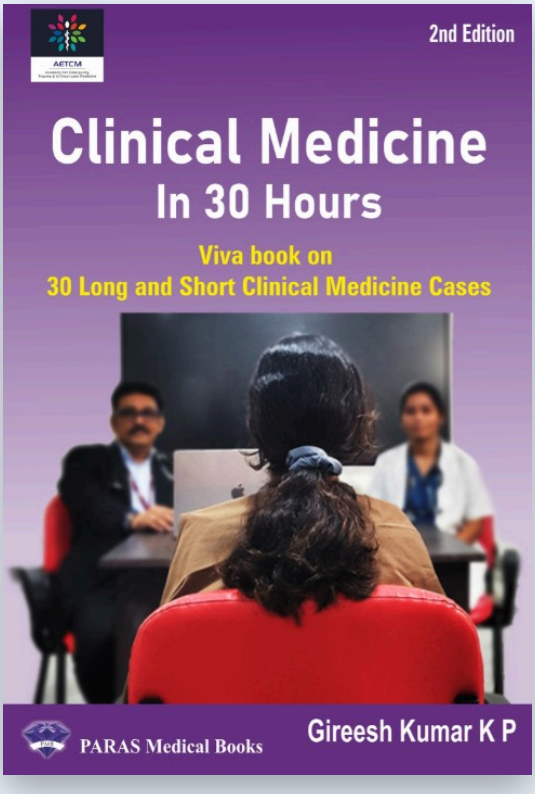
(a) Dimorphic fungus
(b) Causes moniliasis
(c) Does not grow on SDA
(d) Capsulated

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8. Parasitology *(129 questions)*

> **★ Most-asked topics in this chapter**
>
> - Helminths — ***asked in 40 papers***
> - Protozoa — ***asked in 38 papers***
> - General parasitology and lab diagnosis — ***asked in 18 papers***

8.1 Protozoa *(38 papers)*

1. **Case-based [10 marks]** A 12-year-old girl presents with history of bouts of fever every third day with chills, headache, nausea and vomiting. On examination she is pale and has splenomegaly. (a) What is your diagnosis? (b) Classify the parasite responsible (c) Describe the life cycle of the causative agent (d) Write the laboratory diagnosis (e) What are the measures of prevention and control? — *Jan 2014 · Jan 2020* ***[2×]***
2. **Case-based [10 marks]** A 23-year-old male from Orissa presents with high grade fever, chills and sweating of 7 days duration. A peripheral blood smear shows ring forms in the RBCs. (a) What is the diagnosis and what are the likely pathogens? (b) Describe the pathogenesis of this disease (c) Describe the laboratory diagnosis in detail (d) Write a short note on prevention of this infection — *Jan 2023*
3. **Short note [5 marks]** Laboratory diagnosis of malaria — *May 2009 · Jan 2013 · Jun 2015 · Jun 2017 (S) · Aug 2020 (S) · Dec 2024 · May 2025 (S)* ***[7×]***
4. **Short essay [5 marks]** Lab diagnosis of toxoplasmosis — *Jun 2010 · Aug 2020 (S)* ***[2×]***
5. **Short note [5 marks]** Describe the clinical features and laboratory diagnosis of toxoplasmosis — *Jan 2019 · Mar 2022* ***[2×]***
6. **Short note [5 marks]** Visceral leishmaniasis: Lab diagnosis and treatment — *Jul 2023 (S) · Sep 2025 (S)* ***[2×]***
7. **Short note [5 marks]** Elaborate on the clinical features and laboratory diagnosis of Malaria — *Mar 2022*
8. **Short note [5 marks]** The clinical features and laboratory diagnosis of amoebiasis — *Jul 2022 (S)*
9. **Short note [5 marks]** Life cycle and laboratory diagnosis of falciparum Malaria — *Feb 2024*
10. **Short note [5 marks]** Trichomonas vaginalis: Clinical features, lab diagnosis and treatment — *Feb 2024*
11. **Short note [5 marks]** Amoebic liver abscess: Lab diagnosis and treatment — *Apr 2024 (S)*
12. **Short note [5 marks]** Primary amoebic meningoencephalitis — *May 2025 (S)*
13. **Short note [5 marks]** Giardiasis — *Aug 2025*
14. **Short note [5 marks]** Differentiate between Amoebic dysentery and bacillary dysentery — *Aug 2025*
15. **Short note [2 marks]** Complications of Falciparum malaria — *Jun 2011 · Apr 2024 (S) · Aug 2025 · Sep 2025 (S)* ***[4×]***
16. **Short note [2 marks]** Laboratory diagnosis of amoebic dysentery — *May 2009 · Jun 2015 · Jun 2019 (S)* ***[3×]***
17. **Short note [2 marks]** Amoebic liver abscess — *Jan 2023 · May 2025 (S) · Sep 2025 (S)* ***[3×]***
18. **Short note [2 marks]** Malignant tertian malaria — *Jan 2009 · Jan 2011* ***[2×]***
19. **Short note [2 marks]** Laboratory diagnosis of kala-azar — *Jan 2014 · Jun 2014* ***[2×]***
20. **Short note [2 marks]** Giardia lamblia — *Jan 2015 · Jan 2018* ***[2×]***
21. **Short note [2 marks]** Amoebic dysentery — *Jun 2016 · Aug 2021* ***[2×]***
22. **Short note [2 marks]** Leishmaniasis — *Jun 2019 (S) · Feb 2022 (S)* ***[2×]***
23. **Short note [2 marks]** Toxoplasmosis — *Jan 2009*
24. **Short note [2 marks]** Giardia intestinalis — *Jan 2010*
25. **Short note [2 marks]** Black water fever — *Jan 2012*
26. **Short note [2 marks]** Cryptosporidium parvum — *Jan 2012*
27. **Short note [2 marks]** Congenital toxoplasmosis — *Jun 2013*
28. **Short note [2 marks]** Laboratory diagnosis of falciparum malaria — *Jun 2016*

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29. **Short note [2 marks]** Laboratory diagnosis of intestinal amoebiasis — *Jan 2019*
30. **Short note [2 marks]** Describe two hemoflagellates — *Jan 2020*
31. **Short note [2 marks]** String test for parasitic diagnosis — *Aug 2020 (S)*
32. **Short note [2 marks]** Enumerate 4 parasites causing diarrhea among HIV patients — *Aug 2020 (S)*
33. **Short note [2 marks]** Acid fast protozoa — *Aug 2021*
34. **Short note [2 marks]** Toxoplasma gondii — *Nov 2021 (S)*
35. **Short note [2 marks]** String test (Entero-test) — *Feb 2022 (S)*
36. **Draw and label [1 mark]** Trophozoite of Giardia lamblia — *Jun 2012 (S) · Jan 2013 · Jan 2019* ***[3×]***
37. **Draw and label [1 mark]** Gametocyte of Plasmodium falciparum — *Jan 2010*
38. **Draw and label [1 mark]** Giardia cyst — *Nov 2021 (S)*
39. **Short answer [2 marks]** Trichomonas vaginalis — *Jun 2011 · Jun 2013 · Jun 2015 · Jun 2017 (S)* ***[4×]***
40. **Short answer** What is a merozoite? — *Jun 2011 · Jun 2014* ***[2×]***
41. **Short answer [5 marks]** Laboratory diagnosis of Vivax Malaria — *Nov 2021 (S)*
42. **Short answer [2 marks]** Free living amoebae — *Jun 2013*
43. **Short answer [2 marks]** What are the clinical features of visceral leishmaniasis? — *Mar 2022*
44. **Short answer [2 marks]** What is Post Kala azar Dermal Leishmaniasis? — *Mar 2022*
45. **Short answer [2 marks]** What are the clinical features of trichomoniasis? — *Jan 2023*
46. **Short answer [2 marks]** What are the clinical features of entamoeba histolytica infection? — *Feb 2024*
47. **Short answer [2 marks]** Etiology and clinical features of primary amoebic meningoencephalitis — *Feb 2024*
48. **Short answer [2 marks]** Laboratory diagnosis of Giardiasis — *Dec 2024*
49. **Short answer [1 mark]** Chagas disease — *Jan 2009*
50. **Short answer [1 mark]** What are LD bodies? — *Jan 2012*
51. **Short answer [1 mark]** What is sleeping sickness? — *Jun 2012 (S)*
52. **Short answer [1 mark]** What is tropical splenomegaly syndrome? — *Jun 2012 (S)*
53. **Short answer [1 mark]** Name two haemoflagellates and their vectors — *Jan 2013*
54. **Short answer** Naegleria — *Jun 2014*
55. **Short answer** Acanthamoeba — *Jan 2015*
56. **Short answer** Acid-fast sporozoa — *Jun 2016*

8.2 Helminths *(40 papers)*

1. **Case-based [10 marks]** A 45-year old male from Cherthala, Kerala, presented with swelling in both the lower limbs for the past five months. He gave history of episodes of acute inflammation of lymphatic vessels along with high temperatures, shaking chills, body aches and swollen lymph nodes. On examination the limbs exhibited non-pitting edema with hardening of the surrounding tissues. His hemogram showed eosinophilia. (a) What is the likely diagnosis? (b) Describe the various tests for laboratory diagnosis of this disease (c) List the preventive measures against this disease (d) Briefly describe the treatment — *Feb 2024*
2. **Short note [5 marks]** Larva migrans — *Jan 2010 · Jun 2011 · Jun 2012 (S) · Jun 2014 · Jan 2015 · Jun 2015 · Jan 2018 · Jun 2019 (S) · Dec 2024* ***[9×]***
3. **Short note [5 marks]** Write a short note on hydatid disease — *Jun 2016 · Jul 2022 (S) · May 2025 (S)* ***[3×]***
4. **Short note [5 marks]** Write a short note on the clinical features and laboratory diagnosis of neurocysticercosis — *Mar 2022*
5. **Short note [5 marks]** Describe the pathogenesis and laboratory diagnosis of lymphatic filariasis — *Jul 2022 (S)*
6. **Short note [5 marks]** Hydatid cyst of liver: Lab diagnosis and treatment — *Jul 2023 (S)*

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7. **Short note [5 marks]** Cysticercosis: etiology, clinical features and treatment — *Feb 2024*
8. **Short note [5 marks]** Filariasis: Lab diagnosis and treatment — *Apr 2024 (S)*
9. **Short note [5 marks]** Urinary schistosomiasis — *Dec 2024*
10. **Short note [2 marks]** Hydatid cyst — *Jun 2010 · Jan 2011 · Jun 2013 · Jan 2014 · Jun 2015 · Jun 2017 (S) · Jan 2018 · Jan 2020 · Aug 2021 · Nov 2021 (S)* ***[10×]***
11. **Short note [2 marks]** What is NIH swab? — *May 2009 · Jan 2013 · Jan 2018* ***[3×]***
12. **Short note [2 marks]** Loeffler's syndrome — *Jan 2011 · Jan 2019 · Jun 2019 (S)* ***[3×]***
13. **Short note [2 marks]** Microfilaria — *Jan 2009 · Jan 2015* ***[2×]***
14. **Short note [2 marks]** Loa loa — *Jan 2009 · Aug 2021* ***[2×]***
15. **Short note [2 marks]** What is tropical eosinophilia? — *Jan 2014 · Jun 2019 (S)* ***[2×]***
16. **Short note [2 marks]** Occult filariasis — *Jun 2014 · Aug 2020 (S)* ***[2×]***
17. **Short note [2 marks]** Give two examples of soil transmitted nematodes and their mode of spread — *Jan 2020 · Feb 2022 (S)* ***[2×]***
18. **Short note [2 marks]** Neurocysticercosis — *May 2025 (S) · Sep 2025 (S)* ***[2×]***
19. **Short note [2 marks]** Common nematode eggs found in human stool — *Jun 2010*
20. **Short note [2 marks]** Taenia saginata — *Jun 2012 (S)*
21. **Short note [2 marks]** Enterobius vermicularis — *Jun 2013*
22. **Short note [2 marks]** Microfilariae — *Jan 2014*
23. **Short note [2 marks]** Laboratory diagnosis of filariasis — *Jun 2016*
24. **Short note [2 marks]** Bile stained helminthic ova — *Jan 2019*
25. **Short note [2 marks]** Enumerate stool concentration techniques — *Aug 2020 (S)*
26. **Short note [2 marks]** Filariasis — *Nov 2021 (S)*
27. **Short note** Subcutaneous filariasis — *Jan 2013*
28. **Draw and label [1 mark]** Microfilaria bancrofti — *May 2009 · Jan 2011 · Jun 2013 · Jun 2015* ***[4×]***
29. **Draw and label [1 mark]** Microfilaria of Brugia malayi — *Jan 2012*
30. **Draw and label [1 mark]** Whip worm ova — *Jan 2015*
31. **Draw and label [1 mark]** Schistosoma haematobium egg — *Jan 2018*
32. **Draw and label [1 mark]** Fertilised egg of Ascaris lumbricoides — *Jun 2019 (S)*
33. **Draw and label [1 mark]** Ascaris lumbricoides ova — *Aug 2021*
34. **Short answer** What is Cysticercus cellulosae? — *May 2009 · Jan 2012 · Jan 2014* ***[3×]***
35. **Short answer [2 marks]** What is cysticercosis? — *Jan 2010 · Jul 2022 (S)* ***[2×]***
36. **Short answer [2 marks]** Name 4 cestodes that cause infection in humans — *Mar 2022*
37. **Short answer [2 marks]** What is cutaneous larva migrans? — *Jan 2023*
38. **Short answer [2 marks]** What are the clinical features of hook worm infection? — *Jul 2023 (S)*
39. **Short answer [2 marks]** Name 2 agents of cutaneous larva migrans — *Jul 2023 (S)*
40. **Short answer [2 marks]** Tropical pulmonary eosinophilia — *Jul 2023 (S)*
41. **Short answer [2 marks]** Name four intestinal nematodes — *Feb 2024*
42. **Short answer [2 marks]** Lung fluke — *Feb 2024*
43. **Short answer [2 marks]** Name four intestinal helminthic infections — *Apr 2024 (S)*
44. **Short answer [2 marks]** Mass drug administration for lymphatic filariasis elimination — *Apr 2024 (S)*
45. **Short answer [2 marks]** Clinical features of lymphatic filariasis — *Dec 2024*

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46. **Short answer [1 mark]** Diagnosis of pin worm infection — *Jan 2009*
47. **Short answer [1 mark]** Paragonimus westermani — *Jan 2009*
48. **Short answer [1 mark]** Name two tissue nematodes — *Jan 2010*
49. **Short answer [1 mark]** Give two examples of tissue nematodes and their mode of spread — *Jun 2010*
50. **Short answer [1 mark]** Enumerate four helminths which produce autoinfection — *Jan 2011*
51. **Short answer [1 mark]** Name four viviparous nematodes — *Jan 2012*
52. **Short answer [1 mark]** What is a miracidium? — *Jun 2012 (S)*
53. **Short answer [1 mark]** Filariform larvae — *Jan 2015*
54. **Short answer [1 mark]** What is Autoinfection? — *Jan 2015*
55. **Short answer** Cercariae — *Jun 2016*

8.3 General parasitology and lab diagnosis *(18 papers)*

1. **Short note [5 marks]** Name 4 zoonotic infections. Write a short note on any one — *Mar 2022*
2. **Short note [2 marks]** Define zoonotic diseases? Give three examples? — *Jun 2019 (S)*
3. **Short note** Name four modes of infection — *Jun 2015*
4. **Short answer** Define definitive host — *Jan 2012 · Jun 2014* ***[2×]***
5. **Short answer [2 marks]** Name 4 parasites that cause opportunistic infections — *Jan 2023*
6. **Short answer [2 marks]** Name four parasites infecting the liver — *Jul 2023 (S)*
7. **Short answer [2 marks]** Name 4 parasitic infections of the brain — *Jul 2023 (S)*
8. **Short answer [2 marks]** Name 4 etiological agents of zoonotic infections — *Apr 2024 (S)*
9. **Short answer [2 marks]** Enumerate 4 bacteria causing zoonotic disease — *Aug 2025*
10. **Short answer [1 mark]** What is zoonosis? Give examples — *Jan 2010*
11. **Short answer [1 mark]** Name two parasites causing anaemia — *Jan 2010*
12. **Short answer [1 mark]** Definitive host — *Jun 2010*
13. **Short answer [1 mark]** Name two bacterial zoonoses and their causative agents — *Jan 2012*
14. **Short answer [1 mark]** Name four modes of transmission of parasites with one example each — *Jun 2012 (S)*
15. **Short answer [1 mark]** What is an intermediate host? Give two examples — *Jun 2014*
16. **Short answer [1 mark]** List 4 parasites which infect via the oral route — *Jun 2015*
17. **Short answer** Name four zoonotic bacterial infections — *Jan 2015*
18. **Short answer** Cyclops as intermediate host — *Jan 2015*

8.4 MCQs from recent papers (2022–2025) *(34 MCQs)*

1. Babesiosis is transmitted by — *Mar 2022 · May 2025 (S)* ***[2×]***

   (a) Mosquito (b) Sandfly (c) Tick (d) T tsetse fly

2. Which of the following tapeworm infections causes megaloblastic anemia? — *Mar 2022*

   (a) Dog tapeworm (b) Pork tapeworm (c) Beef tapeworm (d) Fish tapeworm

3. Which of the following eggs is not bile-stained? — *Mar 2022*

   (a) Ascaris egg (b) Taenia solium egg
   (c) Trichuris trichiura egg (d) Hookworm egg

4. Definitive host for echinococcosis is — *Mar 2022*

   (a) Man (b) Sheep (c) Dog (d) Pig

5. Which of the following is a blood fluke? — *Mar 2022*

   (a) Paragonimus westermani (b) Fasciola hepatica (c) Schistosoma japonicum (d) Clonorchis sinensis

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6. Cysticercus cellulosae is the larval form of — *Mar 2022*

(a) Taenia solium (b) Taenia saginata
(c) Echinococcus granulosus (d) Hymenolepis nana

7. Which of the following is a somatic nematode? — *Mar 2022*

(a) Lola loa (b) Dracunculus medinensis (c) Wuchereria bancrofti (d) All of these

8. Man is the intermediate host in which of the following infections? — *Jul 2022 (S)*

(a) Malaria (b) Filariasis (c) Intestinal taeniasis (d) Schistosomiasis

9. Trypanosoma cruzi is transmitted by — *Jul 2022 (S)*

(a) Sandfly (b) Tick (c) Reduviid bug (d) Tsetse fly

10. Ascariasis is transmitted by — *Jul 2022 (S)*

(a) Penetration of skin by L3 larva (b) Ingestion of egg
(c) Consumption of undercooked meat (d) All of these

11. Primary amoebic meningoencephalitis is caused by — *Jul 2022 (S)*

(a) Acanthamoeba castellanii (b) Balamuthia mandrillaris
(c) Naegleria fowleri (d) Entamoeba histolytica

12. Urinary schistosomiasis is caused by — *Jul 2022 (S)*

(a) Schistosoma mansoni (b) Schistosoma haematobium
(c) Schistosoma japonicum (d) Schistosoma intercalatum

13. Penetration through skin is not the mode of infection in — *Jan 2023*

(a) Trichuris trichiura (b) Strongyloides stercoralis
(c) Schistosoma haematobium (d) Ancylostoma duodenale

14. Hard tick acts as a vector for the transmission of — *Jan 2023 · Aug 2025* ***[2×]***

(a) Leishmaniasis (b) Sleeping sickness (c) Babesiosis (d) Filariasis

15. River blindness is caused by — *Jan 2023*

(a) Loa loa (b) Dirofilaria repens (c) Onchocerca volvulus (d) Brugia timori

16. Cerebral malaria is caused by: — *Jul 2023 (S)*

(a) Plasmodium falciparum (b) Plasmodium ovale (c) Plasmodium vivax (d) Plasmodium malariae

17. Which type of malaria is associated with nephrotic syndrome and renal failure? — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***

(a) P.falciparum (b) P.vivax (c) P.malariae (d) P.ovale

18. Novy, Mc Neal and Nicolle(NNN)medium is used to culture — *Feb 2024*

(a) Plasmodium (b) Leishmania (c) Giardia (d) Entamoeba

19. Puncture, aspiration, injection and reaspiration(PAIR) is used to treat — *Feb 2024*

(a) Amoebic liver abscess (b) Cysticercosis (c) Schistosomiasis (d) Hydatid disease

20. Zoonotic diseases are all except: — *Feb 2024*

(a) Typhoid (b) Anthrax (c) Rabies (d) Q fever

21. In Japanese Encephalitis, pigs acts as: — *Feb 2024*

(a) Intermediate host (b) Definitive host (c) Amplifier host (d) Reservoir host

22. Tropical pulmonary eosinophilia is caused by? — *Apr 2024 (S)*

(a) Echinococcus granulosus (b) Ascaris lumbricoides
(c) Wuchereria bancrofti (d) Paragonimus westermani

23. Vector for Leishmaniasis: — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***

(a) Anopheles mosquito (b) Reduviid bugs (c) Tsetse Fly (d) Sand fly

24. Definite host of Echinococcus granulosus — *Dec 2024*

(a) Man (b) Dog (c) Swine (d) Mosquito

25. Crescent shaped gametocytes are seen in infection with — *Dec 2024*

(a) Plasmodium Malariae (b) Plasmodium Falciparum (c) Plasmodium Vivax (d) Plasmodium Ovale

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26. Following are zoonotic diseases except: *— Dec 2024*

(a) Brucellosis (b) Leptospirosis (c) Herpes simplex (d) Toxoplasmosis

27. Causative agent of river blindness *— Dec 2024*

(a) Onchocerca volvulus (b) Mansonella (c) Loa loa (d) Dirofilariasis

28. Dracunculus is *— Dec 2024*

(a) Tape worm (b) Whip worm (c) Guinea worm (d) Cyclops

29. Calabar swelling is seen in infection with *— Dec 2024*

(a) Onchocerca volvulus (b) Loa loa (c) Wuchereria bancrofti (d) Kala azar

30. In which of the following infections is man the intermediate host? *— May 2025 (S) · Sep 2025 (S)* ***[2×]***

(a) Malaria (b) Toxoplasmosis (c) Hydatid disease (d) All of these

31. Which of the following trophozoites is detected by string test or entero test? *— May 2025 (S) · Sep 2025 (S)* ***[2×]***

(a) Entamoeba histolytica (b) Giardia lamblia (c) Balantidium coli (d) All of these

32. Which of the following trematode is transmitted by skin penetration? *— Aug 2025*

(a) Fasciola hepatica (b) Clonorchis sinensis
(c) Paragonimus westermani (d) Schistosoma haematobium

33. Definitive host for Toxoplasma is *— Aug 2025*

(a) Man (b) Dog (c) Cat (d) Rat

34. Calabar swelling is caused by *— Aug 2025*

(a) Wuchereria bancrofti (b) Brugia malayi (c) Loa loa (d) Dracunculus medinensis

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9. Applied and Clinical Microbiology *(86 questions)*

> **★ Most-asked topics in this chapter**
>
> - Infective syndromes and specimen collection — ***asked in 42 papers***
> - Hospital infection control, biomedical waste and safety — ***asked in 16 papers***
> - AETCOM, ethics and communication — ***asked in 8 papers***

9.1 Infective syndromes and specimen collection *(42 papers)*

1. **Case-based [10 marks]** A 22-year-old woman has a two-day history of increased frequency of micturition, dysuria and slight haematuria. She also complains of suprapubic pain. (a) What is your provisional diagnosis? (b) What are the possible complications of this infection? (c) Name the pathogens that most frequently cause this infection (d) What are the investigations required and how will you interpret the culture results? (e) What are the commonly prescribed oral antibiotics to treat this infection? — *May 2009*
2. **Case-based [10 marks]** A young woman comes to the emergency room with complaints of burning on urination along with frequency and urgency. (a) What is the likely diagnosis? How will you classify these infections? (b) What are the possible complications? (c) Name the pathogens which most frequently cause this infection (d) What are the methods of specimen collection for bacteriological culture in such infections? (e) How will you interpret the culture results? — *Jun 2013*
3. **Case-based [10 marks]** A 22 year old women has a two day history of increased frequency of urination, dysuria and slight haematuria, She also complains of suprapubic pain. (a) What is the likely diagnosis and why? (b) What are the possible complications of this infection (c) Which are the pathogens that frequently cause this infection? (d) What are the investigations required and how will you interpret the culture results? (e) What are the commonly prescribed oral antibiotics to treat this infection? — *Jun 2015*
4. **Case-based [10 marks]** A 50-year-old female came to medicine OP with complains of increased frequency and pain during passing urine, fever and chills for last 3 days. On examination suprapubic tenderness was present. Urine microscopy shows numerous pus cells. (a) What is your diagnosis? Name four bacteria that commonly cause this infection (b) Describe the laboratory investigations that are done to confirm the diagnosis (c) Name the predisposing and precipitating factors for this condition (d) What are the oral antibiotics used for treating this infection? — *Nov 2021 (S)*
5. **Case-based [10 marks]** A 13 year old girl complains of fever, burning micturition, dysuria and increase in frequency for the past three days, Urine routine examination showed plenty of pus cells and nitrate positivity. (a) What is the likely diagnosis? (b) Describe the pathogenesis of this disease (c) How is it diagnosed in the laboratory? Which is the most common etiological agent? (d) Describe in brief treatment and prevention of the condition — *Jul 2023 (S)*
6. **Case-based [10 marks]** A 10 year old girl is brought to casualty with Fever, burning micturition, frequency, urgency and haematuria. Urine Gram stain showed plenty of pus cells and Gram- negative bacteria. (a) What is your provisional diagnosis? (b) Describe the pathogenesis of this condition in this child (c) List the common etiological agent causing this condition (d) Describe in detail the laboratory diagnosis of this condition — *Sep 2025 (S)*
7. **Short note [5 marks]** Write a short note on viral gastroenteritis — *Jul 2022 (S) · Jan 2023* ***[2×]***
8. **Short note [5 marks]** Name 4 agents of bioterrorism. Write a short note on any one — *Jan 2023 · Aug 2025* ***[2×]***
9. **Short note [5 marks]** Write a short note on travellers diarrhoea — *Mar 2022*
10. **Short note [5 marks]** What is significant bacteriuria? Describe the specimen collection in cases of urinary tract infection and name 4 aetiological agents of UTI — *Jan 2023*
11. **Short note [5 marks]** Food poisoning: Etiology and lab diagnosis — *Feb 2024*
12. **Short note [5 marks]** Lab diagnosis of bacterial meningitis — *Feb 2024*
13. **Short note [5 marks]** Etiology, clinical features and laboratory diagnosis of acute infective endocarditis — *Apr 2024 (S)*
14. **Short note [5 marks]** Name 4 congenital infections. Write a short note on any one — *May 2025 (S)*
15. **Short note [5 marks]** Infective endocarditis — *Aug 2025*
16. **Short note [5 marks]** Clinical features and lab diagnosis of bacterial meningitis — *Sep 2025 (S)*
17. **Short note [2 marks]** Lab diagnosis of pyogenic meningitis — *Jan 2009 · Jan 2013 · Jun 2013* ***[3×]***

18. **Short note [2 marks]** Bacterial food poisoning — *Jan 2009*
19. **Short note [2 marks]** Urinary tract infections — *Jan 2010*
20. **Short note [2 marks]** Name four causes of food poisoning — *Sep 2025 (S)*
21. **Short note** List 4 bacterial causes of sexually transmitted diseases — *Jun 2015*
22. **Short answer [1 mark]** Significant bacteriuria — *Jan 2012 · Jan 2014 · Jan 2015 · Jun 2015 · Jan 2019 · May 2025 (S)* ***[6×]***
23. **Short answer [2 marks]** Name 4 transfusion transmitted infection — *Jul 2022 (S) · Jan 2023 · Aug 2025* ***[3×]***
24. **Short answer** What is pyrexia of unknown origin? — *May 2009 · Jan 2014* ***[2×]***
25. **Short answer [5 marks]** Pyogenic meningitis — *Jan 2018*
26. **Short answer [5 marks]** Food poisoning — *Jan 2018*
27. **Short answer [2 marks]** Name 4 causes of food poisoning — *Mar 2022*
28. **Short answer [2 marks]** What is infective endocarditis? How is it diagnosed in the laboratory? — *Mar 2022*
29. **Short answer [2 marks]** Name 4 agents of bioterrorism — *Mar 2022*
30. **Short answer [2 marks]** Write a short note on collection and transport of CSF in pyogenic meningitis — *Mar 2022*
31. **Short answer [2 marks]** Name 4 water-borne pathogens — *Mar 2022*
32. **Short answer [2 marks]** Name 4 causative agents of infective endocarditis — *Jul 2022 (S)*
33. **Short answer [2 marks]** Name 4 viral haemorrhagic fevers — *Jul 2022 (S)*
34. **Short answer [2 marks]** Define a pandemic. Give 2 examples — *Jan 2023*
35. **Short answer [2 marks]** Name 4 congenital infections — *Jan 2023*
36. **Short answer [2 marks]** Name 4 causative agents for viral hemorrhagic fever — *Jul 2023 (S)*
37. **Short answer [2 marks]** Name bacterial agents causing dysentery — *Jul 2023 (S)*
38. **Short answer [2 marks]** Name 4 etiological agents causing urinary tract infection — *Feb 2024*
39. **Short answer [2 marks]** Name 4 agents causing transfusion transmitted infections — *Feb 2024*
40. **Short answer [2 marks]** Name 4 causative agents for traveler's diarrhea — *Apr 2024 (S)*
41. **Short answer [2 marks]** Name 4 agents causing viral exanthems — *Apr 2024 (S)*
42. **Short answer [2 marks]** Name 4 infectious agents transmitted through aerosols — *Dec 2024*
43. **Short answer [2 marks]** Write two CSF cytological parameters that help to distinguish bacterial from viral meningitis — *Dec 2024*
44. **Short answer [2 marks]** List two important key features that biological agents used as biological weapons should possess — *Dec 2024*
45. **Short answer [2 marks]** Name 4 viral causes of gastroenteritis — *May 2025 (S)*
46. **Short answer [2 marks]** Name 4 etiological agents of dysentery — *Aug 2025*
47. **Short answer [2 marks]** Name 2 etiological agents causing viral haemorrhagic fever — *Aug 2025*
48. **Short answer [2 marks]** Write 4 examples of viral exanthematous fever — *Aug 2025*
49. **Short answer [2 marks]** Name 4 viruses that cause congenital infection — *Aug 2025*
50. **Short answer [2 marks]** What is significant bacteriuria? Name 4 bacteria that cause urinary tract infection — *Aug 2025*
51. **Short answer [2 marks]** List 4 congenital infections — *Sep 2025 (S)*
52. **Short answer [2 marks]** Name four agents of bioterrorism — *Sep 2025 (S)*
53. **Short answer [1 mark]** Name the bacteria causing pyogenic meningitis — *Jun 2011*
54. **Short answer [1 mark]** Name four sexually transmitted diseases caused by bacteria — *Jul 2012*
55. **Short answer [1 mark]** How do you collect sputum for bacterial culture? — *Jun 2013*
56. **Short answer [1 mark]** Name the agents causing bacterial pneumonia — *Jan 2014*

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57. **Short answer [1 mark]** Name 2 causative agents of neonatal meningitis — *Jan 2016*
58. **Short answer [1 mark]** Name 4 sexually transmitted bacterial diseases — *Jun 2016*
59. **Short answer** Name the various sexually transmitted diseases — *Jan 2014*
60. **Short answer** Name the agents causing urinary tract infections — *Jun 2014*
61. **Short answer** Name 4 bacteria causing UTI — *Jun 2016*
62. **Short answer** What are hypnozoites? — *Jun 2016*

9.2 Hospital infection control, biomedical waste and safety *(16 papers)*

1. **Structured essay [10 marks]** (a) Define hospital acquired infection (b) Describe in brief the different types of hospital acquired infection (c) List measures to prevent hospital acquired infection — *Feb 2024*
2. **Short note [5 marks]** Droplet precautions — *Jul 2022 (S) · May 2025 (S)* ***[2×]***
3. **Short note [5 marks]** Write a short note on biomedical waste segregation — *Mar 2022*
4. **Short note [5 marks]** Name two infections that are airborne. Write a short note on airborne precautions — *Jan 2023*
5. **Short note [5 marks]** Hospital Infection Control Committee — *Dec 2024*
6. **Short note [2 marks]** What is nosocomial infection? — *Jan 2014 · Jan 2020 · Feb 2022 (S)* ***[3×]***
7. **Short note [2 marks]** List four types of Hospital associated infections — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***
8. **Short note [2 marks]** Hospital infection — *May 2009*
9. **Short note [2 marks]** Prevention of Hospital Acquired Infection — *Jun 2013*
10. **Short note [2 marks]** Four methods of prevention of nosocomial infections — *Jan 2018*
11. **Short answer [2 marks]** List the components of Personal Protective Equipment(PPE) — *Mar 2022 · Sep 2025 (S)* ***[2×]***
12. **Short answer [2 marks]** Name 4 items of biomedical waste that are discarded into non-chlorinated yellow plastic bags — *Jan 2023 · Aug 2025* ***[2×]***
13. **Short answer [2 marks]** How are waste sharps discarded in the hospital? — *Jul 2022 (S)*
14. **Short answer [2 marks]** Enumerate four most common hospital acquired infections — *Dec 2024*
15. **Short answer [2 marks]** Name 2 infections that are airborne. What are the precautions to be taken for airborne infection? — *Aug 2025*
16. **Short answer [1 mark]** What are nosocomial infections? — *Jan 2013*

9.3 AETCOM, ethics and communication *(8 papers)*

1. **Short note [2 marks]** Role of confidentiality in patient care — *Apr 2024 (S) · Sep 2025 (S)* ***[2×]***
2. **Short answer [2 marks]** What is non-maleficence? Give an example — *May 2025 (S) · Sep 2025 (S)* ***[2×]***
3. **Short answer [2 marks]** Write a short note on the right to health — *Jul 2022 (S)*
4. **Short answer [2 marks]** Role of informed consent in patient care — *Jul 2023 (S)*
5. **Short answer [2 marks]** Describe the role of non-maleficence as a principle in patient care — *Feb 2024*
6. **Short answer [2 marks]** Discuss the role of patient autonomy in healthcare — *Apr 2024 (S)*
7. **Short answer [2 marks]** Discuss the role of justice as a guiding principle in patient care — *Dec 2024*
8. **Short answer [2 marks]** What is patient autonomy? — *Aug 2025*

9.4 MCQs from recent papers (2022–2025) *(16 MCQs)*

1. What transmission-based precautions must be taken while dealing with MRSA? — *Mar 2022 · Sep 2025 (S)* ***[2×]***

   (a) Contact (b) Droplet (c) Airborne (d) None of these

2. Which of these is seen in bacterial vaginosis? — *Mar 2022*

   (a) Clue cells (b) Elementary bodies (c) Miyagawa corpuscles (d) Donovan bodies

3. Multiple tube method is used for surveillance of — *Jul 2022 (S)*

(a) Milk (b) Water (c) Antibiotics (d) Food

4. Botulinum toxin belongs to which category of bioterrorism agents — *Jul 2022 (S)*

(a) Category A (b) Category B (c) Category C (d) Category D

5. All the following are true about nosocomial infections except: — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***

(a) May manifest within 48 hours of admission
(b) May develop after discharge of patient from the hospital
(c) Denote a new condition which is unrelated to the patient's primary conditions
(d) May already present at the time of admission

6. Which of the following is disposed in red bag? — *Jul 2023 (S) · Apr 2024 (S)* ***[2×]***

(a) Plastic waste (b) Cytotoxic waste
(c) Sharps (d) Radioactive waste generate from lab

7. Which of the following has an incubation period of 2-6 hours? — *Feb 2024*

(a) Cholera (b) Rotaviral diarrhea
(c) Staphylococcal food poisoning (d) Amoebiasis

8. Clue cell is seen in: — *Feb 2024*

(a) Trichomonas vaginalis (b) Bacterial vaginosis (c) Candidiasis (d) Herpes

9. A 16 year old male patient presents with headache, fever and neck stiffness for the past 24 hours. CSF analysis shows WBC count-400/ml, with 90% neutrophils. Gram staining shows gram negative intracellular diplococci. What could be the most probable organism: — *Feb 2024*

(a) Streptococcus pneumoniae (b) H influenza
(c) N.meningitidis (d) N.gonorrhoeae

10. In a splenectomised patient there is increase of infection by: — *Apr 2024 (S)*

(a) S.pneumoniae (b) Enterococcus spp (c) Proteus spp (d) Salmonella Typhi

11. PPE used to prevent droplet infection — *Dec 2024*

(a) N95 mask (b) Triple layer mask (c) Gown (d) Head cap

12. Following are examples of diseases transmitted transplacentally except: — *Dec 2024*

(a) Toxoplasmosis (b) Rubella
(c) Herpes simplex (d) Group B streptococcal infection

13. Infectious non plastic waste is segregated in — *Dec 2024*

(a) Red bag (b) Yellow bag (c) Blue bag (d) Black bag

14. Which of the following is not a fundamental principle of bioethics — *May 2025 (S) · Sep 2025 (S)* ***[2×]***

(a) Autonomy (b) Paternalism (c) Beneficence (d) Non-maleficence

15. All of the following are class A agents of bioterrorism except: — *May 2025 (S)*

(a) Smallpox (b) Botulinum toxin (c) Brucella melitensis (d) Yersinia pestis

16. Bacteria transmitted by droplet route include all except: — *Aug 2025*

(a) Meningococci (b) Mycobacterium tuberculosis
(c) Pneumococci (d) Corynebacterium diphtheriae

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Vibrio, Pseudomonas and other Gram-negative bacilli **23–27**

W

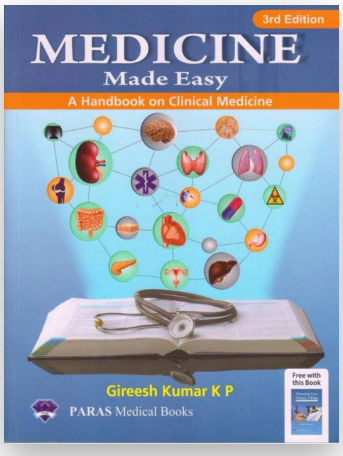
Widal **13, 15–16, 25**

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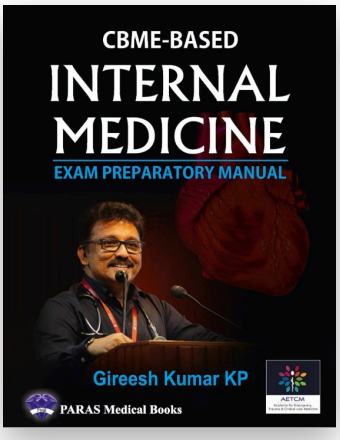
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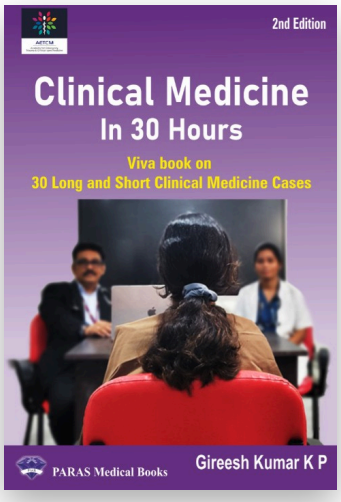
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