

# The West Bengal University of Health Sciences

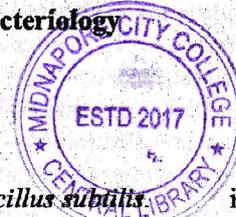
## 1st BMLT April, 2022 Examination

Subject: General and Systemic Bacteriology

Time: 3 hrs

Full Marks: 100

Attempt all questions



20 x 1

1. Answer the following questions :

- a) All of the following are spore forming bacteria except :  
 i) *Clostridium tetani*.      ii) *Bacillus anthracis*.      iii) *Bacillus subtilis*.      iv) *Proteus sp.*
- b) Which of the following organism retained in the fluids filtered by seitzfilter?  
 i) *Proteus sp.*      ii) *Streptococcus sp.*      iii) *Clostridium sp.*      iv) None of the above.
- c) In Tyndallisation involves :  
 i) An exposure of 100° C for 10 min for 3 consecutive days.  
 ii) An exposure of 100° C for 20 min for 3 consecutive days.  
 iii) An exposure of 200° C for 10 min for 3 consecutive days.  
 iv) An exposure of 200° C for 20 min 3 consecutive days.
- d) Indole test is positive in all except :  
 i) *Escherichia coli*.      ii) *Proteus mirabilis*.      iii) *Proteus vulgaris*.      iv) *Citrobacter koseri*.
- e) Lowenstein Jensen media is :  
 i) Selective differential media.      ii) Selective transport media.  
 iii) Enrichment media.      iv) Transport media.
- f) All are example of transport media except :  
 i) Stuart media.      ii) Amies media.      iii) Dorset egg media.      iv) Cary Blair media.
- g) *Bacillus pumilus* is a biological indicator of the following method of sterilization :  
 i) Hot air oven.      ii) Filtration.      iii) Ionizing radiation.      iv) Autoclavt.
- h) Epidemic typhus is caused by :  
 i) *Rickettsia prowazekii*.      ii) *Rickettsia typhi*.      iii) *Rickettsia akari*.      iv) *Rickettsia rickettsia*.
- i) Mechanism of transfer of portion of DNA from one bacterium to another by bacteriophages is known as :  
 i) Transformation.      ii) Mutation.      iii) Transduction.      iv) Lysogenic Conversion.
- j) Selective media for *Vibrio cholerae* :  
 i) TCBS.      ii) Lowenstein jensen media.      iii) Dorset egg media.      iv) Cary Blair media.
- k) Traveller's diarrhea is caused by :  
 i) ETEC.      ii) EPEC.      iii) EHEC.      iv) EIEC.
- l) Non motile *Clostridium* is :  
 i) *Clostridium perfringens*.      ii) *Clostridium botulinum*.  
 iii) *Clostridium bifermentans*.      iv) *Clostridium difficile*.
- m) On gelatine stab culture **inverted fir tree** appearance is characteristic of :  
 i) *Escherichia coli*.      ii) *Staphylococcus aureus*.  
 iii) *Pseudomonas aeruginosa*.      iv) *Bacillus anthracis*.
- n) Darting type of motility seen in :  
 i) *Escherichia coli*.      ii) *Proteus mirabilis*.      iii) *Vibrio cholera*.      iv) *Pseudomonas sp.*
- o) CSF in meningococcal meningitis shows :  
 i) Gram positive diplococci in pus cell.      ii) Gram positive bacilli.  
 iii) Gram negative diplococci in pus cell.      iv) Gram negative bacilli.
- p) Tellurite blood Agar is a selective media for :  
 i) *Neisseria sp.*      ii) *Pseudomonas sp.*  
 iii) *Vibrio cholerae*.      iv) *Corynebacterium diphtheriae*.
- q) All are true about *clostridium tetani* except :  
 i) An obligate anaerobe.      ii) It has proteolytic activity & no saccharolytic active.  
 iii) Tennis racket appearance.      iv) Produce two toxin tetanospasmin and tetanolysin.
- r) All are true about *streptococcus pneumoniae* except :  
 i) Flame shaped cocci.      ii) Arranged in chain.      iii) Bile soluble.      iv) Optochin sensitive.
- s) Oxidase test positive in :  
 i) *Neisseria sp.*      ii) *Pseudomonas sp.*      iii) *Vibrio cholerae*.      iv) All of the above.

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- t) Which is the characteristics of *Escherichia coli*?  
 i) Urease test positive. ii) Methyl red positive.  
 iii) Voges-Proskauer reaction positive. iv) Citrate positive.

2. Answer the following questions :

5 x 2

- a) Write down the sterilization method of following object :  
 i) Culture media. ii) Glassware. iii) Inoculating wires. iv) Cover slip.  
 b) Write down four properties of *Enterococcus*.  
 c) Write down the definition of – Sterilization.  
 d) Write down the composition and use of the following media:  
 i) Blood agar. ii) MacConkey agar.  
 e) Write four characteristic of *Enterobacteriaceae*.



3. Answer *any six* question :

6 x 5

- a) Gram stain. b) Fimbriae.  
 c) Moist heat sterilization. d) Conjugation.  
 e) Viridans group of *Streptococcus*. f) Coagulase Test.  
 g) Weil – Felix reaction. h) CAMP Test and reverse CAMP test.

4. Answer *any one* question :

- a) Describe the clinical manifestation and laboratory diagnosis of syphilis.

4+6

- b) 8 yrs old child was admitted to hospital with high grade fever ( $>103^{\circ}\text{C}$ ), headache, Stiff neck, vomiting lethargy and altered sensorium for 4 days. Gram stain showed Gram positive lanceolate diplococci. On blood agar media the organism gave alpha haemolysis and on prolonged incubation the colony gave the typical carrom coin appearance.

- i) Which is most likely causative organism?  
 ii) What are the other diseases caused by the bacteria?  
 iii) How will you proceed for the laboratory diagnosis?

1+2+7

5. Answer *any two* questions :

- a) A 15 years old boy came to hospital with facial spasm. He has been unable to eat for last 2 days due to severe pain in his jaw. On examination revealed trismus. The boy gave history of having minor knee injury with abrasion 5 days earlier while playing. His parents not remember my history of immunization earlier or after then injury.

- i) What is your provisional diagnosis?  
 ii) Which is most likely causation organism?  
 iii) Describe the pathogenesis of the disease.  
 iv) Discuss the laboratory diagnosis of the disease.  
 v) Write down the prophylaxis measure of this disease.

1+1+4+6+3

- b) 36 yrs old adult was suffering from fever headache and abdominal pain for last-10 days. Important examination findings are coated tongue, bradycardia and soft palpable spleen.

- i) What is your provisional diagnosis of this condition?  
 ii) Name the causative agents responsible for the disease.  
 iii) Write down the pathogenesis of the disease.  
 iv) Write down the laboratory diagnosis the disease.

1+2+5+7

- c) A 24-year-old female was admitted with fever, dysuria and increased frequency of micturition from last 3 days. Urine microscopy revealed pyuria.

- i) What is the clinical diagnosis of this condition?  
 ii) What are the bacterial agents responsible for this condition?  
 iii) What are the various methods to collect the specimen?  
 iv) Describe the laboratory diagnosis of this condition in detail.

1+3+4+7

**The West Bengal University of Health Sciences**  
**1<sup>st</sup> BMLT April 2022 Practical Examination**  
**Sub General and Systemic Bacteriology**  
**Paper: 102**

**Full Marks: 100**

**Time: 6 h**

1. Determine the Gram staining characteristics of the supplied bacterial sample (A/B). 20  
(Principle: 4; Procedure: 4; Work-5; Drawing- 2; Result and comment- 5)
2. Perform the indole test and make a report of sample (C/D). 20  
(Principle: 5; Procedure: 5; Work-5; Result and comment- 5)
3. Perform the streaking of a supplied bacterium on Nutrient agar plate. 10  
(Procedure: 5; Work-5)
4. Write notes on Laminar air flow and Hot air oven. 10+5
5. Practical note book. 5
6. Viva voce / Oral. 30

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