

COMMON P. G. ENTRANCE TEST – 2020

Test Booklet No. :

DEPT. OF HIGHER EDUCATION, GOVT. OF ODISHA

TEST BOOKLET

Subject Code **34**

Subject **MICROBIOLOGY**

Time Allowed : 90 Minutes

Full Marks : 70

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. You have to enter your **Hall Ticket No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
3. **YOU ARE REQUIRED TO FILL UP & DARKEN HALL TICKET NO. & TEST BOOKLET NO. IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET SERIAL NO. & ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
4. **This Test Booklet contains 70 items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose ONLY ONE response (answer) for each item (question).**
5. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided by using **BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
6. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. **There is no negative marking.**
7. **After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the Answer Sheet issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the Test Booklet, after completion of the examination, for your reference.**
8. Sheets for rough work are appended in the Test Booklet at the end.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

1. Name the scientist, who proposed the Domain concept in Biology ?
 - (A) Robert Koch
 - (B) Louis Pasteur
 - (C) Carl Woese
 - (D) R. H. Whittaker

2. One of the following Genus belongs to Archaeobacteria :
 - (A) *Acidithiobacillus*
 - (B) *Lactobacillus*
 - (C) *Clostridium*
 - (D) *Halobacterium*

3. During the Gram staining of bacteria, iodine is used as :
 - (A) Primary stain
 - (B) Mordant
 - (C) Secondary stain
 - (D) Decolourising agent

4. In a microfungal cell, the ribosomes are of :
 - (A) 80 S type
 - (B) 70 S type
 - (C) 60 S type
 - (D) 50 S type

5. Germ theory of Disease was proposed by :
 - (A) Robert Koch
 - (B) Martin Alexander
 - (C) Fransesco Redi
 - (D) Edward Jenner

6. How many endospores are produced per a single bacterial cell during endospore formation ?
- (A) 2 (B) 4
(C) 1 (D) Many
7. A bacterium having a tuft of flagella at one end of the cell exhibits :
- (A) Lophotrichous flagellation
(B) Amphitrichous flagellation
(C) Peritrichous flagellation
(D) Monotrichous flagellation
8. Antibiotics synthesized by microbial cells, are the example of :
- (A) Intermediary metabolites
(B) Primary metabolites
(C) Secondary metabolites
(D) Tertiary metabolites
9. When a plasmid in a bacterial cell gets itself integrated into bacterial chromosome, it is called :
- (A) Perisome (B) Episome
(C) Mesosome (D) Diplosome
10. The device, that is used for the continuous culture of microorganisms is called :
- (A) Flow cytometer
(B) Laminar flow
(C) Cryostat
(D) Chemostat
11. In a solid agar microbial culture medium , agar acts as the :
- (A) Source of Carbon
(B) Source of Nitrogen
(C) Source of growth factor
(D) Solidifying agent

12. The end product of the biological nitrification is :
- (A) Ammonia
 - (B) Nitrite
 - (C) Nitrate
 - (D) Dinitrogen
13. *Chlorobium* sp. is a :
- (A) Purple sulphur bacterium
 - (B) Purple non sulphur bacterium
 - (C) Green sulphur bacterium
 - (D) Green non sulphur bacterium
14. One of the following is not a nitrogen fixing microorganism :
- (A) *Rhizobium*
 - (B) *Rhizopus*
 - (C) *Frankia*
 - (D) *Anabaena*
15. The type of bacteria found in a saltern is :
- (A) Osmophiles
 - (B) Psychrophiles
 - (C) Thermophiles
 - (D) Halophiles
16. A bacterium having a generation time of 5 minutes, is introduced into an appropriate culture medium to enter into log phase. What will be its number after 30 minutes ?
- (A) 32
 - (B) 256
 - (C) 64
 - (D) 128
17. One of the following is the characteristic feature of photosynthetic green and purple bacteria :
- (A) Absence of Photosystem II
 - (B) Absence of Photosystem I
 - (C) Presence of Photosystem II
 - (D) Absence of both Photosystem I and II

18. Which of the following steps during electron transfer in anoxygenic photosynthesis is the ATP production step ?
- (A) Ferredoxin to Ubiquinone
 - (B) Ubiquinone to Cytochrome b
 - (C) Cytochrome b to Cytochrome f
 - (D) Cytochrome f to excited bacteriochlorophyll
19. Which of the following structure is found in a bacterial cell ?
- (A) Mitochondria
 - (B) Golgi body
 - (C) Chloroplast
 - (D) Mesosome
20. Microbes which uses inorganic elements as reductant, are :
- (A) Prototrophs
 - (B) Auxotrophs
 - (C) Lithotrophs
 - (D) Autotrophs
21. Which pathway of glucose dissimilation do yeasts carry out during alcohol fermentation ?
- (A) ED pathway
 - (B) EMP pathway
 - (C) Pentose phosphate pathway
 - (D) All of the above.
22. Name the electron acceptor during nitrate respiration :
- (A) Oxygen
 - (B) Nitrite
 - (C) Nitrate
 - (D) Hydroxylamine

23. Which one of the following diseases is caused by a virus ?

- (A) Tetanus
- (B) Meningitis
- (C) Measles
- (D) Dermatitis

24. One of the following is usually the skin inhabitant :

- (A) *Escherichia coli*
- (B) *Lactobacillus lactis*
- (C) *Pseudomonas aeruginosa*
- (D) *Staphylococcus aureus*

25. The bacterial species involved in Yoghurt preparation :

- (A) *Lactobacillus bulgaricus*
- (B) *Streptococcus thermophilus*
- (C) *Streptococcus cremoris*
- (D) Mixed culture of (A) and (B)

26. Which of the following can be used as biofertilizer ?

- (A) *Nostoc*
- (B) *Anabaena*
- (C) Both (A) and (B)
- (D) *Clostridium*

27. Tyndallisation refers to :

- (A) Heating with incubation
- (B) Heating with longer duration
- (C) Prolonged heating at low temperature
- (D) Steaming with pressure

28. The process by which all microbes are either destroyed or removed from an object, is called :
- (A) Sanitization
 - (B) Disinfection
 - (C) Sterilisation
 - (D) Antisepsis
29. During lactic acid fermentation by Lactic acid bacteria, one of the following acts as the oxidant :
- (A) Lactic acid
 - (B) Acetaldehyde
 - (C) Pyruvic acid
 - (D) Oxygen
30. Bacteria present in hydrothermal vents under the sea are :
- (A) Hyperthermophiles
 - (B) Hyper barophiles
 - (C) Hydrophiles
 - (D) Psychrophiles
31. C, N, P, S, K, Mg, Ca and Na _____ which of these is a micronutrient for micro-organisms ?
- (A) Na
 - (B) P
 - (C) Mg
 - (D) None of these
32. In a microbial culture, when all the growing cells are in same stage of division, the culture is called :
- (A) Batch culture
 - (B) Synchronous culture
 - (C) Asynchronous culture
 - (D) Pure culture

33. Phenol, Detol and Chloramines _____ which one is the disinfectant ?
- (A) Phenol
 - (B) Detol
 - (C) Chloramines
 - (D) None of the above
34. One of the following is not an antibiotic :
- (A) Tetracycline
 - (B) Amoxycillin
 - (C) Bacitracin
 - (D) Sulfadiazine
35. Pasteurised milk samples are :
- (A) Sterile
 - (B) Pathogen free
 - (C) Fortified items
 - (D) None of the above
36. Aflatoxins are :
- (A) Phycotoxin
 - (B) Bacteriotoxin
 - (C) Mycotoxin
 - (D) Viral toxin
37. Sugar constituents of the bacterial wall peptidoglycan are :
- (A) Amino -acetylated glucose
 - (B) Acetylated glucose
 - (C) Acetylated fructose
 - (D) None of the above

38. Virus particle present outside the host cell is called :
- (A) Prophage (B) Virion
(C) Viroid (D) Virusoid
39. The viral genome, when remains integrated with the host bacterial genome, is called :
- (A) Prophage (B) Lytic phage
(C) Progenote (D) Metaphage
40. One of the following genetic exchange in bacteria, involves physical contact between bacterial pair :
- (A) Transformation
(B) Transduction
(C) Co-Transformation
(D) Conjugation
41. As per Bergey's manual of systematic Bacteriology the phylum Proteobacteria comprises of :
- (A) 5 classes (B) 4 classes
(C) 3 classes (D) 6 classes
42. Name the domain to which Cyanobacteria belong :
- (A) Archaea (B) Eukarya
(C) Eubacteria (D) None of the above
43. What is the function of an impeller in an Industrial Fermenter ?
- (A) Aeration
(B) Mixing the content
(C) Temperature control
(D) pH control
44. For the industrial fermentation of glutamic acid, which bacterial genus is employed :
- (A) *Corynebacterium*
(B) *Clostridium*
(C) *Propionibacterium*
(D) *Acetobacter*

45. What is the photosynthetic product of blue green algae ?
- (A) Normal starch
 - (B) Glycogen
 - (C) Cyanophycean starch remaining glycogen
 - (D) None of the above
46. Which is NOT true for the heterocyst of *Nostoc* ?
- (A) Intercalary position
 - (B) Site of Nitrogen fixation
 - (C) Presence of polar nodule
 - (D) CO₂ fixation ability
47. One of the following can be used for sterilizing microbial growth media :
- (A) Hot air oven
 - (B) Thermocycler
 - (C) Autoclave
 - (D) Centrifuge
48. The process of making beer is called :
- (A) Mashing
 - (B) Brewing
 - (C) Malting
 - (D) Sparging
49. One of the following is an acidophile :
- (A) *Thiobacillus ferroxidance*
 - (B) *Aspergillus niger*
 - (C) *Lactobacillus acidophilus*
 - (D) *Mycobacterium tuberculosis*
50. Nitrate respiring bacteria are :
- (A) Aerobes
 - (B) Anaerobes
 - (C) Microaerophilic
 - (D) None of the above
51. One of the following is not a prokaryote :
- (A) Methanogen
 - (B) Acetogen
 - (C) Enterobacteria
 - (D) *Candida*

52. Resolving power of a microscope is a function of :
- (A) Wavelength of light used
 - (B) Numerical aperture of lens system
 - (C) Refractive Index
 - (D) Both (A) and (B)
53. In which specific growth phase, the recipient bacterial cell develops competency to take up donor DNA during transformation ?
- (A) Lag phase
 - (B) Stationary phase
 - (C) Late exponential phase
 - (D) Early exponential phase
54. Name the enzyme that acts on the DNA after its entry into the recipient cell during bacterial transformation :
- (A) Ligase
 - (B) Endonuclease
 - (C) Deoxyribonuclease
 - (D) Exonuclease
55. A HFR bacterium conjugates with a 'F' plasmid containing bacterium. What will be type of bacterium after the conjugation is complete ?
- (A) F +
 - (B) F-
 - (C) F
 - (D) HFR
56. Yeast extract is usually employed in bacteriological culture medium , because it acts as the source of :
- (A) Vitamin and micronutrient
 - (B) Nitrogen
 - (C) Carbon
 - (D) Carbon and vitamin
57. Which of the following microbial product is used as bioplastic ?
- (A) Polystyrene
 - (B) Polypropylene
 - (C) Polyhydroxy butyrate
 - (D) Dextran

58. *Bacillus thuringiensis* is used as :
- (A) Insecticide (B) Fungicide
(C) Rodenticide (D) Micro biocide
59. Which of the following is rich source of protein ?
- (A) *Spirulina* (B) *Chlorella*
(C) *Scenedesmus* (D) All of the above
60. Retroviruses, like HIV which causes AIDS are :
- (A) RNA virus
(B) DNA virus
(C) Both RNA and DNA present
(D) No genetic materials
61. Which of the following is single stranded RNA virus ?
- (A) SARS coronavirus
(B) Rotavirus
(C) Hepatitis B Virus
(D) All of the above
62. Capsid of a virus constitutes :
- (A) Proteins embedded in lipid layer
(B) Protein and lipid
(C) Capsomeres
(D) Glycolipid
63. Which clinical sample is used to diagnose hepatitis B ?
- (A) Liver biopsy (B) Blood
(C) Faecal samples (D) Throat swab
64. Enveloped viruses matured and released by :
- (A) Rupturing the cell membrane
(B) Incorporating host DNA into viral capsid
(C) Budding from cell membrane
(D) Recombination of virus and host genome

65. Who is considered as the father of virology ?
- (A) Antonie van Leeuwenhoek
 - (B) Charles Chamberland
 - (C) Martinus Beijerinck
 - (D) Louis Pasteur
66. Poxviruses are :
- (A) Enveloped DNA virus
 - (B) Non enveloped DNA Virus
 - (C) Enveloped RNA virus
 - (D) Non enveloped RNA Virus
67. Icosahedral structure of virus has :
- (A) 6 faces
 - (B) 20 faces
 - (C) 10 faces
 - (D) Single face
68. The virus of family Baculoviridae infects :
- (A) Cattles
 - (B) Tobacco
 - (C) Fish
 - (D) Insects
69. The structure of tobacco mosaic virus is :
- (A) Helical
 - (B) Cuboidal
 - (C) Round
 - (D) Icosahedral
70. Industrial fermentation of vinegar involves :
- (A) Yeasts only
 - (B) Yeasts and Lactic acid bacteria
 - (C) Yeasts and Acetic acid bacteria
 - (D) Yeasts and Butyric acid bacteria



SPACE FOR ROUGH WORK