Roll No. .....

Question Booklet Number

O. M. R. Serial No. | | | | | | | |

M. Sc. (Microbiology) (Second Semester) EXAMINATION, 2025-26

(Old Syllabus Effective from 2022)

(Only Back Paper Students)

MYCOLOGY AND PHYCOLOGY

Paper Code							
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Questions Booklet Series
B

Time : 1:30 Hours] [*Maximum Marks : 75*

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page) **(शेष निर्देश अन्तिम पृष्ठ पर)**

1. Dermatophytosis is commonly known as :

(A) Ringworm

(B) Tuberculosis

(C) Malaria

(D) Cholera

2. Opportunistic fungi exhibit pathogenicity when :

(A) Nutrients are high

(B) Host immunity is weakened

(C) Temperature is low

(D) Oxygen is high

3. Fungal infections transmitted through inhalation are :

(A) Cutaneous

(B) Subcutaneous

(C) Systemic

(D) Superficial

4. Which structure helps fungi invade host tissues ?

(A) Hyphae

(B) Flagella

(C) Cilia

(D) Pili

5. Candidiasis commonly affects :

(A) Bones

(B) Blood vessels

(C) Brain only

(D) Mucous membranes

6. Subcutaneous infections are typically acquired via :

(A) Inhalation

(B) Vector transmission

(C) Ingestion

(D) Skin trauma

7. Dimorphic fungi exist in :

(A) Single form

(B) Two forms depending on conditions

(C) Only yeast form

(D) Only filamentous form

8. Which factor increases susceptibility to fungal infections ?

(A) High immunity

(B) Balanced diet

(C) Antibiotic overuse

(D) Low temperature

9. Mycoses caused by dermatophytes are classified as :

(A) Systemic

(B) Subcutaneous

(C) Cutaneous

(D) Opportunistic

10. Fungal virulence is primarily associated with :

(A) Photosynthesis

(B) Enzyme production and invasion

(C) Oxygen production

(D) Nitrogen fixation

11. The primary basis for algal classification includes :

(A) Pigments, flagella, and food reserves

(B) Habitat only

(C) Size of cells

(D) Mode of respiration

12. The main photosynthetic pigment in green algae is :

(A) Chlorophyll a and b

(B) Chlorophyll c

(C) Phycoerythrin

(D) Fucoxanthin

13. Brown algae contain which characteristic pigment ?

(A) Chlorophyll b

(B) Xanthophyll

(C) Phycoerythrin

(D) Fucoxanthin

14. Red algae are characterized by :

(A) Chlorophyll b

(B) Phycoerythrin

(C) Fucoxanthin

(D) Carotene

15. The reserve food material in brown algae is :

(A) Starch

(B) Glycogen

(C) Laminarin

(D) Cellulose

16. Heterocysts in cyanobacteria are specialized for :

(A) Photosynthesis

(B) Storage

(C) Respiration

(D) Nitrogen fixation

17. Akinetes are :

(A) Reproductive cells

(B) Resting spores

(C) Flagellated cells

(D) Photosynthetic cells

18. Chromatic adaptation refers to :

(A) Structural changes

(B) Pigment adjustment to light

(C) Increase in cell size

(D) Reduction in metabolism

19. Thallus organization in algae ranges from :

(A) Unicellular to complex multicellular

(B) Only unicellular

(C) Only multicellular

(D) Colonial only

20. Vegetative reproduction in algae occurs by :

(A) Fragmentation

(B) Meiosis

(C) Gamete fusion

(D) Sporulation only

21. Asexual reproduction in algae commonly involves :

(A) Gametes

(B) Embryos

(C) Seeds

(D) Zoospores

22. Sexual reproduction in algae involves :

(A) Fragmentation

(B) Fusion of gametes

(C) Binary fission

(D) Budding

23. Isogamy refers to :

(A) Fusion of identical gametes

(B) Fusion of dissimilar gametes

(C) Asexual reproduction

(D) Vegetative growth

24. Oogamy involves :

(A) Equal gametes

(B) Large non-motile egg and small motile sperm

(C) No gametes

(D) Only spores

25. Alternation of generations is prominent in :

(A) Chlorophyta

(B) Phaeophyta

(C) Rhodophyta

(D) Cyanobacteria

26. In Rhodophyta, meiosis occurs :

(A) Before fertilization

(B) During vegetative phase

(C) After fertilization

(D) Never occurs

27. The absence of flagella is characteristic of :

(A) Green algae

(B) Brown algae

(C) Red algae

(D) Cyanobacteria

28. Chlorophyta store food as :

(A) Glycogen

(B) Mannitol

(C) Laminarin

(D) Starch

29. Eye spots in algae are involved in :

(A) Respiration

(B) Storage

(C) Reproduction

(D) Phototaxis

30. Flagella in algae help in :

(A) Movement

(B) Nutrition

(C) Respiration

(D) Storage

31. Algae play a fundamental role in aquatic ecosystems as :

(A) Decomposers

(B) Primary producers

(C) Parasites

(D) Consumers

32. Algal blooms are primarily caused by :

(A) Low nutrient levels

(B) Low light intensity

(C) Eutrophication

(D) High salinity

33. Harmful Algal Blooms (HABs) can lead to :

(A) Increased oxygen levels

(B) Reduced toxin production

(C) Increased biodiversity

(D) Oxygen depletion in water bodies

34. Phycoviruses infect :

(A) Bacteria

(B) Fungi

(C) Algae

(D) Protozoa

35. Algae used as biofertilizers mainly contribute by :

(A) Producing toxins

(B) Fixing atmospheric nitrogen

(C) Increasing salinity

(D) Reducing nutrients

36. Cyanobacteria used in rice fields help in :

(A) Nitrogen fixation

(B) Carbon fixation

(C) Oxygen depletion

(D) Soil erosion

37. *Spirulina* is commercially important due to its :

(A) High lipid content

(B) High protein content

(C) High cellulose content

(D) Toxic compounds

38. *Dunaliella* is known for producing :

(A) Agar

(B) Alginate

(C) Carrageenan

(D) Beta-carotene

39. *Porphyra* is mainly used as :

(A) Biofuel

(B) Fertilizer only

(C) Antibiotic

(D) Edible seaweed

40. Agar, an important phycocolloid used in microbiological media, is primarily obtained which group of algae ?

(A) Green algae (*Chlorella*, *Ulva*)

(B) Brown algae (*Laminaria*, *Sargassum*)

(C) Red algae (*Gelidium*, *Gracilaria*)

(D) Cyanobacteria (*Anabaena*, Nostoc)

41. Alginate is derived from :

(A) Green algae

(B) Brown algae

(C) Red algae

(D) Cyanobacteria

42. Carrageenan, a commercially important phycocolloid, is primarily obtained from which group of algae ?

(A) Green algae (*Chlorella*, *Ulva*)

(B) Brown algae (*Laminaria*, *Sargassum*)

(C) Red algae (*Chondrus crispus*, *Kappaphycus alvarezii*)

(D) Diatoms (*Navicula*, *Pinnularia*)

43. Phycocolloids are :

(A) Photosynthetic pigments

(B) Gel-forming substances from algae

(C) Storage compounds

(D) Enzymes

44. Hydrogen production in algae is linked to :

(A) Respiration

(B) Photosynthetic electron transport

(C) Glycolysis

(D) Fermentation

45. Algae used in wastewater treatment help in :

(A) Removing nutrients and contaminants

(B) Increasing pollutants

(C) Producing toxins

(D) Reducing oxygen

46. Photobioreactors are designed to :

(A) Kill algae

(B) Control algal growth conditions

(C) Reduce light exposure

(D) Stop photosynthesis

47. Lipid-rich microalgae are mainly used for :

(A) Antibiotics

(B) Protein synthesis

(C) Nitrogen fixation

(D) Biofuel production

48. Excessive algal growth in water bodies leads to :

(A) Eutrophication

(B) Soil fertility

(C) Reduced biomass

(D) Increased oxygen

49. Algae in extreme habitats are termed :

(A) Mesophiles

(B) Thermophiles only

(C) Extremophiles

(D) Halophiles only

50. The ecological significance of algae includes :

(A) Acting as decomposers only

(B) Forming the base of aquatic food chains

(C) Causing only diseases

(D) Reducing oxygen production

51. Which of the following components is a defining feature of true fungal cell walls ?

(A) Cellulose

(B) Silica

(C) Peptidoglycan

(D) Chitin

52. Coenocytic hyphae are best described as :

(A) Septate and uninucleate

(B) Aseptate and multinucleate

(C) Septate and multinucleate

(D) Aseptate and anucleate

53. Which fungal group produces motile zoospores ?

(A) Ascomycetes

(B) Basidiomycetes

(C) Oomycetes

(D) Deuteromycetes

54. The vegetative structure of fungi is termed :

(A) Mycelium

(B) Sporocarp

(C) Thallus

(D) Rhizoid

55. In *Aspergillus*, asexual spores are produced by :

(A) Sporangia

(B) Asci

(C) Basidia

(D) Conidiophores

56. Which reserve food material is typical of fungi ?

(A) Starch

(B) Inulin

(C) Cellulose

(D) Glycogen

57. Zygospore formation is associated with :

(A) Asexual reproduction

(B) Sexual reproduction

(C) Budding

(D) Binary fission

58. Deuteromycetes are called “imperfect fungi” because :

(A) They lack hyphae

(B) Sexual stage is unknown

(C) They lack spores

(D) They are unicellular

59. Myxomycetes differ from true fungi due to :

(A) Lack of true hyphae

(B) Presence of chitin

(C) Presence of septa

(D) Glycogen storage

60. Septate hyphae are characteristic of :

(A) Zygomycetes

(B) Oomycetes

(C) Ascomycetes

(D) Myxomycetes

61. Chlamydospores primarily function in :

(A) Reproduction

(B) Nitrogen fixation

(C) Photosynthesis

(D) Survival under adverse conditions

62. Oomycetes differ from true fungi by having :

(A) Chitin cell wall

(B) Cellulose cell wall

(C) Glycogen reserve

(D) Septate hyphae

63. Which group includes slime molds ?

(A) Zygomycetes

(B) Ascomycetes

(C) Myxomycetes

(D) Basidiomycetes

64. Asexual reproduction in fungi commonly involves :

(A) Meiosis

(B) Conidia formation

(C) Karyogamy

(D) Plasmogamy

65. Budding is a common reproductive method in :

(A) Yeasts

(B) Rhizopus

(C) Aspergillus

(D) Penicillium

66. Dikaryotic phase is prominent in :

(A) Zygomycetes

(B) Myxomycetes

(C) Oomycetes

(D) Basidiomycetes

67. Entomophthorales are known for :

(A) Plant symbiosis

(B) Insect parasitism

(C) Human infections

(D) Algal associations

68. Blastomycetes are classified under :

(A) Deuteromycotina

(B) Ascomycotina

(C) Basidiomycotina

(D) Zygomycotina

69. Karyogamy refers to :

(A) Cytoplasmic fusion

(B) Spore germination

(C) Nuclear fusion

(D) Hyphal branching

70. Fungal hyphal growth primarily occurs by :

(A) Intercalary expansion

(B) Apical extension

(C) Binary fission

(D) Budding

71. Heterothallism in fungi promotes :

(A) Asexual reproduction

(B) Spore dormancy

(C) Rapid colony growth

(D) Genetic diversity through outcrossing

72. Homothallic fungi are characterized by :

(A) Requirement of two mating types

(B) Absence of sexual reproduction

(C) Self-fertility

(D) Only asexual spores

73. Fungal sex hormones primarily regulate :

(A) Respiration

(B) Vegetative growth

(C) Sexual reproduction

(D) Nutrient uptake

74. Physiological specialization in fungi refers to :

(A) Variation in spore size

(B) Host-specific pathogenicity

(C) Colony morphology

(D) Growth temperature

75. Lichens are composed of :

(A) Fungus and alga/cyanobacterium

(B) Fungus and protozoa

(C) Alga and virus

(D) Fungus and bacteriophage

76. The fungal partner in lichen is called :

(A) Phycobiont

(B) Mycobiont

(C) Symbiont

(D) Thallobiont

77. The algal component of lichen is termed :

(A) Mycobiont

(B) Phycobiont

(C) Sporobiont

(D) Hyphobiont

78. Basidiolichens differ from ascolichens by :

(A) Type of algal partner

(B) Mode of nutrition

(C) Habitat

(D) Type of fungal partner

79. Deuterolichens are classified based on :

(A) Sexual reproduction

(B) Unknown fungal partner

(C) Asexual fungal stage

(D) Algal diversity

80. Ectomycorrhiza is characterized by :

(A) Penetration into root cells

(B) Formation of mantle around roots

(C) Absence of hyphae

(D) Parasitism

81. Endomycorrhiza involves :

(A) Intracellular penetration of hyphae

(B) Surface colonization

(C) No nutrient exchange

(D) Only fungal growth

82. Vesicular Arbuscular Mycorrhiza (VAM) is important for :

(A) Nitrogen fixation

(B) Sulfur metabolism

(C) Carbon fixation

(D) Phosphorus uptake

83. Arbuscules in VAM function in :

(A) Storage

(B) Nutrient exchange

(C) Reproduction

(D) Protection

84. Saprophytic fungi obtain nutrients from :

(A) Living hosts

(B) Dead organic matter

(C) Inorganic salts

(D) Atmospheric gases

85. Parasitic fungi differ from saprophytes by :

(A) Using dead matter

(B) Producing spores

(C) Performing photosynthesis

(D) Extracting nutrients from living hosts

86. Substrate succession refers to :

(A) Spore germination

(B) Dormancy

(C) Sexual reproduction

(D) Sequential colonization of substrates

87. Fungal associations with animals are ecologically and physiologically diverse. Which the following best describes these interactions ?

(A) Fungi engage in symbiotic relationships as well as parasitic interactions causing diseases in animals.

(B) Fungi perform photosynthesis within animal tissues to provide energy.

(C) Fungi fix atmospheric nitrogen inside animal hosts to enhance nutrition.

(D) Fungi contribute to carbon fixation in animal metabolic pathways.

88. Lichens play a significant ecological role in ecosystem development and monitoring. Which of the following best describes their contribution ?

(A) Lichens act as pioneer species, facilitating rock weathering and contributing to soil formation.

(B) Lichens primarily cause contamination of aquatic ecosystems leading to pollution.

(C) Lichens serve as major agents for spreading infectious diseases in humans animals.

(D) Lichens deplete atmospheric oxygen through non-photosynthetic metabolism.

89. The effect of environment on fungal growth is mainly through :

(A) Genetic mutation only

(B) Temperature, pH, and moisture

(C) Light only

(D) Pressure only

90. Prevention of fungal growth can be achieved by :

(A) Increasing moisture

(B) Increasing nutrients

(C) Reducing water activity

(D) Lowering oxygen

91. Opportunistic fungal infections primarily occur in :

(A) Healthy individuals

(B) Immunocompromised hosts

(C) Plants only

(D) Soil microbes

92. Dermatophytes mainly infect :

(A) Blood

(B) Internal organs

(C) Keratinized tissues

(D) Muscles

93. Candidiasis is an opportunistic fungal infection commonly affecting mucosal surfaces. Which organism is responsible ?

(A) *Aspergillus*

(B) *Penicillium*

(C) *Rhizopus*

(D) *Candida*

94. Systemic mycoses are characterized by infection of :

(A) Skin surface

(B) Internal organs

(C) Hair only

(D) Nails only

95. Subcutaneous mycoses typically affect :

(A) Brain

(B) Lungs

(C) Subcutaneous tissues

(D) Blood

96. Pneumocystis infection primarily affects :

(A) Skin

(B) Lungs

(C) Liver

(D) Kidneys

97. Blastomycosis is caused by :

(A) Dimorphic fungi

(B) Yeasts

(C) Bacteria

(D) Viruses

98. Fungal infections of nails are termed :

(A) Onychomycosis

(B) Dermatitis

(C) Mycosis fungoides

(D) Keratitis

99. Which fungal infection is associated with AIDS patients ?

(A) Dermatophytosis

(B) Myxomycetes

(C) Candidiasis

(D) Lichen formation

100. Fungi associated with insects often play a crucial role in host nutrition. What is their primary contribution ?

(A) Photosynthesis

(B) Digestion of complex substrates

(C) Nitrogen fixation

(D) Oxygen production

(Only for Rough Work)

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)
Q. 2 (A) (B) ● (D)
Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer Sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छाँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)
प्रश्न 2 (A) (B) ● (D)
प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।