

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Fungi, Algae and Protista

Program: B.Sc. Microbiology

Course Code: HSMB2001

Semester: III

Time: 03 hrs.

Max. Marks: 100

Instructions: Read question carefully.

SECTION A

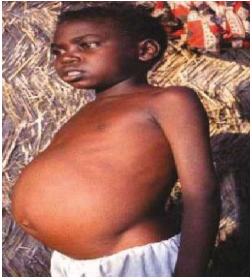

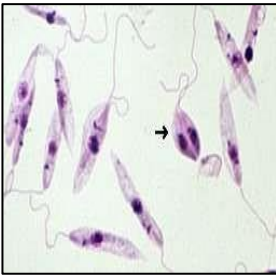
S. No.	MCQ's /Fill in the blanks/ T&F (1.5 marks each)	30 Marks	CO
1	Which of the following are formed in pyrenoids? A. Oil B. Glucose C. Starch D. Sillica	1.5	CO3
2	In <i>Chlamydomonas</i> the most common method of sexual reproduction is? A. Isogamy B. Heterogamy C. Oogamy D. Spore formation	1.5	CO2
3	<i>Phycomycetes</i> are belongs to A. Sac fungi B. Lower fungi C. Club fungi D. Imperfect fungi	1.5	CO2
4	The wall of <i>Rhizopus</i> hypha is composed of A. Cellulose B. Chitin C. Pectin D. Hemicellulose	1.5	CO4
5	Fungi can be stained by a) Safranin b) Cotton blue c) Glycerine d) Lactophenol	1.5	CO4
6	In <i>Mucor</i> , asexual reproduction takes place by A. spores B. Zygozoozoid C. Motile zoospores D. Zoogametes	1.5	CO4
7	In lichens, sexual reproduction belongs to	1.5	CO2

	A. Either fungal partner or Algal partner (not both) B. Fungal partner and Algal partner (both) C. Fungal partner only D. Algal partner only		
8	Yeast produces _____ enzyme complex that is responsible for fermentation. A. Invertase B. Aldolase C. Zymase D. Dehydrogenase	1.5	CO4
9	Dikaryon formation is characteristic of _____. A. Phycomycetes and Zygomycetes B. Ascomycetes and Basidiomycetes C. Ascomycetes and Phycomycetes D. Phycomycetes and Basidiomycetes	1.5	CO5
10	Which statements is wrong about lichens? A. They grow rapidly about 2 cm per day B. They have symbiotic relationship between alga and fungus C. Lichens are indicators of pollution D. Some species are eaten by reindeers	1.5	CO3
11	Pseudomycelium is formed in A. Yeast B. <i>Aspergillus</i> C. <i>Synchytrium</i> D. <i>Rhizophora</i>	1.5	CO4
12	Parasexuality was first discovered in A. Fungi B. Bacteria C. Virus D. None of the above	1.5	CO4
13	Which class does the malarial parasite belong to? (a) dinophyceae (b) sarcodina (c) ciliata (d) sporozoa	1.5	CO1
14	Protozoa are classified based on (a) locomotory organelle (b) shape (c) number of nuclei (d) size	1.5	CO1
15	Which of the following is not a characteristic feature of protozoans? (a) binary fission (b) contractile vacuole (c) cell membrane as an outer body covering	1.5	CO1

	(d) pseudopodia		
16	Organ of defense in protozoans is (a) statocysts (b) trichocysts (c) otocysts (d) nematocysts	1.5	CO1
17	The pH range optimal for maximum metabolic activity of protozoa is_____. A. 2-3 B. 11-12 C. 6-8 D. 4-6	1.5	CO1
18	When parasitic protozoa parasitize another protozoan, it is known as_____. A. Parasitism B. Mutualism C. Hyperparasitism D. Hypoparasitism	1.5	CO1
19	Which of the following is not true of protozoa? A. Lack of Cell wall B. Produce no spore bearing structure. C. Comprise the microbial population known as phytoplankton. D. Form active feeding form called trophozoites.	1.5	CO1
20	In diatoms, auxospores helps in A. metabolism B. Reproduction C. Spore formation D. Growth	1.5	CO3

SECTION B (5 marks each question)

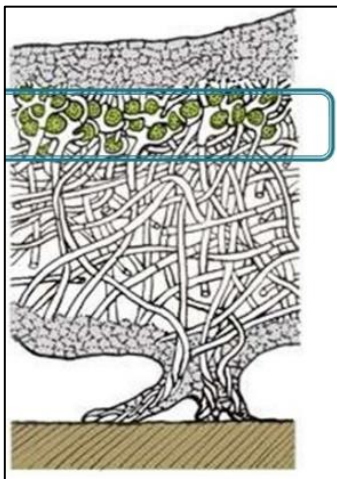
Q	Short Answer Type Question (5 marks each) Scan and Upload 4 questions 5 marks. Word limit (100-120)	20 Marks	CO
1	Mention different forms of Coral Reef. Write importance of Coral Reef.	5	CO2
2	Give a brief account on the economic importance of Algae with examples.	5	CO3
3	<pre> graph TD A[Inoculation into medium] --> B[Incubate for 48 hours] B --> C[Microscopic examination of sediment] C --> D[If negative] C --> E[If positive] D --> F[Replace medium] F --> C E --> G[Divide into two cultures] G --> H[Gradually reduce inoculum size] I[After third negative examination, discard] </pre>	5 (1+3+1)	CO1

	<p>Q1: What methods are described in the flow diagram?</p> <p>Q2: Define the term (with examples): Axenic, Monoxenic and Polyxenic.</p> <p>Q3: Name of the medium used for the in-vitro cultivation of <i>Leishmania</i> sp. is _____.</p>		
4	<p>An 18-year-old girl presents to her pediatrician with her mother for her pre-college check-up. She has no past medical history. She complains of a yellow green malodorous vaginal discharge that started a week ago. She endorses mild pelvic pain. A pelvic exam is performed, and mild cervical tenderness is noted. The cervix is pink, nulliparous, inflamed and is covered by small red punctate spots. A thin yellow green frothy discharge of fishy odor is also detected. Microscopic investigation reveals numerous flagellated trophozoites with undulating membrane.</p> <p>Q1: What could be the pathogen?</p> <p>Q2: How the pathogen can be transmitted?</p> <p>Q3: Other than microscopy, what other diagnostic methods can be used to verify the infection? (word limit: 100)</p>	5 (1+1+3)	CO1
SECTION C 30 marks			
Q	Two case studies 15 marks each subsection	30 Marks	CO
1	<p>Case Study 1 (Word limit-250-300)</p> <div style="display: flex; justify-content: space-around;">    </div> <p>Q1: Identify the disease from the above images.</p> <p>Q2: Name of the causative agent of the disease.</p> <p>Q3: How the disease transmitted to human?</p> <p>Q4: How the infection can be diagnosed?</p> <p>Q5: Mention the available drugs, used to treat the disease?</p> <p>Q6: What are the molecular mechanisms of drug resistance in this pathogen? (Through schematic diagram).</p>	15 (2+2+2+2+2+4+1)	CO1

	Q6: Which are the states of India, where the disease is prevalent?		
2	<p>Case Study 2 (Word limit- 250-300)</p> <p>A 22-year-old pregnant woman had just completed a two-week course of ampicillin for the treatment of <i>E. coli</i> pyelonephritis. She then started experiencing perivaginal pruritus, dysuria, and burning in the vulvar region, and noted thick curd like vaginal discharge. On examination the vulvar and labial region was mildly erythematous; tiny papulopustular lesions were seen on the perineum. Shallow linear ulcerations were noted on the posterior part of the introitus. A thick whitish discharge was noted, there was no foul odor.</p> <p>Q1: What could be the causative agent?</p> <p>Q2: What diagnostic procedures are helpful in establishing the etiology of vaginitis? (Word limit: 80)</p> <p>Q3: What could be the source for infection?</p> <p>Q4: What are the virulent factors of this organism? (Word limit: 120)</p> <p>Q5: What are the treatment options for this patient? (Word limit: 120)</p>	15 (2+3+2+4+4)	CO5
	SECTION- D 20 marks		
Q	Long Answer type Questions Scan and Upload (10 marks each) Word limit 200-250	20 Marks	CO
1	<p>Q1: What process is shown in figure?</p>	10 (1+1+4+2+2)	CO4

	<p>Q2: Which organism undergoes through this process during their life cycle?</p> <p>Q3: Describe the process in brief. (Word limit: 120)</p> <p>Q4: What is the significance of this process?</p> <p>Q5: Name two important antibiotics producing microorganisms?</p>		
--	--	--	--

2



<p>Q1: What structure is shown in figure?</p> <p>Q2: Name different layers of the structure (from top to bottom)?</p> <p>Q3: Mention different forms of this structure with examples? (Word limit: 120)</p> <p>Q4: Write the economic importance of the structure?</p>	
--	--

10
(1+3+4+2)

CO3