Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: Mycology, Phycology & Protozoology **Semester: III**
Program: Integrated B.Sc.-M.Sc. Microbiology **Time: 03 hrs.**
Course Code: HSMB2011 **Max. Marks: 100**

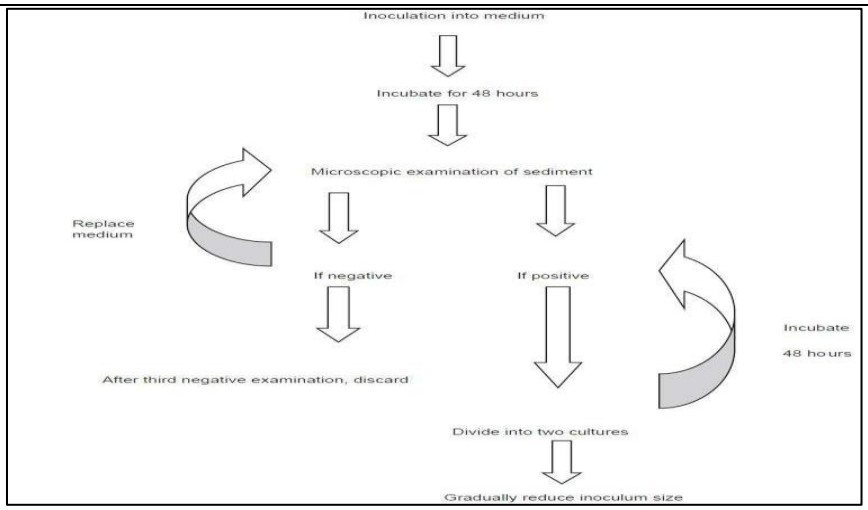
Instructions: Read question carefully.

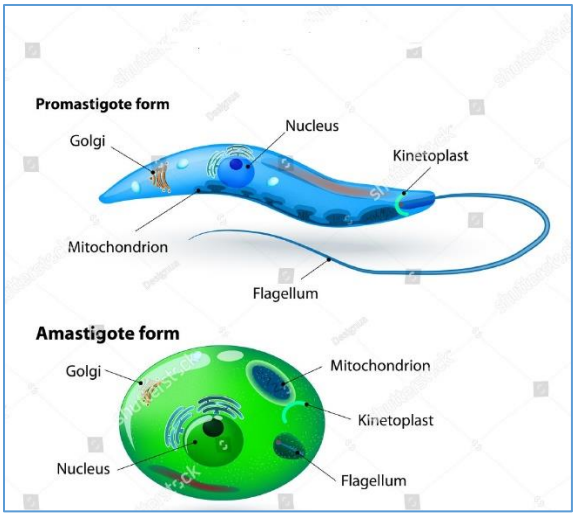
SECTION A

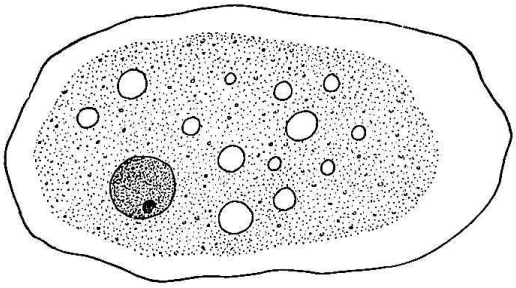
S. No.	MCQ's /Fill in the blanks/ T&F (1.5 marks each)	**30 Marks**	**CO**
1	Which of the following chemical is used to kill fungi? a) Pesticide b) Fungicide c) Insecticide d) Algaecide	**1.5**	**CO3**
2	The puccinia is also known as a) Rust fungi b) Golden fungi c) Rock fungi d) Blue fungi	**1.5**	**CO2**
3	*Phycomycetes* are belongs to a) Sac fungi b) Lower fungi c) Club fungi d) Imperfect fungi	**1.5**	**CO2**
4	Which of the following is rich in protein? a) *Ulothrix* b) *Spirogyra* c) *Nostoc* d) *Chlorella*	**1.5**	**CO4**
5	Fungi can be stained by	**1.5**	**CO4**

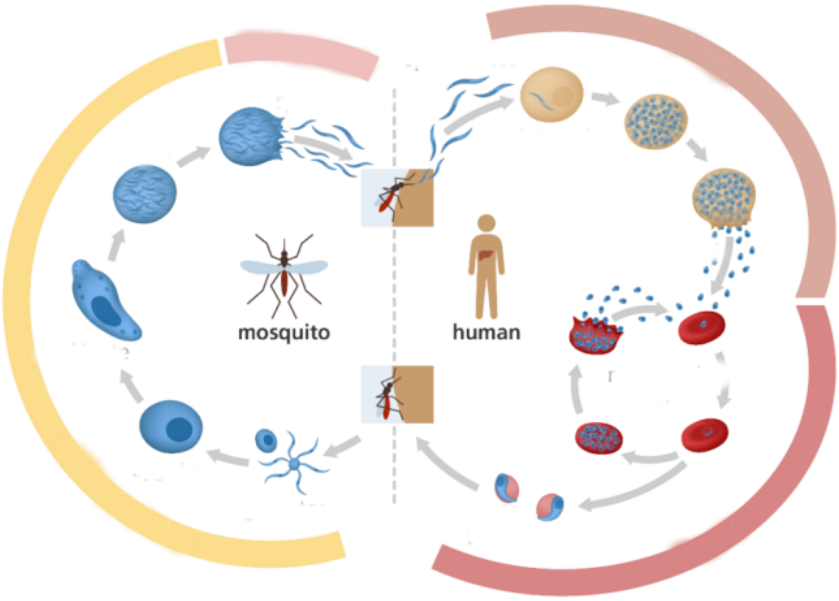
	a) Saffranine b) Cotton blue c) Glycerine d) Lactophenol		
6	What is the shape of chloroplast in *Chlamydomonas*? a) cup-shaped b) spiral c) stellate d) collar-shaped	**1.5**	**CO4**
7	Find the incorrect statement a) Agar-agar is produced from *Gracilaria* b) *Chlorella* is used in space food c) Mannitol is a food reserve of Rhodophyceae d) Algin is produced by algae	**1.5**	**CO2**
8	Coenocytic fungi are …….. a) With septa b) One septa c) Two septa d) Without septa	**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 of the following specimen is taken for the microscopic detection of malarial parasites in humans? a) Stool b) Sputum c) Blood d) Urine	**1.5**	**CO3**
11	Pseudomycelium is formed in a) Yeast b) *Aspergillus* c) *Synchytrium* d) D. *Rhizophora*	**1.5**	**CO4**
12	Which of the following protozoan parasite can be spread to humans by the bite of a sandfly? a) *Entamoeba histolytica*	**1.5**	**CO4**

	b) *Plasmodium falciparum* c) *Trichomonas vaginalis* d) *Leishmania donovani*		
13	Which class does the malarial parasite belong to? a) dinophyceae b) sarcodina c) ciliata d) sporozoan	**1.5**	**CO1**
14	"Amoebiasis" or amoebic dysentery is caused by_____. *a) Trypanosoma histolytica* *b) Entamoeba histolytica* *c) Entamoeba gingivalis* *d) Plasmodium vivax*	**1.5**	**CO1**
15	Each of the following parasites is transmitted by mosquitoes except: a) *Leishmania donovani* b) *Wuchereria bancrofti* c) *Plasmodium vivax* d) *Plasmodium falciparum*	**1.5**	**CO1**
16	Which of the following extracellular parasites can cause sleeping sickness that is prevalent in regions of Africa? a) *Trypanosoma brucei* b) *Treponema pallidum* c) Hookworms d) *Wuchereria bancrofti*	**1.5**	**CO1**
17	The study of algae is called a) Mycology b) Phycology c) Microbiology d) Bacteriology	**1.5**	**CO1**
18	The symbiotic association between algae and fungi called as——. a) Mushroom b) Bacteria c) Lichen d) None of these	**1.5**	**CO1**
19	In which of the following class algae can be included? a) Protista	**1.5**	**CO1**

	b) Animalia c) Plantae d) Monera		
20	Which of the following is brown algae? a) Chlorophyceae b) Pheophycea c) Rhodophyceae d) None of these.	**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	Give a brief account on the economic importance of Algae with examples.	**5**	**CO2**
2	Give a brief account on the economic importance of Lichens.	**5**	**CO3**
3	 **Q1**: What methods are described in the flow diagram? **Q2**: Define the term (with examples): Axenic, Monoxenic and Polyxenic. **Q3**: Name of the medium used for the in-vitro cultivation of *Leishmania* sp. is _____.	**5 (1+3+1)**	**CO1**
4	A 25-year-old man with chronic granulomatous disease developed hepatic abscesses due to *Staphylococcus aureus*, which were successfully treated with antimicrobials and gamma interferon. After a near drowning accident, he suffered irreversible lung damage and underwent lung transplantation. When the explanted lungs were examined, extensive abscess formation and invasive aspergillosis (*Aspergillus fumigatus*) was noted. Liposomal amphotericin B was administered intravenously. Cyclosporine, azathioprine and prednisone were administered to prevent rejection of the graft. Three weeks after transplantation, he developed seizures; a CT of the brain demonstrated multiple brain abscesses. Despite high doses of amphotericin B, the	**5 (1+1+1+ 2)**	**CO1**

	patient expired. 1. What are virulence characteristics of *Aspergillus* species? 2. Who is susceptible to *Aspergillus* infections? 3. What is the utility of cultures in the diagnosis of Aspergillosis? 4. What is the treatment of choice for Aspergillosis?		
SECTION C 30 marks			
Q	**Two case studies 15 marks each subsection**	**30 Marks**	**CO**
1	Case Study 1 (Word limit-250-300)  **Q1:** Identify the pathogen from the above images. **Q2:** Name of the disease it causes. **Q3:** How the disease transmitted to human? **Q4:** How the infection can be diagnosed? **Q5:** Mention the available drugs, used to treat the disease? **Q6:** What are the molecular mechanisms of drug resistance in this pathogen? (Through schematic diagram). **Q7:** Which are the states of India, where the disease is prevalent?	**15 (2+2+2+ 2+2+4+1)**	**CO1**
2	Case Study 2 (Word limit- 250-300) A 22-year-old pregnant woman had just completed a two-week course of ampicillin for the treatment of *E. coli* pyelonephritis. She then started experiencing perivaginal	**15 (2+3+2+ 4+4)**	**CO5**

	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. **Q1:** What could be the causative agent? **Q2:** What diagnostic procedures are helpful in establishing the etiology of vaginitis? (Word limit: 80) **Q3:** What could be the source for infection? **Q4:** What are the virulent factors of this organism? (Word limit: 120) **Q5:** What are the treatment options for this patient? (Word limit: 120)		
	SECTION- D 20 marks		
Q	Long Answer type Questions Scan and Upload (10 marks each) Word limit 200-250	**20 Marks**	**CO**
1	 **Q1**: Identify the pathogen from the above images. **Q2**: What disease it causes? How the disease transmitted to human? **Q3**: How the infection can be diagnosed? **Q4**: Mention the available drugs, used to treat the disease with their mode of action. (Through Schematic Diagram)	**10 (1+2+2+ 5)**	**CO4**

2	 **Q1**: Identify the organism from above figure. **Q2**: Write down the life cycle shown in the figure. (word limit: 140) **Q3**: How to diagnose the infection? **Q4**: Name drugs used to treat the disease.	**10 (1+4+3+ 2)**	**CO3**