Model Question Paper (Blank) is on next page

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

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

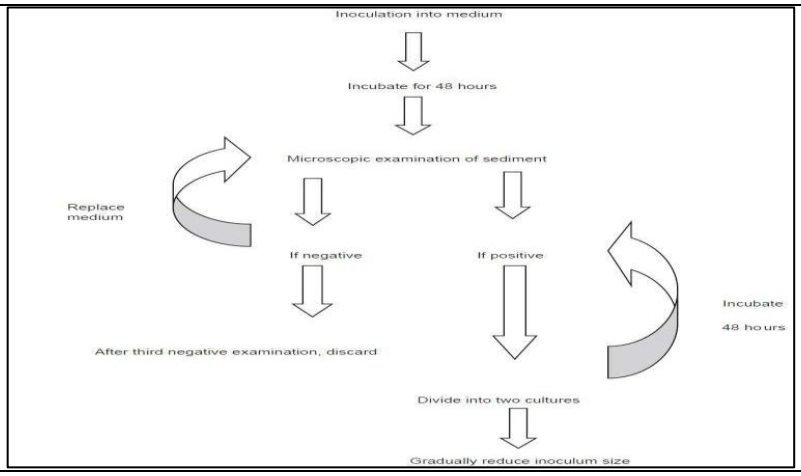
Course: Eukaryotic microbes — **Semester: II**
Program: M.Sc. Microbiology — **Time: 03 hrs.**
Course Code: HSMB7012 — **Max. Marks: 100**

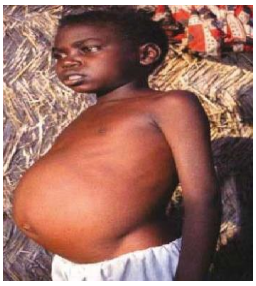
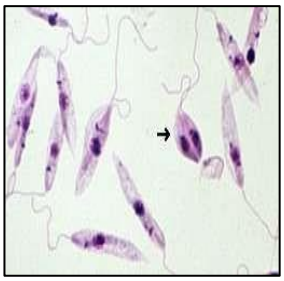
Instructions: Read question carefully.

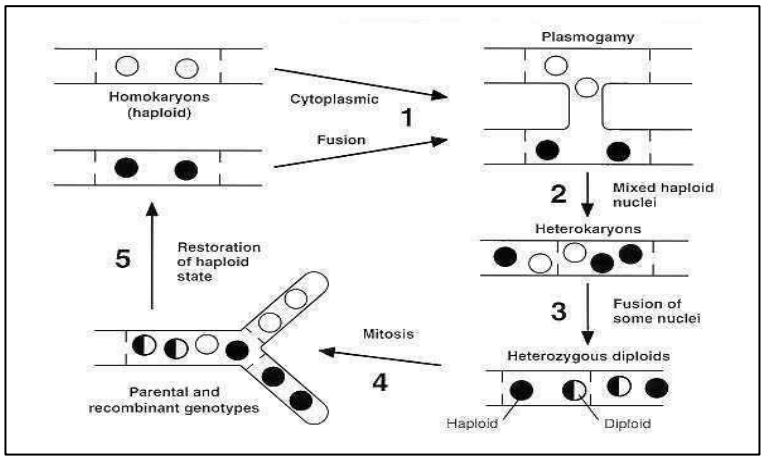
SECTION A

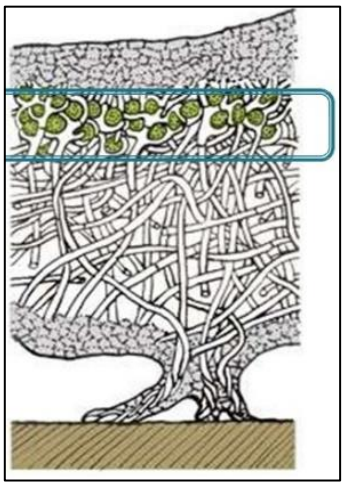
S. No.	MCQ's /Fill in the blanks/ T&F (1.5 marks each)	**30 Marks**	**CO**
1	Which of the following are formed in pyrenoids? A. Oil B. Glucose C. Starch D. Sillica	**1.5**	**CO3**
2	In *Chlamydomonas* the most common method of sexual reproduction is? A. Isogamy B. Heterogamy C. Oogamy D. Spore formation	**1.5**	**CO2**
3	*Phycomycetes* are belongs to A. Sac fungi B. Lower fungi C. Club fungi D. Imperfect fungi	**1.5**	**CO2**
4	The wall of *Rhizopus* hypha is composed of A. Cellulose B. Chitin C. Pectin D. Hemicellulose	**1.5**	**CO4**
5	Fungi can be stained by a) Saffranine b) Cotton blue c) Glycerine d) Lactophenol	**1.5**	**CO4**
6	In *Mucor*, asexual reproduction takes place by A. spores B. Zygopore C. Motile zoosporess 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. *Aspergillus* C. *Synchytrium* D. *Rhizophora*	**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 on the basis of (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 other 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		**5 (1+3+1)**	**CO1**

	Q1: What methods are describe 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 _____.		
4	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. **Q1:** What could be the pathogen? **Q2:** How the pathogen can be transmitted? **Q3:** Other than microscopy, what other diagnostic methods can be used to verify the infection? (word limit: 100)	**5 (1+1+3)**	**CO1**
	SECTION C 30 marks		
Q	**Two case studies 15 marks each subsections**	**30 Marks**	**CO**
1	Case Study 1 (Word limit-250-300)    **Q1:** Identify the disease from the above images. **Q2:** Name of the causative agent of the disease. **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).	**15 (2+2+2+ 2+2+4+ 1)**	**CO1**

	Q6: Which are the states of India, where the disease are prevalent?		
2	Case Study 2 (Word limit- 250-300) A 22 years old pregnant woman had just completed a two-week course of ampicillin for the treatment of *E. coli* 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. **Q1:** What could be the causative agent? **Q2:** What diagnostic procedures are helpful in establishing the etiology of vaginitis? (words 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)	**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	 **Q1:** What process is shown in figure?	**10 (1+1+4+ 2+2)**	**CO4**

	Q2: Which organism undergoes through this process during their life cycle? **Q3:** Describe the process in brief. (word limit: 120) **Q4:** What are the significance of this process? **Q5:** Name two important antibiotics producing microorganisms?		
2	 **Q1:** What structure is shown in figure? **Q2:** Name different layers of the structure (from top to bottom)? **Q3:** Mention different forms of this structure with examples? (word limit: 120) **Q4:** Write the economic importance of the structure?	**10 (1+3+4+ 2)**	**CO3**