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Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester B.Sc Botany Degree Examination, March/April 2021

BBT2B02 – Microbiology, Mycology, Lichenology & Plant Pathology

(2020 Admission onwards)

Time: 2 hours

Max. Marks: 60

**SECTION A**

(Answer all questions, each question carries 2 marks. Ceiling: 20 Marks)

1. How are lichens classified based on growth forms.
2. What is quarantine?
3. What is Gram staining?
4. What are viroids?
5. What is isidia?
6. Explain the anamorph-teleomorph concept.
7. What is the importance of fungi as model organisms for research?
8. Write a note on surface appendages of bacteria.
9. Differentiate between leaf spot and leaf blight.
10. Write an account on sporangium.
11. Name two disease symptoms of quick wilt of pepper.
12. Write an account on black stage of rust.

**SECTION B**

(Answer all questions, each question carries 5 marks. Ceiling: 30 Marks)

13. Write a brief account of the salient features of Ascomycotina.
14. Give an account on bacteriophages.
15. Give an account on the ecological importance of fungi.
16. Briefly explain reproduction in *Usnea*.
17. Write an account on economic importance of bacteria.
18. How are viruses classified?
19. Explain the symptoms and control measures of bunchy top of banana.

SECTION C

(Answer any one question, each question carries 10 marks. (1 x 10 = 10 Marks)

20. Explain the life cycle of *Pythium*, with suitable diagrams.
21. Write an account on ecological and economic importance of lichens.

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE  
Second Semester B.Sc. Degree Examination, March/April 2021  
BCH2C02 - Physical Chemistry  
(2020 Admission onwards)

Time: 2 hours

Max. Marks: 60

**Section A (Short answers)****(Answer questions up to 20 marks. Each question carries 2 marks)**

1. Under what conditions does a real gas approach ideal behaviour?
2. Define an isolated system. Give an example.
3. Calculate the R.M.S. velocity of  $O_2$  molecule at  $27^\circ C$ .
4. Sketch the (200) planes of a face-centred cubic lattice.
5. The heat of reaction at constant volume is for the reaction,  $CH_4(g) + 2O_2(g) \rightarrow CO_2(g)$  is 75.83 kJ, at 300 K. Calculate the heat of reaction at constant pressure, at 300 K.
6. State Henry's law. Give the unit of Henry's constant.
7. Why is aqueous solution of ferric chloride acidic?
8. One mole of water at 373 K changes to steam by absorbing 40.9 kJ of heat. If the work done by the system is 3.5 kJ, calculate the increase in internal energy.
9. Write the kinetic gas equation and explain the terms.
10. Calculate the degree of ionisation of  $NH_4OH$  in 0.02 M solution, the ionisation constant being  $1.8 \times 10^{-5} \text{ mol L}^{-1}$  at  $25^\circ C$ .
11. How is entropy related to the heat exchanged reversibly in a process at constant temperature?
12. Calculate the concentration of an aqueous solution of a non-volatile solute which exerts an osmotic pressure of 3.731 atm at 300 K.

[Ceiling of marks: 20]

### Section B (Paragraph)

(Answer questions up to 30 marks. Each question carries 5 marks)

13. (a) State and explain the third law of thermodynamics.  
(b) Calculate the Gibb's free energy change at  $25^{\circ}\text{C}$  for the reaction,  
 $\text{CO}_{(g)} + \text{Cl}_{2(g)} \rightarrow \text{COCl}_{2(g)}$ . Given,  $\Delta H = -109 \text{ kJ}$  and  $\Delta S = -137 \text{ JK}^{-1}$ . Predict whether the reaction is spontaneous or not.
14. (a) Derive an equation relating the enthalpy change and internal energy of a reaction.  
(b) Distinguish between isothermal and adiabatic process.
15. Give the principle of conductometric titrations and discuss the conductometric titration curves of  
(a) Strong acid against a strong base. (b) weak acid against weak base.
16. What is meant by an ideal gas? What are the causes of deviation of a real gas from ideal behaviour?
17. Explain the effect of dilution in the specific conductance and molar conductance of a strong electrolyte.
18. Explain the factors affecting the solubility of a gas in a liquid.
19. Discuss the various stoichiometric defects in crystals.

[Ceiling of marks: 30]

### Section C (Essay)

(Answer any one. Each question carries 10 marks)

- 20 Derive Bragg equation and discuss its applications.
- 21 (a) What are fuel cells. Discuss the functioning of  $\text{H}_2\text{-O}_2$  fuel cell  
(b) Write the cell reaction and calculate the EMF of the electrochemical cell,  
 $\text{Fe} | \text{Fe}^{2+} (0.1 \text{ M}) || \text{Cd}^{2+} (0.001 \text{ M}) | \text{Cd}$ , at  $25^{\circ}\text{C}$ . Given,  $E^{\circ}\text{Fe}^{2+}/\text{Fe} = -0.44 \text{ V}$   
and  $\text{Cd}^{2+}/\text{Cd} = -0.40 \text{ V}$

[1 X 10 = 10]

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE  
Second Semester B.Sc Degree Examination, March/April 2021  
BZL2C02 - Economic Zoology  
(2020 Admission onwards)

Time: 2 hours

Max. Marks : 60

**I. Short answer questions. Each question carries 2 marks.**

1. What is shellac? What are its uses?
2. Name the four common species of malarial parasites?
3. Expand CMFRI.
4. What is biological control? Mention the steps involved?
5. Explain the parasitic adaptations of endoparasites.
6. Name the commonly used culturable species of prawn in India.
7. Differentiate between autoinfection and retroinfection.
8. What is pest outbreak? Give two causes of pest outbreak.
9. Explain induced breeding.
10. Name the causative organism of plague and its vector.
11. Briefly explain the method of pearl formation.
12. Explain the pathogenic effects of *Enterobius*.

**(Ceiling: 20 marks)****II. Paragraph questions. Each question carries 5 marks.**

13. What is ground itch?
14. Explain the vector control of malaria.
15. Explain the pathogenic effects of *Entamoeba*.
16. What is eye stalk ablation?
17. Explain processing of cocoon for silk production.
18. Give an account of the various fish byproducts.
19. Explain Biological control of pests.

**(Ceiling: 30 marks)****III. Essay questions. Answer any one question.**

20. Explain the life cycle of *Taeniasolium*. Give its parasitic adaptations
21. Write an essay on mussel culture.

**(1 x 10 = 10 marks)**