Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Second Semester BSc Zoology Degree Examination, March/April 2021

BBT2C02 – Cryptogams, Gymnoperms & 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. What are the different types of symmetry found in viruses.
2. Write a note on pili.
3. Write about characteristic features of Phaeophyceae
4. Write about the classification of the fungi
5. Describe about the important features of the Basidiomycotina
6. Elucidate the economic importance of Lichens
7. Write about different types of reproduction in *Riccia*
8. Describe the Xerophytic adaptations of leaflets of *Cycas*
9. Briefly explain the structure of Ligule
10. Write a short note about coralloid roots of *Cycas*
11. Write short note about the different control measures of plant diseases
12. Briefly explain the control measures of citrus canker

SECTION B

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

13. Name the pathogen, symptoms and control measures of Blast of paddy
14. Illustrate the structure of Cycas male cone.
15. Explain about the scalariform and lateral conjugation in *Spirogyra*
16. With help of labelled diagram explain the thallus structure of *Riccia*
17. Explain the diagnostic features of Mastigomycotina
18. Describe about the bacterial transduction
19. With help of labelled diagram explain the structure of bacteriophages

SECTION C

(Answer any one questions, each question carries 10 marks. Ceiling: 1x10=10 Marks)

20. With the help of suitable diagrams, explain the life cycle of *Selaginella*
21. Explain about the different stages of life cycle in *Puccinia*

20

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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 27^0 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 $1.8X10^{-5}$ mol L^{-1} at 25^0C.
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 25^0Cfor the reaction,

    $CO_{(g)} + Cl_{2(g)} \rightarrow COCl_{2(g)}$. Given, $\Delta H = -109$ kJ and $\Delta S = -137$ 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 H_2-O_2 fuel cell

(b)Write the cell reaction and calculate the EMF of the electrochemical cell,

$Fe \mid Fe^{2+}$ (0.1 M) $\parallel$ Cd^{2+} (0.001 M) $\mid$ Cd, at 25^0 C. Given, $E^0Fe^{2+}/Fe = -0.44$ V and $Cd^{2+}/Cd = -0.40$ V

[1 X 10 = 10]

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FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

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

BZL2B02 - Animal Diversity Nonchordata II

(2020 Admission onwards)

Time: 2 hours Max. Marks : 60

Section A

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

1. What is meant by parasitic castration?
2. Write down the branchial formula of *Penaeus*.
3. Comment on *Arenicola*.
4. What are cuttle bones? Mention its use.
5. Write down the importance of osphradium.
6. Write down the peculiarities of *Peripatus*.
7. Discuss the salient features of Phylum Hemichordata.
8. Write notes on *Eupagurus*.
9. What is gastric mill? Mention its function.
10. Write down male and female reproductive system of *Penaeus*.
11. Comment on *Nautilus*.
12. Write down the features of *Troides minos*.

(Ceiling : 20 marks)

Section B

II. Paragraph questions. Each question carries 5 marks

13. Write down the digestive system of *Pila globosa*.
14. Comment on *Limulus*.
15. Explain the salient features of Phylum Echiura with an example.
16. Write notes on Chiton.
17. Describe the features of *Hirudinaria*.
18. Explain the circulatory system of *Neanthes*.
19. Comment on *Perna*.

(Ceiling : 30 marks)

Section C

III. Essay questions. Answer any one question.

20. Write down the salient features of Phylum Echinodermata. Cassify the phylum upto class with suitable examples.
21. Describe the structure of cephalic, thoracic and abdominal appendages of *Penaeus* with diagrams.

(1 x 10 = 10 marks)