EB- Ia

M.Sc. Zoology 4th Semester Practical Examination October 2019

ENVIRONMENTAL BIOLOGY

(Practical I - ZO 243: Pollution Biology and Environmental Physiology)

Time 4 hours Maximum Marks: 75

I. (a). Submit the Field Study Report. **Total 10 – marks**

(b). Demonstrate the temperature preference of fishes. Tabulate the results and comment on it. (Experiment – 10 marks; Procedure - 3 marks; Comment- 2 marks) **Total - 15 marks**

II. Estimate the chlorine content in the water sample provided. Write down the principle and comment on the results. (Principle - 5 marks: Experiment – 10 marks : Results – 5 marks : Comment – 5 marks) **Total - 25 marks**

III. Determine the hydrogen sulphide / ammonia content in the water sample provided. Write the principle, tabulate the results and comment on it. (Principle – 5 marks: Experiment - 10 marks: Results – 5 marks: Comment – 5 marks) **Total - 25 marks**

Name and Signature of Examiners

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EB- Ic

M.Sc. Zoology 4th Semester Practical Examination October 2019

ENVIRONMENTAL BIOLOGY

(Practical II- ZO 244: Environmental Management)

Time 4 hours Maximum marks: **75**

I. Estimate the salinity of the water samples provided. Write down the principle and procedure involved and comment on the results. (Principle – 5 marks: Experiment – 10 marks; Results and Calculation – 5 marks; Comment – 5 marks) **Total - 25 marks.**

II. **(a)** Determine the Water turbidity or pH of three soil samples provided. Comment on the results. (Experiment – 7 marks; Results - 3 marks) **Total - 10 marks.**

(b). Write a short account on the principle and working of the (1) Flame Photometer (2) pH meter (3) Conductivity meter. (5 marks each) **Total - 15 marks**

III. Determine the hardness/COD of the water sample provided. Write down the principle and procedure involved in the experiment and comment on it. (Principle – 5 marks: Experiment - 10 marks: Results – 5 marks: Comment – 5 marks). **Total - 25 marks.**

Name and Signature of Examiners

1..... 16/10/19

2..... Dr. Deepa R. Pillai

III b

M.Sc. Zoology 4th Semester Practical Examination October 2019

ZO 234: Microbiology, Biotechnology, Ecology, Immunology & Developmental Biology

Time 4 hours | Maximum Marks: 75

I. Assess the quality of the milk samples provided (two samples) by employing methylene blue reductase test. Write the Principle involved and comment on the results. (Experiment - 15 marks; Principle – 5 marks: Comment – 5 marks.) **Total 25 marks**

II. Mount five planktonic organisms from the sample provided. Identify and make an estimation of organisms/litre of the plankton concentrate. Draw a Pie diagram of the estimate and comment on the results. (Mounting and Identification – 5 marks: Estimation – 10 marks; Pie diagram- 5 marks; Comment- 5 marks.) **Total 25 marks**

III. Isolate the chick embryo from incubated egg and stain it with suitable vital dye. Determine the age and giving reasons. (Preparation - 15 marks: sketch and label- 5 marks: determination of age with reasons – 5 marks. **Total 25 marks**

Name and Signature of Examiners

1. Dr. S. NANDAKUMAR

2. Dr. Girish Kumar. E

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EB- Ic

M.Sc. Zoology 4th Semester Practical Examination November 2018.

ENVIRONMENTAL BIOLOGY

(Practical II- ZO 244: Environmental Management)

Time: 4 hours. Maximum marks: 75

I. Estimate the salinity of the water sample provided. Write down the principle and procedure involved and comment on the results. (Principle - 5 marks; Experiment – 10 marks; Results and Calculation – 5 marks; Comment – 5 marks). **Total - 25 marks.**

II. **(a)** Determine the Water turbidity of two water samples provided. Comment on the results. (Experiment – 5 marks; Results - 3 marks; Comment- 2 marks). **Total - 10 marks.**

(b). Write a short account on the principle and working of the (1) Flame Photometer (2) P^H meter (3) Conductivity meter (5 marks each). **Total - 15 marks.**

III. Determine the hardness of the water sample provided. Write down the principle and procedure involved in the experiment and comment on. (Principle – 5 marks; Experiment - 10 marks; Results – 5 marks; Comment – 5 marks). **Total - 25 marks.**

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Name and Signature of Examiners

1.....

2. Dr. Annes Joseph

III a

M.Sc. Zoology 4th Semester Practical Examination October 2019

ZO 234: Microbiology, Biotechnology, Ecology,

Immunology & Developmental Biology

Time 4 hours Maximum Marks: **75**

I. (a) Make a gram stained preparation of the bacterial culture provided. Sketch and label and comment on the significance of Gram Staining. (Preparation – 15 marks: Sketch and label 5 marks: Comment – 5 marks).
Total 25 marks

II. Determine the primary productivity of the system provided using dark and light bottle experiment. Write the principle involved in the experiment. (Principle – 5 marks: Experiment- 15 marks: Calculation- 3 marks: Comment- 2 marks).
Total 25 marks

III. Demonstrate the technique of window preparation and vital staining method for observing the morphogenetic movements in chick blastoderm. (Window preparation – 15 marks: Vital staining – 5 marks: Comment – 5 marks).
Total 25 marks

Name and Signature of Examiners

1. Dr. Annies Joseph

2. Dr. K M. Rajaiu Rajaiu

EB- Id

M.Sc. Zoology 4th Semester Practical Examination October 2019

ENVIRONMENTAL BIOLOGY

(Practical II- ZO 244: Environmental Management)

Time 4 hours Maximum marks: 75

I. Determine the Hardness / Salinity of the water sample provided. Write down the principle and procedure involved in the experiment and comment on it. (Principle – 5 marks: Experiment - 10 marks: Results – 5 marks: Comment – 5 marks). **Total - 25 marks**

II. **(a)** Determine the Water turbidity or p^H of three soil samples provided. Comment on the results. (Experiment – 7 marks; Results - 3 marks) **Total - 10 marks**

(b). Write a short account on the principle and working of the (1) Flame Photometer (2) p^H meter (3) Conductivity meter. (5 marks each) **Total - 15 marks**

III. Construct a Pyramid of Number from a pond collection provided. Write short notes on the ecological importance. (Construction of the pyramid – 15 marks; Results – 5 marks: Comment – 5 marks). **Total - 25 marks**

Name and Signature of Examiners

1. Dr. S. NANDAKUMAR .....

2. .....

...Zoology ... Semester Practical Examination September/October 2016.

ENVIRONMENTAL BIOLOGY

(Practical I - ZO 243: Pollution Biology and Environmental Physiology)

Time 4 hours. Maximum marks : 75

I. (a). Submit the Field Study Report. **Total 10 - marks.**
(b). Determine the P^{H} of three soil samples provided. Comment on the results. (Experiment – 10 marks; Comment - 5 marks.)
Total - 15 marks.

II. Determine the effect of pollution on oxygen consumption of the fish provided. Write the principle involved and comment on the results. (Principle - 5 marks: Experiment – 10 marks : Results and Calculation – 5 marks : Comment – 5 marks.) **Total - 25 marks.**

III. Estimate the organic carbon in the soil sample provided. Write down the principle and comment on the results. (Principle – 5 marks: Experiment - 10 marks: Results – 5 marks: Comment – 5 marks.)
Total - 25 marks.

Name and Signature of Examiners

1...Dr. V. Radhakrishna.....

2...Dr. Maya B. Nair.....

III a

M.Sc. Zoology 4th Semester Practical Examination November 2018.

ZO 234: Microbiology, Biotechnology, Ecology,

Immunology & Developmental Biology.

Time 4: hours. Maximum Marks: 75

I. (a).Assess the quality of the milk samples provided (two samples) by employing methylene blue reductase test. Write the Prnciple involved and comment on the results. (Experiment - 10 marks: Principle – 5 marks; Comment – 5 marks.) **Total: 20 marks.**

(b). Make a smear of your blood and stain appropriately. Identify any three leucocytes with reasons. (Preparation – 5 marks; Identification, sketch and label – 5 marks.) **Total: 10 marks.**

II. Mount five planktonic organisms from the marine sample provided. Identify and make an estimation of organisms/litre of the plankton concentrate. Draw a Pie diagram of the estimate and comment on the results. (Mounting and Identification – 5 marks; Estimation – 10 marks; Pie diagram- 3 marks; Comment- 2 marks.) **Total: 20 marks.**

III. Isolate the chick embryo from incubated egg and stain it with suitable vital dye. Determine the age giving reasons. Sketch and label. (Preparation - 15 marks; Sketch and label- 5 marks; determination of age giving reasons – 5 marks) **Total: 25 marks.**

Name and Signature of Examiners

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EB- Ia

M.Sc. Zoology 4th Semester Practical Examination November 2018.

ENVIRONMENTAL BIOLOGY

(Practical I - ZO 243: Pollution Biology and Environmental Physiology)

Time: 4 hours. **Maximum Marks: 75**

I. (a). Submission of Field Study Report. **10 -marks.**
(b). Demonstrate the temperature preferences of fishes. Tabulate the results and comment on. (Experiment – 10 marks; Procedure - 3 marks: Comment- 2 marks). **Total - 15 marks.**

II. Estimate the organic carbon in the soil sample provided. Write down the principle and comment on the results. (Principle – 5 marks: Experiment - 10 marks; Results – 5 marks; Comment – 5 marks).
Total -25 marks.

III. Determine the hydrogen sulphide / ammonia content in the water sample provided. Write the principle, tabulate the results and comment on it. (Principle – 5 marks; Experiment - 10 marks; Results – 5 marks; Comment – 5 marks). **Total - 25 marks.**

Name and Signature of Examiners

1.....

2.. Dr. Annes Joseph

EB Ia

M.Sc. Zoology 4th Semester Practical Examination October 2017

ENVIORMENTAL BIOLOGY

Practical – I. ZO 243: Pollution Biology and Enviormental Physiology.

Time : 4 Hours

Maximum Marks : 75

I. (a) Submit your certified Field study report for valuation. **Total – 10 marks**

(b) Determine the pH of three soil samples provided. Comment on the results. (Experiment – 10 marks, Comment - 5 marks) **Total - 15 marks**

II. Estimate the effect of any pollutant on oxygen consumption in a fish. Write down the principle and comment on the results. (Principle - 5marks, Experiment -10 marks, Results and Calculations -5 marks, Comment – 5 marks)

Total – 25 marks

III. (a) Determine hydrogen sulphide/ Ammonia content in the water sample provided. Write down the principle and comment on it. (Principle – 5 marks, Experiment – 5 marks, Comments – 5 marks) **Total – 15 marks**

(b) Write notes on ecological significance of two organisms provided, as ecological indicators. (5 marks each) **Total - 10 marks**

Name and Signature of Examiners

1. Dr. V. [illegible] .... [illegible]

2. [illegible] .... [illegible]

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III b

M.Sc. Zoology 4th Semester Practical Examination October 2017

Practical – III. ZO 234: Microbiology, Biotechnology, Ecology, Immunology & Developmental Biology.

Time : 4 Hours | Maximum Marks : 75

I. Make a gram stained preparation from the bacterial culture provided. Draw a neat and labelled sketch of single bacterium. Write short note on significance of gram staining. (Preparation- 15 marks, Sketch - 5 marks, Comments – 5 marks)

Total – 25 marks

II. (a) Employing appropriate technique, find out your blood group. Write the principle of the method employed and add a note on the clinical significance of blood grouping. (Principle – 3 marks, Result – 2 marks, Notes 5 marks)

Total – 10 marks

(b) Identify and mount any three organism from the plankton sample provided. Make an estimation of the organism/litre of the plankton concentrate, Represent its composition as a pie diagram (Identification – 3 marks, Estimation – 6 marks, Pie diagram – 6 marks)

Total – 15 marks

III. (a) Prepare a temporary whole mount of the chick blastoderm using appropriate stain. Determine the age of the embryo giving reasons. (whole mount – 10 marks, Note on age determination – 5 marks)

Total – 15 marks

(b) Identify and write notes on the morphological and histological features of the two placental types provided (5 marks each)

Total - 10 marks

Name and Signature of Examiners

1. Dr. S Nandakumar
2. Dr. Annies Joseph

III a

M.Sc. Zoology 4th Semester Practical Examination October 2017

Practical – III. ZO 234: Microbiology, Biotechnology, Ecology, Immunology & Developmental Biology.

Time : 4 Hours

Maximum Marks : 75

I. (a) Analyse the quality of two milk samples provided by employing methylene blue reductase test using appropriate control. Write the principle involved and justify the reliability of the test for estimating the quality of milk (Principle- 3 marks, Experiment – 10 marks, Notes- 2 marks)

Total – 15 marks

(b) Prepare a smear of human blood and stain appropriately. Identify any three leucocytes and report. Comment on the principle of staining procedure. (Neat smear – 7 marks, Identification and comments – 3 marks)

Total - 10 marks

II. Estimate the primary productivity of the system provided using dark and light bottle experiment. Write the principle involved and comment on the result. Exposure time may be limited to 3 hours. (Principle - 5marks, Experiment -15 marks, Calculations -3 marks, Comment – 2 marks)

Total – 25 marks

III. (a) Write notes on ecological adaptation of the two organisms provided (5 marks each)

Total - 10 marks

(b) Demonstrate the technique of window preparation and vital staining of developing egg of chick. Comment on the importance of this experiment. (Window preparation – 10 marks, Comment – 5 marks)

Total – 15 marks

Name and Signature of Examiners

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EB Ib

M.Sc. Zoology 4th Semester Practical Examination October 2017

ENVIRONMENTAL BIOLOGY

Practical – I: ZO 243, Pollution Biology and Environmental Physiology.

Time : 4 Hours | Maximum Marks : 75

I. (a) Submit your certified field record for valuation. **Total – 10 marks**

(b) Demonstrate the pH preference in fishes. Tabulate the results and comment on it. (Demonstration – 10 marks, Comment – 5 marks) **Total - 15 marks**

II. (a) Determine the chlorine content in water sample provided. Write down the principle and add a note on the results obtained. (Experiment – 5 marks, Principle – 5 marks, Comment – 5 marks) **Total – 15 marks**

(b) Write short notes on the ecological significance of organisms provided, as ecological indicators. (5 marks each) **Total – 10 marks**

III. (a) Determine the water holding capacity of soil sample provided. Write down the principle and comment on it. (Experiment – 7 marks, Comments – 3 marks) **Total – 10 marks**

(b) Estimate the hydrogen sulphide or ammonia content in the water sample provided. Write down the principle and comment on the results. (Principle – 5 marks, Experiment – 5 marks, Comment – 5 marks) **Total - 15 marks**

Name and Signature of Examiners

1. Dr. JOHNSON BABY .....

2. Dr. S. Nandakumar .....

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EB- Id

M.Sc. Zoology 4th Semester Practical Examination September/October 2016.

ENVIRONMENTAL BIOLOGY

(Practical I - ZO 244: Environmental Management)

Time 4 hours. Maximum marks : 75

I. Determine the Hardness / Salinity of the water sample provided. Write down the principle and procedure involved in the experiment and comment on it. (Principle – 5 marks: Experiment - 10 marks: Results – 5 marks: Comment – 5 marks.) **Total - 25 marks.**

II. **(a)** Determine the Water turbidity or P^H of three soil samples provided. Comment on the results. (Experiment – 7 marks; Results - 3 marks.) **Total - 15 marks.**

(b). Write a short account on the principle and working of the (1) Flame Photometer (2) P^H meter (3) Conductivity meter. (5 mark each) **Total - 15 marks.**

III. Construct a Pyramid of number from a pond collection provided. Write short notes on the ecological importance. (Construction of the pyramid – 15 marks : Results– 5 marks : Comment – 5 marks.) **Total - 25 marks.**

Name and Signature of Examiners

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III d

M.Sc. Zoology 4th Semester Practical Examination September/October 2016.

ZO 234: Microbiology,Biotechnology,Ecology,

Immunology &Developmental Biology.

Time 4 hours. Maximum Marks : 75

I. (a) Make a gram stained preparation of the bacterial culture provided. Sketch and label a bacterium. Comment on the significance of Gram Staining. (Preparation – 15 marks: Sketch and label 5 marks: Comment – 5 marks.) **Total 25 marks.**

II. Determine the primary productivity using dark and light bottle experiment. Write the principle involved in the experiment. (Principle – 5 marks: Experiment- 15 marks: Calculation- 3 marks:Comment- 2 marks. **Total 25 marks.**

III. Demonstrate the technique of window preparation and vital staining method for observing the morphogenetic movements in chick blastoderm. (Window preparation – 15 marks:Vital staining – 5 marks: Comment – 5 marks.) **Total 25 marks.**

Name and Signature of Examiners

1. PREETHA KARNAVER 5/10/16

2. Dr. Deepa R. Pillai

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Anupama. V-S

III c

M.Sc. Zoology 4th Semester Practical Examination September /October 2016.

ZO 234: Microbiology,Biotechnology,Ecology,

Immunology &Developmental Biology.

Time 4 hours. Maximum Marks : 75

I. Assess the quality of the milk samples provided (two samples) by employing methylene blue reductase test. Write the Principle involved and comment on the results. (Experiment - 15 marks: Principle – 5 marks: Comment – 5 marks.) **Total 25 marks.**

II. Mount five planktonic organisms from the sample provided. Identify and make an estimation of organisms/litre of the plankton concentrate. Draw a Pie diagram of the estimate and comment on the results. (Mounting and Identification – 5 marks: Estimation – 10 marks: Pie diagram- 5 marks:Comment- 5 marks.) **Total 25 marks.**

III. Isolate the chick embryo from incubated egg and stain it with suitable vital dye. Determine the age and giving reasons. (Preparation - 15 marks: sketch and label- 5 marks: determination of age with reasons – 5 marks. **Total 25 marks.**

Name and Signature of Examiners

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EB- Ic

M.Sc. Zoology 4th Semester Practical Examination October 2015.

ENVIRONMENTAL BIOLOGY

(Practical I - ZO 244: Environmental Management)

Time 4 hours. Maximum marks : 75

I. Estimate the salinity of the two water samples provided. Write down the principle and procedure involved and comment on the results. (Principle - 5 marks: Experiment – 10 marks : Results and Calculation – 5 marks : Comment – 5 marks.) **Total - 25 marks.**

II. **(a)** Determine the Water turbidity / conductivity of two water samples provided. Comment on the results. (Experiment – 7 marks; Results - 3 marks.) **Total - 10 marks.**

(b). Write a short account of the principle and working of (1) Flame Photometer (2) P^H meter (3) Conductivity meter. (5 mark each) **Total - 15 marks.**

III. Determine the hardness/COD of the water sample provided. Write down the principle and procedure involved in the experiment and comment on it. (Principle – 5 marks: Experiment - 10 marks: Results – 5 marks: Comment – 5 marks.) **Total - 25 marks.**

Name and Signature of Examiners

1. Dr. V. Radhakrishnan .....

2. Dr. K. K. Tripathi .....

III c

M.Sc. Zoology 4th Semester Practical Examination October 2015.

Practical – III. ZO 234: Microbiology, Biotechnology, Ecology, Immunology &Developmental Biology.

Time 4 hours. Maximum marks : 75

I. (a). Make a smear of your blood and stain appropriately. Identify any three leucocytes with reasons.(Experiment – 9 marks: Identification – 3 marks: Comment- 3 marks.) **Total -15 marks.**

(b) Find out your blood group employing appropriate technique. Write the principle of the method and add a note on the clinical significance of the method.(Principle – 3 marks: Experiment – 5 marks: Comment – 2 marks.) **Total -10 marks.**

II. Mount five Planktonic organisms from the sample provided. Identify and make an estimation of organisms/liter of the plankton concentrate. Draw a Pie diagram of the estimate and comment on the results. (Mounting and Identification – 5 marks: Estimation – 10 marks: Pie diagram- 5 marks: Comment- 5 marks.) **Total- 25 marks.**

III. Isolate the chick embryo from incubated egg and stain it with suitable vital dye. Determine the age and give reasons. (Preparation - 15 marks: sketch and label- 5 marks: determination of age with reasons – 5 marks.) **Total- 25 marks.**

Name and Signature of Examiners

1. Dr. Bindu. V.S.

2.