Zoology (P.G.)

[CBCS]

M.Sc. Fourth Semester End Examination-2024

[Regular & Supplementary Paper]

PAPER- ZOO 402

Full Marks: 40 ***Time: 02 Hrs***

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary.

[Use separate answer script for each group]

Group A

[Developmental Biology]

Marks 20

1. Answer any two questions from the following: 2x2= 4

a. Write down the function of bindin protein.

b. What is morphallaxis type of regenenation? Give example.

c. What happens if treatment of rejenerating tails with retinoicaid occurs at the same time when hindlimbs are developing in tadpole?

d. Mention the axis specified by BMP gradient and wnt gradient.

2. **Answer any two questions from the following:** **2x4= 8**

a. Write a short note on Cortical granules reaction". 4

b. i) What is apical epidermal cap(AEC)?

ii) Mention the role of "nAG" protein for blastema proliferation. 2+2

c. How siamosis gene expression is activated for axis formation in mesoderm in xenopus.

d. Mention briefly the function of Resact as a sperm activiting and sperm attracting peptide in seamelin.

3. **Answer any one question from the following:** **1x8= 8**

a. Briefly discuss the molecular mechanism behind the formation of organizer. Mention the name of inhibitor that inhibit GSK-3 activity. 7+1

b. Discuss several steps in the binding of a hyperactivated, wiggling mouse sperm to the zona pellneida with a model.

Group-B

[Neuro-Immuno Endocrinology]

Marks 20

1. **Answer any two questions from the following:** **2x2= 4**

a. Write a short note on congenital hypothyroidism.

b. What do you mean by SSRLs Write its advantage.

c. Name any four thymic hormones

d. Briefly describe the effects of neuropeptides on immune cells.

2. **Answer any two questions from the following:** **2x4= 8**

a. Write any four different neurotransmitters with their function.

b. Write note on EPSP and IPSP with reasons

c. What is micro neural circuit motif? Discuss different micro circuit motif with diagram.

d. What are the major factor involved in the development of goitre?

3. **Answer any one question from the following:** **1x8= 8**

a. i. Briefly describe the localization of cytokines and their receptors in the brain.

ii) How adrenergic and cholinergic stimulations act on immune cells? 5+3

b. i. Describe the major characteristic features of a "Second messengers"

ii. Factors responsible for speed of propagation of an action potential through nerve - Explain. 4+4
