

2022

ZOOLOGY

[P.G.]

(M.Sc. Fourth Semester End Examination-2022)

PAPER-402

Full Marks: 20

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]

[F.M. – 20]

1. Answer any two questions from the following: 2x2= 4
- a) What happens if Frzb paracrine retort is overexpressed in embryo?
 - b) What happens if treatment of regenerating tail with retinoic acid in tadpole at the same time as the hind limbs are developing?
 - c) What is the function of bindin protein?
 - d) What is epimorphosis?

(2)

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

- a) Why the TGF-beta-like signal from the endoderm is known to be critical for mesoderm induction in *Xenopus*?
- b) Discuss about the slow block of poly spermy in fertilization.
- c) Briefly describe grafting experiments that provide evidence for a head inhibition gradient in regeneration of hydra, 4
- d) How bone morphogenesis protein (BMPS) expression is inhibited for induction of neural ectoderm and dorsal mesoderm?

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

- a) Briefly describe with proper illustration the molecular mechanism of fertilization in sea urchin.
- b) Discuss the model of the mechanism by which the dishevelled protein stabilizes β -catenin in the dorsal portion of the amphibian egg.

Group-B

[Neuroendocrinology]

[F.M. – 20]

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

- a) Name the types of neuroglia.

(3)

- b) What is the difference between neurotransmitter and neuromodulator?
- c) What is reflex arcs? Give an example.
- d) What do you mean by circumventricular organs? Give two examples.

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

- a) Describe the cytological marker of Parkinson's disease with necessary figure.
- b) Write a brief notes on types and function of glial cell.
- c) Write a short notes on Congenital hypothyroidism
- d) Illustrate the structure of a synapse.

6. Answer any one question of the following: 1x8 = 8

- a) i) name the hormones released by lymphocytes and monocytes
ii) schematically show the caused of chemical messengers through which neurotransmitters can regulate the neuroendocrine system.
iii) Write a short note on hypothalamic nuclei 2+4+2
- b) Elaborate the steps in conduction of Action Potential. Draw and describe the Hypothalamic-hypophyseal portal system. 4+4