This question paper contains **3** printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **1371**

Unique Paper Code : **6792011102**

Name of the Paper : **Photobiology**

Name of the Course : **B.Sc. (H) Biological Sciences**

Semester : **I**

Duration : **2 Hours** Maximum Marks : **60**

(Write your Roll No. on the top immediately on receipt of this question paper.)

This paper contains *six* questions. Answer any *four* questions.

Question No. **1** is compulsory.

All parts of a question should be answered together

Attempt each new question on a fresh page.

1. (*a*) Define the following : 6×1=6

   (*i*) Aphotic Zone

   (*ii*) Etiolation

   (*iii*) Long day plant

   (*iv*) CO_2 compensation point

   (*v*) Serotonin

   (*vi*) Fovea.

P.T.O.

(*b*) Expand the following : 4×1=4

(*i*) RUBP

(*ii*) CAM

(*iii*) DVM

(*iv*) DLMO.

(*c*) Give major contributions of the following scientists : 5×1=5

(*i*) Hugo P. Kortschak

(*ii*) Robert Hill

(*iii*) Shinobu Ishihara

(*iv*) Paolo Panceri

(*v*) Pietro Angelo Secchi.

2. Comment briefly (any *five*) : 5×3=15

(*i*) Phosphoenlpyruvate carboxylase, unlike RuBisCO, only temporarily fixes carbon in C4 cycle.

(*ii*) Flowering plants require light for chlorophyll synthesis. Justify.

(*iii*) Flowering in plants is impacted by the photoperiod.

(*iv*) About 1 in 200 women are colorblind whereas 1 in 12 men are colorblind.

(*v*) Ultra-violet light exposure is both advantageous and disadvantageous to humans.

(*vi*) The hot and cold water extracts of light organ of *Pyrophorus*, give a luminescence when mixed together.

3. (*a*) Describe the regeneration of the acceptor molecule in Calvin Cycle. 10

(*b*) Write a note on the structural differences and role of rods and cones in vision. 5

4. (*a*) Define a circadian rhythm and graphically represent it. Discuss the important characteristics of a circadian rhythm. 8

(*b*) How does the autocatalytic property of PCR cycle increase the amount of the primary acceptor molecule ? 7

5. (*a*) Why do C4 plants not experience photorespiratory losses. 7

(*b*) Discuss the various ways in which bioluminescence is used in offence and defense by organisms. 8

6. Write short notes on any *three* : 3×5=15

(*i*) Plant Pigments

(*ii*) Circadian rhythms in plants

(*iii*) Physiological Color Change

(*iv*) Jet Lag

(*v*) Behavioural adaptations of animals to extreme light conditions.