

**2021**

**PHYSIOLOGY — HONOURS**

**Paper : DSE-B-3**

**(Chronobiology and Stress Physiology)**

**Full Marks : 50**

*The figures in the margin indicate full marks.*

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

**Group - A**

1. Answer **any five** questions :

2×5

- (a) What is jet lag?
- (b) What are somnogens?
- (c) What is SCUBA diving?
- (d) What are stressors? Give example.
- (e) What is mountain sickness?
- (f) What do you understand by seasonal breeding?
- (g) State two beneficial role of reactive oxygen species.
- (h) Name two enzymatic source for the production of superoxide anion.
- (i) What is Fenton reaction?
- (j) "NADPH plays a crucial role in replenishing the antioxidant reserve." Justify.

**Group - B**

2. Answer **any two** questions :

5×2

- (a) Write short note on — Time keeping gene.
- (b) Give a brief description of retinohypothalamic tract.
- (c) Write short note on — General adaption syndrome.
- (d) Discuss the role of vitamins in combating oxidative stress.
- (e) Give a brief description of mammalian superoxide dismutase enzyme.

**Please Turn Over**

**Group - C**

3. Answer **any three** questions :

- (a) (i) Discuss the different zeitgebers in relation with circadian clock.  
(ii) Describe the role of suprachiasmatic nucleus as the biological clock.  
(iii) What do you mean by chronotyping? 4+4+2
- (b) Discuss the role of pineal hormones and prolactin in regulation of biorhythm. 6+4
- (c) (i) What do you understand by external and internal environment?  
(ii) Discuss the effect of hypobaric environment on human body.  
(iii) How the effect of hypobaric environment can be prevented? 2+5+3
- (d) (i) Name two different heat disorders normally experienced by human being in hot humid and hot dry environment.  
(ii) Discuss about different preventive measures normally taken against the development of above mentioned heat disorders. (2+2)+6
- (e) (i) What is the coenzyme of catalase? State the importance of catalase in maintaining redox balance.  
(ii) What are the components of glutathione system? How they help in combating oxidative stress?  
(iii) What is thioredoxin? (1+2)+(2+4)+1
- (f) (i) Discuss the role of adrenal gland in coping stress.  
(ii) Briefly discuss the impact of chronic stress on cardiovascular system. 6+4
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