

2020

PHYSIOLOGY

[HONOURS]

Paper : IV

[SUPPLEMENTARY]

Full Marks : 75

Time : 4 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

GROUP-A

1. Answer any **five** questions: $1 \times 5 = 5$
- Write the full form of PEP-CK.
 - Write the composition of nutrient agar medium.
 - Name the enzymes involved in the formation of phosphoenol pyruvate from pyruvate.
 - Name any two essential fatty acids.
 - What is retrovirus?
 - What is ketonemia?
 - What is continuous culture?

[Turn over]

2. Answer any **six** questions : $2 \times 6 = 12$
- What is PER?
 - What is oxidative phosphorylation?
 - What are mesophilic bacteria? Give an example.
 - What is transamination?
 - Why histidine and arginine are called semi-essential amino acid?
 - Mention the function of melatonin.
 - What are the different components of α -ketoglutarate dehydrogenase complex?
 - Mention the deficiency symptoms of vitamin-K.
 - What are antibiotics?
 - What is Pasteurization?

GROUP-C

3. Answer any **three** questions: $6 \times 3 = 18$
- TCA cycle is the final common pathway of metabolism– Justify the statement.
 - Describe the anabolic role of TCA cycle. $2+4=6$
 - Describe the method of spore staining. 6

- c) Describe the structural features of an influenza virus. 6
- d) i) Describe how active vitamin-D₃ is related to calcium absorption in the intestine.
- ii) Describe the role of vitamin-E as an antioxidant. 3+3=6
- e) i) Discuss about the methods to sterilize thermolabile substances.
- ii) Name two gram positive bacteria. 5+1=6

GROUP-D

4. Answer any **four** questions : 10×4=40
- a) i) "When heat killed types-3S and living type-2R pneumococci simultaneously injected into the mice, it leads to the death of mice" – Explain the reasons with mechanism.
- ii) Discuss briefly about the viral replication process.
- iii) Name one bacteriostatic and one bacteriocidal antibiotic. 4+4+2=10
- b) i) What is Entner-Doudoroff pathway?

- ii) Describe the effect of temperature on bacterial growth.
- iii) What is differential media? Give an example. 4+4+2=10
- c) i) Write the principle of formulation of balanced diet of a growing child.
- ii) What are dietary fibres? Discuss about the Physiological significance of dietary fibres. 5+(2+3)=10
- d) i) Describe the symptoms observed due to cobalamine deficiency.
- ii) Give an account of the functions of cobalamine in the human body. 4+6=10
- e) i) What is multienzyme complex?
- ii) Describe the process of fatty acid (Palmitic acid) biosynthesis from acetyl CoA. 2+8=10
- f) i) Describe the oxidative steps of Pentose phosphate pathway.
- ii) Describe the role of pentose phosphate pathway in the maintenance of the structural integrity of the erythrocyte membrane. 7+3=10