

2013

M.Sc.

2nd Semester Examination

BIOCHEMISTRY

PAPER—BIC-201

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group - A

1. Answer any *five* questions from the following : 2×5
 - (a) What nutritional support is provided by beef extract and peptone in culture media ?
 - (b) Define symbiosis in microbial ecology.
 - (c) What is Chlorosome ? Write significance.
 - (d) What is transpeptidation ? Why it is important ?
 - (e) What might be the advantage of gas vesicle to the phototrophic bacteria ?

(Turn Over)

- (f) What is SASP? Write their function.
- (g) What is CFU? How it is used in microbial quantification?
- (h) What factors may cause difference in colony morphology in same species?

Group - B

2. Answer any *two* questions from the following : 5×2

- (a) State the significance of heterocyst in cyanobacteria. Write few important features of cyanobacteria. 2+3
- (b) What is Taq DNA Polymerase and it is used in biotechnology? 2+3
- (c) Describe the reproduction strategy of QX 174. How does it differ from fd 1? 3+2
- (d) Distinguish between specific growth rate and generation time.

If an 8 hr exponentially growing bacterial population reached from 5×10^6 cell/ml to 5×10^8 cell/ml, calculate its g and n .

Group - C

Answer any two questions from the following : 10×2

3. (a) Briefly describe the strategy for cell-wall biosynthesis of a Gram-positive bacteria like *S. aureus*.

How one step growth experiment is carried? Write its significance. 6+4

- (b) List several animal and human disease caused by mycoplasma and Rickettsiae. What is bacterial endospore? How it is stained? What are the factors giving so resistance to endospore? 4+1+3+2

- (c) With suitable experiment show that gene transfer among bacteria may be caused by phage virus. Describe the molecular mechanism of specialized transduction. 4+6

- (d) Indicate how bacterial endospore differs from vegetative cell in structure, chemical composition and ability to resist extreme environmental condition. 3+4+3