**THE OPEN UNIVERSITY OF SRI LANKA**
**B.Sc. / B.Ed. DEGREE PROGRAMME - LEVEL 04**
**BTU 2104 / BTE 4104 / BTI 4104 – PRINCIPLES OF MICROBIOLOGY**
**ASSESSMENT TEST (NO BOOK TEST) - 2007/2008**

**DURATION – ONE (01) HOUR**

**Reg. No. .....**

**Date: 13. 10..2007** **Time: 11.00 am – 12.00 noon**

**Answer All Questions.**
**Answers should be indicated in the space provided.**

01. The questions **(a) – (g)** are based on **Figure 1** which illustrates a method of gene transfer in bacteria.

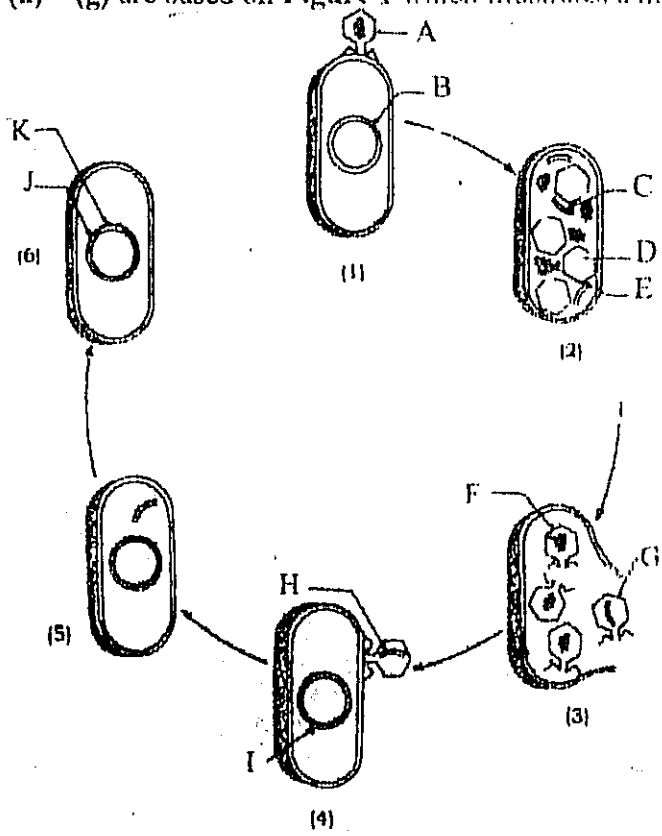


**Figure 1**

a. Give the name of the method illustrated by the diagram.

..... ..... ..... .....

b. Name the stages labeled **(1) – (6)** in **Figure 1**.

1. .....

2. .....

3. .....

4. .....

5. .....

6. .....

c. Name the parts labeled **A – K** in **Figure 1**.

A. .....

B. .....

C .....

D. .....

E. .....

F .....

G .....

H. .....

I. .....

J .....

K .....

d. What is the role of **A** in the process?

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e. What is the significance of the process illustrated by **Figure 1** in the field of medicine?

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f. Indicate **two (02)** other methods of gene transfer in bacteria?

i.....

ii.....

g. How does the method illustrated by **Figure 1** differ from each of the two methods you mentioned in **part (f)**?

i .....

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ii. .....

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02. a. Draw a generalized growth curve of a fungal colony in a solid medium and label the phases.

b. Explain the different phases of growth in brief.

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03. Give reasons for the following, based on your knowledge with respect to antibiotics?

a. Antibiotics with higher chemotherapeutic indexes are more useful in medical practice.

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b. Very often, Penicillin is added to poultry and livestock feeds.

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c. Antibiotics should be prescribed only when it is necessary.

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04. Name **one (01)** antibiotic which could be used to act against the following groups of microorganisms in humans.

i. Gram positive bacteria - .....

ii. Gram negative bacteria - .....

iii. Both Gram positive and negative bacteria - .....

iv. Fungi - .....

v. Mycoplasma - .....

05. What is meant by the following?

a. Recombinant DNA technology

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b. Lyophilisation

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c. Microbiological assay

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d. Cardinal temperatures of a bacterial species

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06. Complete the table given below by indicating the source of energy and the energy producing process of the microbes listed in column A.

| | A | Source of energy | Process by which energy id produced |
|---|---|---|---|
| i | *Nitrosomonas* | | |
| ii | Purple bacteria | | |
| iii | *Thiobacillus* | | |
| iv | *Lyngbya* | | |
| v | Yeast | | |