Name :					
Roll No.:					The Country Countries and Explored
Invigilator's Signature :					
CS/B.Sc.(H)(BT/Genetics/Mol.Bio/Microbio)/SEM-2/POM-203/2011					
2011					
PRINCIPLES OF MICROBIOLOGY					
Time Allotted: 3 Hours					Full Marks: 70
		Th	e figures in the margin i	ndica	te full marks.
Candidates are required to give their answers in their own words as					
far as practicable.					
.					
GROUP – A					
(Multiple Choice Type Questions)					
1.	. Choose the correct alternatives for any ten of the following : $10 \times 1 = 10$				
	i) The postulates of the germ theory of the disease was proposed by				
		a)	Louis Pasteur	b)	Robert Koch
		c)	John Needham	d)	None of them.
	ii) Alexander Fleming discovered				
		a)	tetracycline	b)	vancomycin
		c)	penicillin	d)	none of these.
	iii) Ethanol used in gram staining is				
		a)	70%	b)	95%

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d)

10%.

20%

c)

CS/B.Sc.(H)(BT/Genetics/Mol.Bio/Microbio)/SEM-2/POM-203 Picric acid is a type of iv) a) azo stain b) nitro stain c) xanthenes stain d) diazo stain. Oils can be sterilized by v) filtration b) auto clave a) hot air oven d) water bath. c) vi) Disinfectant are usually applied to living tissues b) food a) c) all of these. inanimate objects d) HEPA filters are vii) a) high efficiency particulate air highly efficient particular air b) high efficiency particular air c) high efficient particular air. d) viii) Which membrane filter pore size does remove most vegetative cells? a) 0.2 micrometer b) 0.02 micrometer c) 0.1 micrometer d) None of these. Mostly used biological indicator for autoclave is ix)

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a)

b)

c)

d)

Bacillus subtilis

Salmonella sp.

none of these.

Geobacillus stearothermophilus

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- x) Nitrogen fixation occurs in
 - a) heterocyst
- b) cytoplasm
- c) mitochondria
- d) all of these.
- xi) Salt loving bacteria are
 - a) barophiles
- b) psychrophiles
- c) halophiles
- d) thermophiles.
- xii) The unit of capsids are called
 - a) capsomere
- b) capsules
- c) nucleoid
- d) none of these.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

 $3 \times 5 = 15$

- 2. Write a short on any one of the following:
 - a) Contribution of Louis Pasteur in the development of microbiology.
 - b) Contribution of Francisco Redi.
- 3. Explain the mechanisms of gram's staining.
- 4. Define sterilization. What is tyndallization? Differentiate between dry and moist heat. 1 + 2 + 2
- 5. Name few pathogenic organisms and their roles in causing diseases.
- 6. Write the classification of bacteria based on oxygen requirement.

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(Long Answer Type Questions)

Answer any three of the following.

 $3 \times 15 = 45$

7. What is pasteurization? Write the basic differences between freezing, refrigeration and lyophilization. Give the advantages and disadvantages of ionizing and non-ionizing radiation with examples. Describe the mechanisms for UV ray sterilization.

1 + 3 + 7 +

- 8. Define disinfection with examples. Describe the method for determination of phenol coefficient of disinfectant. Give some examples, uses and mode of action of some important microbial metabolites. 2 + 6 + 7
- 9. What is the mechanism of methane production by methanogens? How thermophiles can thrive under extreme high temperature? How bacteria can be classified on the basis of utilisation of nutrient? What are barophiles?

$$5 + 5 + 4 + 1$$

10. What are the differences between bacteria and viruses? Draw the diagram of a bacteriophage. How can you cultivate viruses in lab? Name an antiviral drug. Why penicillin is ineffective for viruses? Name one animal and plant virus.

$$3 + 2 + 3 + 2 + 3 + 2$$

11. What is eclipse phase and latent phase in virology? Describe with graphs. What are the stages of viral growth cycle? Give diagrams. Classify virus according to nucleic acid content. 5 + 5 + 5

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1 + 3 + 7 +