J. M. PATEL ARTS, COMMERCE & SCIENCE COLLEGE, BHANDARA

TEST EXAMINATION (SUMMER – 2020)

BSc Sem – II MICROBIOLOGY

PAPER – I (MICROBIAL PHYSIOLOGY)

TIME : 3 HOURS **MAX. MARKS : 50**

N.B. :- 1) All questions are compulsory and carry equal marks.

2) Draw diagram and give example wherever necessary.

1	Explain synthetic and non-synthetic media	10
	OR	
	Explain in detail basic nutritional requirements of bacteria	10
2	Describe various phases of a typical bacterial growth curve	10
	OR	
	Classify bacteria on the basis of pH, temperature and oxygen requirement	10
3	a) Explain radiation and filtration as a means of microbial control	05
	b)What is concept of microbial death ?	05
	OR	
	c) Explain the principle and working of an autoclave	05
	d) Compare microbial control by moist heat and dry heat	05
4	a) Explain oligodyanamic action of heavy metals	2.5
	b) Write note on quats	2.5
	c) Explain the action of surfectants in microbial control	2.5
	d) How quarternary ammonium compounds help in microbial control ?	2.5
	OR	
	e) What do you mean by selective toxicity ?	2.5
	f) Explain the dynamics of disinfectant	2.5
	g) Describe action of chlorine in microbial control	2.5
	h) Describe the role of detergents in inhibiting microbial growth	2.5
5	Answer any TEN	
	a)What are trace elements ?	01
	b) What are autotrophs ?	01
	c) What is chocolate agar ?	01
	d) What is meant by cytokinesis ?	01
	e) What is the origin of reproduction ?	01
	f) What is dilution rate ?	01
	g) What is the action of U-V rays on bacterial cells ?	01
	h) What is flamming ?	01
	i) What is meant by cold sterilization ?	01
	j) What is fumigation ?	01
	k) Define surfactant	01
	l) Give one example of antimetabolite	01

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TEST EXAMINATION (SUMMER – 2020)

BSc Sem – II MICROBIOLOGY

PAPER – II (MICROBIAL TECHNIQUES)

TIME : 3 HOURS **MAX. MARKS : 50**

N.B. :- 1) All questions are compulsory and carry equal marks.

2) Draw diagram and give example wherever necessary.

1.	Describe various components of bright field microscope with its functions	10
	OR	
	Explain principle and working of dark field microscopy along with its ray diagram.	10
2.	Describe phase contrast microscopy	10
	OR	
	Explain in detail principle and mechanism of fluorescent microscopy	10
3.	a) Give principle and mechanism of endospore staining	05
	b) Write a note on classification of dyes	05
	OR	
	c) Give principle and mechanism of Gram staining	05
	d) Explain various theories of staining	05
4.	Explain	
	a) Serial dilution technique	2.5
	b) Auxanography for determining carbon sources	2.5
	c) Coulter – Counter technique	2.5
	d) Synchronous culture	2.5
	OR	
	e) Breed's method	2.5
	f) Replica plate technique for nitrogen source	2.5
	g) Streak plate method	2.5
	h) Enrichment culture technique	2.5
5.	Attempt any TEN of the following	
	a) Define numerical aperture	01
	b) Define resolving power	01
	c) Give one limitation of electron microscopy	01
	d) Give one application of atomic force microscopy	01
	e) What is cantilever ?	01
	f) Give application of fluorescent antibody technique	01
	g)What is chromogen ?	01
	h) What is difference in stain and dye ?	01
	i) What is use of endospore to bacteria ?	01
	j) Define axenic culture	01
	k) What is meant by quarternary ammonium compound ?	01
	l) Define chemotherapeutic agent	01

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TEST EXAMINATION (SUMMER – 2020)

BSc Sem - IV MICROBIOLOGY

PAPER – I (MICROBIAL METABOLISM)

TIME : 3 HOURS **MAX. MARKS : 50**

N.B. :- 1) All questions are compulsory and carry equal marks.

2) Draw diagram and give example wherever necessary.

1.	Describe in detail EMP pathway with its energetic	10
	OR	
	Explain in detail Kreb's Cycle with its energetic.	10
2.	A) Explain rolling circle model of DNA replication.	05
	b) Explain β – oxidation of palmitic acid.	05
	OR	
	c) Write a note on DNA polymerase	05
	d) Give diagrammatic presentation of transcription	05
3.	Describe salient features of a genetic code.	10
	OR	
	Explain the process of prokaryotic protein translation in detail	10
4.	a) Explain substrate level phosphorylation with an example	2.5
	b) Write a note on ATP synthetase	2.5
	c) Draw diagram of cyclic photophosphorylation	2.5
	d) Write a note on cytochrome in ETC.	2.5
	OR	
	e) Describe various energy rich compounds	2.5
	f) Draw diagram of non cyclic photophosphorylation	2.5
	e) Write a note on FAD	2.5
	d) Explain how ATP is generated in ETC	2.5
5.	Answer any ten of the following.	
	a) What is the significance of ED pathway ?	01
	b)What is full form of WD ?	01
	c)Why pyruvate is called key metabolite ?	01
	e)What are okazakii fragments ?	01
	f)What is the role of RNA primer ?	01
	g)Name any two glucogenic amino acids	01
	h)Define deamination	01
	i)Give the significance of urea cycle	01
	j)What is extended form of NAD ? Give it's reduced form	01
	k)What is pribnow box ?	01
	l)What is P/O ratio ?	01

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TEST EXAMINATION (SUMMER – 2020)

BSc Sem - IV MICROBIOLOGY

PAPER – II (APPLIED MICROBIOLOGY)

TIME : 3 HOURS **MAX. MARKS : 50**

N.B. :- 1) All questions are compulsory and carry equal marks.

2) Draw diagram and give example wherever necessary.

1.	Describe multiple tube fermentation technique for the determination of coliforms in water	10
	OR	
	Describe purification of water by rapid sand filter	10
2.	Discuss physical, chemical and biological characteristics of sewage	10
	OR	
	Explain trickling filiter and activated sludge process	10
3.	a) Give general account of active monitoring	05
	b) Write a note on biopesticide	05
	OR	
	c) Give advantages and disadvantages of biofertilizers	05
	d) Write a note on phosphate solubilizing bacteria	05
4.	Explain	
	a) Salmonelosis	2.5
	b) Mycotoxins	2.5
	c) Causes of food spoilage	2.5
	d)Pasteurization	2.5
	OR	
	e) Botulism	2.5
	f) Food infection	2.5
	g) Staphylococcal food intoxication	2.5
	h) Chemical preservatives	2.5
5.	Answer any TEN	
	a)What is break point chlorination ?	01
	b)define coliform	01
	c)Give two examples of enterococcus group	01
	d) What is settled sewage ?	01
	e) What is grit chamber ?	01
	f) Define RBC	01
	g)Define bioleaching	01
	h) Name two bacterial pesticides	01
	i) What is mycorrhyza ?	01
	j) Define canning	01
	k) What is endotoxin ?	01
	l) Give two examples of organic food preservatives	01

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TEST EXAMINATION (SUMMER – 2020)

BSc Sem – VI MICROBIOLOGY

PAPER – I (IMMUNOLOGY)

TIME : 3 HOURS **MAX. MARKS : 50**

N.B. :- 1) All questions are compulsory and carry equal marks.

2) Draw diagram and give example wherever necessary.

1	Explain the mechanism of phagocytosis and inflammation in detail	10
	OR	
	What are lymphoid organs ? Describe thymus and lymph nodes in detail	10
2	Explain T – cell dependent antibody response in detail	10
	OR	
	Write in detail on monocytes and macrophages	10
3	a) Define agglutination. Give its applications	05
	b) Give the characteristics antigen molecule	05
	OR	
	c) Give the properties of antigen in relation to human beings	05
	d) Explain general structure of immunoglobulin molecule	05
4	a) Explain type II hypersensitivity reaction	2.5
	b) Describe systemic anaphylaxis	2.5
	c) Explain major histocompatibility complex	2.5
	d) Give the Gel and Coomb classification of hypersensitivity reactions	2.5
	OR	
	e) Explain type III hypersensitivity reaction	2.5
	f) Describe indirect ELISA	2.5
	g) Explain the mechanism of erythroblastic fetalis	2.5
	h) Explain the role of immunofluorescence test in the disease diagnosis	2.5
5	Answer any TEN	
	a) What is respiratory burst ?	01
	b) What are peyer's patches ?	01
	c) How B and T cells were named ?	01
	d) What are memory cells ?	01
	e) What are interleukins ?	01
	f) What are perforins and granzymes ?	01
	g) What is Coomb's reaction ?	01
	h) What are opsonins ?	01
	i) What is Oudin's procedure ?	01
	j) What are allergens ?	01
	k) What is regain ?	01
	l) Give the application of Mantoux test	01

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TEST EXAMINATION (SUMMER – 2020)

BSc Sem – VI MICROBIOLOGY

PAPER – II (BIOTECHNOLOGY)

TIME : 3 HOURS **MAX. MARKS : 50**

N.B. :- 1) All questions are compulsory and carry equal marks.

2) Draw diagram and give example wherever necessary.

1.	Describe the PCR technique in detail along with its applications	10
	OR	
	Explain various types of vectors in genetic engineering technology	10
2.	Desribe production of insulin by gene cloning technique	10
	OR	
	What is hybridoma ? Explain in detail production of monoclonal antibody	10
3.	a) Explain chemical method for protoplast fusion	2.5
	b) Describe bacteria as biopesticide	2.5
	c) Give applications of nanobiotechnology	2.5
	d) Write a note on microarray	2.5
	OR	
	e) Explain bacteria as biofertilizer	2.5
	f) Describe glucose biosensor	2.5
	g) Write a note on biochips	2.5
	h) Explain hazards of biotechnology	2.5
4.	a) Explain in brief production of soya sauce	05
	b) Write a note on milching animals	05
	OR	
	c)Describe Bt cotton	05
	d) Write a note on knockout mice	05
5.	Answer any TEN	
	a) What is endonuclease ?	01
	b) Give application of southern blotting technique	01
	c) Give application of DNA finger printing	01
	d) What are types of interferon ?	01
	e) Give extended form of BCG	01
	f) Define toxoid	01
	g) Give name of fungal biopesticide	01
	h) Name an enzyme used for protoplast fusion	01
	i) Give application of genetic engineering	01
	j) What is sufu ?	01
	k) What is GMF ?	01
	l) Give significance of golden rice	01