HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)
(Affiliated to Osmania University)
Nallakunta, Hyderabad-44

B.SC. III YEAR SEMESTER V
DEPARTMENT OF MICROBIOLOGY
2018-2019

HINDI MAHAVIDYALAYA

(AUTONOMOUS & NAAC RE-ACCREDITED)

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Nallakunta, Hyderabad-44

B.SC. III YEAR SEMESTER V

DEPARTMENT OF MICROBIOLOGY

2018-2019

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Head – Department of Microbiology,
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University Nominee

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Assistant Professor
Department of Microbiology, University College of Science,
Osmania University, Hyderabad.

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   Lecturer- Department of Microbiology,
   Osmania University, Hyderabad.

2. Ms. J Sridevi
   Indira Priyadarshini Govt Degree College for Women,
   Nampally, Hyderabad.

Faculty

1. Dr. Vikas Sharma
   Lecturer-Hindi Mahavidyalaya
   Nallakunta, Hyderabad.

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AGENDA OF THE MEETING

3.1. Welcome address by the chair.

3.2. Previous Meeting Details

3.3. Details of choice base credit system.

3.4. Discussion on Common Core Syllabus of Semester V & VI.

3.5. Marks allotted for Internal and End Semester exams.

3.6. Discussion on Semester Exam Model Paper & Internal Exam Model Paper, SEC 3 & 4 Theory Model Paper , GE 1 & 2 Theory Model Paper of Semester V & VI.

3.7. Discussion on Practical Exam Model Paper of B.Sc. II Year (Semester III & IV) and B.Sc. III Year (Semester V & VI).

3.8. Panel of Examiners

3.9. Any other matter

3.10. Vote of Thanks

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BOARD OF STUDIES
ACADEMIC YEAR – 2018-19

MINUTES OF BOARD OF STUDIES MEETING

BOS meeting of the Department of Microbiology was held on 24th July 2018 at 02:30 PM.

The following members were present

Dr. Bhukya Bhima	-	University Nominee	
Smt. P. Varshika	-	Chairperson	
Dr. P. Nagapadma	-	Member	Dept. of Micro Biology BVL
Ms. J. Sridevi	-	Member	

3.1 Welcome address by the chair

The chair welcomed the University Nominee, BOS, O.U Department of Microbiology and Members of B.O.S.

3.2 Previous Meeting details

The CBCS system has been introduced by Osmania University from 2016-17.The Theory and practical syllabus of I & II and III & IV semester, question paper pattern for theory and practical, internal assessment pattern, practical examination scheme and panel of examiners were discussed and approved by all the BOS Members in previous BOS meeting.

3.3 Details of choice based credit system.

Members were informed that TSCHE has referred that from the academic year 2016-17 autonomous institutions have to follow CBCS i.e. From the Academic Year 2016-17 Osmania University has instructed all the Degree colleges including Autonomous Degree colleges to follow CBCS under which after passing the exam student will get the Grade in the Final Result. 3 Credits are given for theory paper and 1 credit is given for practical in semester V & VI of B.Sc III year.

3.4 Discussion and Distribution of Common Core Syllabus.

i. Members were informed by the chair that Department of Microbiology, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University for B.Sc III Year, Semester V and VI.

ii. The syllabus comprises of 3 units each of core and elective. There are two electives (A & B) for each semester from which the student can opt for any one.

Syllabus copy for both the semesters is enclosed.

Syllabus was approved by the Members of BOS.

3.5 Marks allotted for Internal and End Semester V & VI exams.

1. Internal assessment is of 15 marks. In each semester two internal assessment of 15 Marks will be conducted and an average of both the internal assessments will be added in the marks of theory exam.
2. Theory Question paper is of 60 marks.
3. Total allotted marks are 75.
4. Internal assessment is of 10 marks for SEC and GE. One internal assessment of 10 Marks will be conducted and added in the marks of Theory exam.
5. Theory Question paper for SEC and GE is of 40 marks.
6. Total allotted marks are 50 for each SEC and GE.

The distribution of marks was approved by the Members of BOS.

3.6 Discussion on Pattern and Model Paper of Semester exam and Model Paper of Internal Exam

1. It was informed by the department that as Osmania University CBCS guidelines there is no assignment for 3 credits core and elective papers. Each Semester Two Internal exams will be conducted for 15 marks. The internal assessment will have three sections.
   Section – A 10 Multiple choice questions each carries ½ marks (10x ½ = 5M),
   Section – B 10 Fill in the blanks each carries ½ marks (10x ½ = 5M) and
   Section – C 5 short notes each 1mark (5x1=5)
   Average of marks of these two internal exams will be taken.
2. Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 30Mts and Semester exam duration will be of 3 hrs.
3. Model Question paper for Semester V and Semester VI was discussed. Theory paper for each Semester will have 2 sections.

   (i) Section A contains 8 short Questions. The student has to answer five questions. Each Question carries 3 Marks (5X3=15 Marks)

   (ii) Section B contains 3 Essay type Questions with internal choice. Each Question carries 15 Marks (3X15=45 Marks)

4. Model Question paper for SEC Semester V and Semester VI was discussed. Theory paper for each SEC will have 2 sections.
   (i) Section A contains 2 short Questions. The student has to answer TWO questions.
   (ii) Each Question carries 5 Marks (2X5=10 Marks)
   (iii) Section B contains 2 Essay type Questions with internal choice. Each Question carries 15 Marks (2X15=30 Marks)

- Pattern of Model Theory Question Papers for DSC(V,VII) and DSE(VI,VIII) A/B and SEC Paper 3 and Paper 4, GE papers 1&2 are enclosed.
- Pattern of Model Theory Question Papers for DSC(V,VII),DSE(VI,VIII) A/B and SEC(3&4) and GE (1&2) was approved by Member of BOS.

3.7 Discussion on Practical Exam Model paper.

It was decided in BOS meeting that 50 Marks Practical Exam of 2 hrs will be held in each Semester (V &VI) for DSC & DSE and 1 credit will be given for Practical in each Paper.

- It is decided that the practical examinations held for B.Sc. II years (Semester III & IV) from the academic year 2017-18 onwards will have the pattern of 25 marks scheme and the credits will remain the same i.e. 1 credit. The duration of the exam will be 2 hours.
- Pattern of Model Practical Question Papers for Paper III, IV,V,VI & VII VIII are enclosed.
- Pattern of Model Practical Question Papers was approved by Members of BOS

3.8 Panel of Examiners

The panel of examiners was approved by the members.

- List is enclosed

3.9 Any other matter.

The semester I,II, III& IV syllabus is approved and followed for the academic year 2018-2019.There is no change in the syllabus and pattern

3.10 Vote of Thanks

Meeting concluded with the Vote of Thanks by Mrs. P.Varshika

Chairperson P Varshika

University Nominee

Members

1.
2. Dept. of Micro Biology BVC
3. H.O.D. Department of Microbiology Indira Priyadarshini Government

Principal I/c. PRINCIPAL RINDI MAHAVIR Arts, Commerce Nallakunta, H

HINDI MAHAVIDYALAYA

[AUTONOMOUS]
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Kachiguda, Hyderabad-500 027

2018-19 CBCS STRUCTURE

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

THIRD YEAR SEMESTER-V

Code	Course Title	Course Type	HPW	Credits	Semester End exam		Continuous Internal Evaluation		Total	Practical 2 HRS
					Duration in HRS	Marks	Exam Duration	Marks		
BS501	E/F	SEC-3	2	2	2	40	30 min	10	50	-
BS502		GE-1	2 T	2	2	40	30 min	10	50	-
BS503	BIO-CHEMISTRY / BIO- TECHNOLOGY - V	DSC-1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS504	MICROBIOLOGY - V	DSC-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS505	CHEMISTRY - V	DSC-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS506	BIO-CHEMISTRY / BIO- TECHNOLOGY - VI	DSE- 1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS507	MICROBIOLOGY - VI	DSE-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS508	CHEMISTRY - VI	DSE-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		440		110	850	

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

THIRD YEAR SEMESTER-VI

Code	Course Title	Course Type	HPW	Credits	Semester End exam		Continuous Internal Evaluation		Total	Practical 2 HRS
					Duration in HRS	Marks	Exam Duration	Marks		
BS601	G/H	SEC-4	2	2	2	40	30 min	10	50	-
BS602		GE-2	2 T	2	2	40	30 min	10	50	-
BS603	BIO-CHEMISTRY / BIO- TECHNOLOGY - V	DSC-1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS604	MICROBIOLOGY - V	DSC-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS605	CHEMISTRY - V	DSC-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS606	BIO-CHEMISTRY / BIO- TECHNOLOGY - VI	DSE- 1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS607	MICROBIOLOGY - VI	DSE-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS608	CHEMISTRY - VI	DSE-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		440		110	850	
	TOTAL Credits			164						4200

Dept. of Micro Biology BYC

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DEPARTMENT OF MICROBIOLOGY
B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-V
DISCIPLINE SPECIFIC CORE THEORY

APPLIED MICROBIOLOGY

Code: BS503 **DSC1E**
HPW: 3T+2P **Credits: 3T+1P**

Objective:

UNIT-I - Microbes in Agriculture **15h/week**

1.Physical and chemical characteristics of soil
2.Rhizosphere and phyllosphere
3.Plant growth promoting microorganisms (mycorrhizae,rhizobium, azospirillum, azatobacter, cynobacteria,frankia and phosphate solubilising microorganisms)
4.Biofertilizers- Rhizobium & Cyanobacteria

UNIT-II - Plant Diseases & Biocontrol **15h/week**

1.Concept of disease in plant
2.Symptoms of plant diseases caused by fungi (ground nut rust),bacteria (angular Leaf spot cotton) and viruses (tomato leaf curl)
3.Principles of plant disease control
4.Biological control of plant diseases, Biopesticides-Bacillus thuringenisis, Nuclear polyhedrosis virus (NPV), Trichoderma

UNIT-III Environmental Microbiology and Bioremediation **15h/week**

1.Microorganisms of environment soil,water ,air
2.Role of microorganisms in nutrient cycles (carbon,nitrogen,sulphur)
3.Microbial interaction-mutalism, commensalism, antagonism, competition, parasitism, predation
4.Microbiology of potable and polluted water. E.coli and Streptococcus faecalis as indicators of water pollution. Sanitation of potable water.
5.Sewage treatment (primary, secondary and tertiary)
6.Outline of biodegradation of environmental pollutants –pesticides

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2. Paul, E.A. and Clark, F.E. (1989). Soil Microbiology and Biochemistry, Academic Press, USA.
3. Subba Rao, N.S. (1993). Biofertilizers in Agriculture and Forestry, 3rd Edition Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.

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5. Atlas, R.M. and Bartha, R. (1998). Microbial Ecology - Fundamentals and Applications, Addison Wesley Longman, Inc., USA
6. Lynch, J.M. and Poole, N.J. (1979). Microbial Ecology – A Conceptual Approach, Blackwell Scientific Publications, USA
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8. Reddy, S.R. and Singara Charya, M.A. (2007). A Text Book of Microbiology - Applied Microbiology, Himalaya Publishing House, Mumbai.
9. Singh, R.P. (2007). Applied Microbiology, Kalyani Publishers, New Delhi.

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DEPARTMENT OF MICROBIOLOGY
B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-V
PRACTICALS

APPLIED MICROBIOLOGY

Code: BS503P **DSC1E**
HPW: 2 **Credits:1**

1. Isolation &enumeration of Rhizosphere microorganisms.
2. Isolation &identification of Phyllosphere microorganisms.
3. Study of root nodules of leguminous plants.
4. Isolation of Rhizobium from leguminous root nodules.
5. Isolation of *Azospiriullum* and *Azotobacter*.
6. Staining & observation of VAM fungi.
7. Isolation of microorganisms in air by solid/liquid impingement method.
8. Plant diseases-Rust, Smuts, Powdery mildews, Tikka disease of ground nut, citrus
9. canker,bhendi yellow vein mosaic, tomato leaf curl ,little leaf of brinjal.
10. Microbial quality testing of water by coliform test
11. Determination of Biological oxygen demand (BOD) of water

References

1. Aneja, K.R. (2001). Experiments in Microbiology, Plant pathology, Tissue culture and Mushroom Production Technology, 3rd Edition, New Age International (P) Ltd., New Delhi.
2. Dubey, R.C. and Maheswari, D.K. (2002). Practical Microbiology, S. Chand & Co.,New Delhi.
3. Burns, R.G. and Slater, J.H. (1982). Experimental Microbiology and Ecology. Blackwell Scientific Publications, USA.
4. Peppler, I.L. and Gerba, C.P. (2004). Environmental Microbiology – A Laboratory Manual. Academic Press. New York.
5. Gupte, S. (1995). Practical Microbiology. Jaypee Brothers Medical Publishers Pvt. Ltd.
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DEPARTMENT OF MICROBIOLOGY

B.SC MICROBIOLOGY III YEAR
SEMESTER – V
PAPER –DSC (V)
APPLIED MICROBIOLOGY
THEORY MODEL QUESTION PAPER

Time: 3hrs **Max. Marks: 60**

SECTION A

I Write short notes on any Five of the following: **5X3=15 Marks**

1. A Question from Unit I
2. A Question from Unit II
3. A Question from Unit III
4. A Question from Unit I
5. A Question from Unit II
6. A Question from Unit III
7. A Question from any of I,II,III units
8. A Question from any of I,II,III units

SECTION B

II Essay Questions. Answer all the Questions **3X15=45 Marks**

9. (a) A Question from Unit I
   (OR)
   (b) A Question from Unit I

10. (a). A Question from Unit II
    (OR)
    (b). A Question from Unit II

11. (a) A Question from Unit III
    (OR)
    (b) A Question from Unit III

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B.SC MIRCOBIOLOGYIII YEAR
SEMESTER – V
PAPER –DSC (V)
APPLIED MICROBIOLOGY
PRACTICAL MODEL QUESTION PAPER

Time – 3 Hrs **Total Marks:50**

I	Major Practical Question	20Marks
II	Minor Practical Question	10Marks
III	Identify the following spotter(5 x 2=10)	10Marks
IV	Record	5Marks
V	Viva voce	5Marks

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B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-VI
DICIPLINE SPECIFIC ELECTIVE THEORY-A

IMMUNOLOGY

Code: BS506 DSE-1E
HPW: 3T+2P Credits:3T+1P

Objective:

UNIT-1 HISTORY OF IMMUNOLOGY AND IMMUNITY 15h/week

1.Development of immunology.
2.Antigen –types,chemical nature,Antigenic determinants,Haptens Factors affecting antigenicity.
3.Antibodies-Basic structure,Types,properties and functions of immunoglobulins.
4.Complement, components of complement and activation of complement.
5.Types of immunity-Innate, Acquired; Active and passive, humoral and cell mediated immunity.

UNIT-2 CELLS AND ORGANS OF IMMUNE SYSTEM 15h/week

1.Primary and secondary organs of immune system- Thymus, bursa of fabrica, bone marrow, spleen and lymphnodes, mucus associated lymphoid tissue (MALT).
2.Cells of immune system, Identification and functions of B &T Lymphocytes, Null cells, Monocytes. Macrophages, Neutrophills, Basophills & Eosinophills.

UNIT-3 IMMUNOLOGICAL PROCESSES AND APPLICATIONS 15h/week

1.Types of antigens-Antibody reactions- Agglutination, blood groups, precipitation, neutralization, complement fixation.
2.Labeled antibody based techniques-ELISA, RIA and Immunoflurosence
3.Types of hypersensitivity immediate and delayed.
4.Autoimmunity and its significance.
5.Polyclonal and monoclonal antibodies production and application
6.Vaccines-Natural and recombinants.

References:

1. Sudha Gangal. Shubhangi Sontakke. Text book of Basic and Clinical I mmunology, Universitie Press.
2. Tizard, I.R. (1995). Immunology : An Introduction, WB Saunders, Philadelphia, USA.
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13. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.

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DEPARTMENT OF MICROBIOLOGY

B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-VI
PRACTICALS
DICIPLINE SPECIFIC ELECTIVE - A
IMMUNOLOGY

CODE : BS506P
HPW: 2 **Credits:1**

1. Determination of blood grouping and RH typing.
2. Total count of RBC and WBC.
3. Differential count of blood leucocytes.
4. Estimation of blood Haemoglobin.
5. WIDAL test for typhoid(slide test)by Ag-Ab reactions
6. VDRL test for syphilis (slide test) by Ag-Ab reactions.
7. Ouchterlony double diffusion test
8. Separation of serum and plasma

References

1. Talwar, G.P. and Gupta, S.K. (1992). A Hand Book of Practical and Clinical
2. Immunology. CBS Publications, New Delhi.
3. Baren, E.J. (1994). Bailey and Scott's Diagnostic Microbiology, 9th Edition, Mosby Publishers.
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DEPARTMENT OF MICROBIOLOGY

B.SC MICROBIOLOGY III YEAR
SEMESTER – V
PAPER –DSE (VI) A/B
IMMUNOLOGY
THEORY MODEL QUESTION PAPER

Time: 3hrs **Max. Marks: 60**

SECTION A

I Write short notes on any Five of the following: **5X3=15 Marks**

1. A Question from Unit I
2. A Question from Unit II
3. A Question from Unit III
4. A Question from Unit I
5. A Question from Unit II
6. A Question from Unit III
7. A Question from any of I,II,III units
8. A Question from any of I,II,III units

SECTION B

II Essay Questions. Answer all the Questions **3X15=45 Marks**

9. (a) A Question from Unit I
   (OR)
   (b) A Question from Unit I

10. (a). A Question from Unit II
    (OR)
    (b). A Question from Unit II

11. (a) A Question from Unit III
    (OR)
    (b) A Question from Unit III

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V.C. PRINCIPAL
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B.SC MICROBIOLOGY III YEAR
SEMESTER – V
PAPER - DSE (VI) A/B
IMMUNOLOGY
PRACTICAL MODEL QUESTION PAPER

Time – 3 Hrs **Total Marks:50**

I	Major Practical Question	20Marks
II	Minor Practical Question	10Marks
III	Identify the following spotter(5 x 2=10)	10Marks
IV	Record	5Marks
V	Viva voce	5Marks

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DEPARTMENT OF MICROBIOLOGY

B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-VI
DICIPLINE SPECIFIC ELECTIVE-B

PHARMACEUTICAL MICROBIOLOGY

Code: BS506
HPW: 3T+2P

DSE-1E
Credits:3T+1P

UNIT-I: **15h/week**

1.Principles of chemotherapy – Clinical and lab diagnosis, sensitivity testing.
2.Choice of drug, dosage, route of administration, combined/mixed multi drug therapy, control of antibiotic/drug usage.

Unit-II: **15h/week**

1.History of chemotherapy – plants and arsenicals as therapeutics, Paul Ehrlich and his contributions, selective toxicity and target sites of drug action in microbes.
2.Over view of development of synthetic drugs. Antibiotics - The origin, development and definition of antibiotics as drugs, types of antibiotics and their classification.

UNIT-III **15h/week**

1.Mode of action of important drugs – Cell wall inhibitors (Betalactam – eg. Penicillin),membrane inhibitors (polymyxins), macromolecular synthesis inhibitors (streptomycin), antifungal antibiotics (nystatin)
3.Anti Microbial Assays: Assay for growth inhibiting substances – Assay for non-medicinal antimicrobials (Phenol coefficient/RWC).
4.Drug sensitivity testing methods and their importance.
5.Assay for antibiotics – Determination of MIC, the liquid tube assay, solid agar tube assay, agar plate assay (disc diffusion, agar well and cylinders cup method).

References

1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
3. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
4. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
5. Shetty, N. (1994). Imuunology – Introductory Textbook. New Age International Pvt. Ltd., New Delhi.
6. Singh, R.P. (2007). Immunology and Medical Microbiology. Kalyani Publishers, New Delhi.

7. Reddy, S.R. and Reddy, K.R. (2006). A Text Book of Microbiology - Immunology and Medical Microbiology, Himalaya Publishing House, Mumbai.
8. Lydyard, P.M., Whelan, A. and Fanger, M.W. (2000). Instant Notes in Immunology, Viva Books Pvt. Ltd., New Delhi.
9. Chakraborty, B. (1998). A Text Book of Microbiology, New Central Book Agency (P) Ltd, Calcutta, India. 12

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B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-VI
PRACTICALS
DICIPLINE SPECIFIC ELECTIVE - B
PHARMACEUTICAL MICROBIOLOGY

CODE : BS506P

HPW: 2 **Credits:1**

1. Tests for disinfectants (Phenol coefficient)
2. Determination of antibacterial spectrum of drugs/antibiotics Chemical assays for antimicrobial drugs
3. Testing for antibiotic/drug sensitivity/resistance.
4. Determination of MIC value for antimicrobial chemicals
5. Microbiological assays for antibiotics (Liquid tube assay, agar tube assay, agar well assays)

References

1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
3. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
4. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
5. Shetty, N. (1994). Imuunology – Introductory Textbook. New Age International Pvt. Ltd., New Delhi.
6. Singh, R.P. (2007). Immunology and Medical Microbiology. Kalyani Publishers, New Delhi.
7. Reddy, S.R. and Reddy, K.R. (2006). A Text Book of Microbiology - Immunology and Medical Microbiology, Himalaya Publishing House, Mumbai.
8. Lydyard, P.M., Whelan, A. and Fanger, M.W. (2000). Instant Notes in Immunology, Viva Books Pvt. Ltd., New Delhi.
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DEPARTMENT OF MICROBIOLOGY

B.SC MICROBIOLOGY III YEAR
SEMESTER – V
PAPER –DSE (VI) A/B

PHARMACEUTICAL MICROBIOLOGY
THEORY MODEL QUESTION PAPER

Time: 3hrs **Max. Marks: 60**

SECTION A

I Write short notes on any Five of the following: **5X3=15 Marks**

1. A Question from Unit I
2. A Question from Unit II
3. A Question from Unit III
4. A Question from Unit I
5. A Question from Unit II
6. A Question from Unit III
7. A Question from any of I,II,III units
8. A Question from any of I,II,III units

SECTION B

II Essay Questions. Answer all the Questions **3X15=45 Marks**

9. (a) A Question from Unit I
   (OR)
   (b) A Question from Unit I

10. (a). A Question from Unit II
    (OR)
    (b). A Question from Unit II

11. (a) A Question from Unit III
    (OR)
    (b) A Question from Unit III

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SEMESTER – V
PAPER - DSE (VI) A/B
PHARMACEUTICAL MICROBIOLOGY
PRACTICAL MODEL QUESTION PAPER

Time – 3 Hrs **Total Marks:50**

I	Major Practical Question	20Marks
II	Minor Practical Question	10Marks
III	Identify the following spotter(5 x 2=10)	10Marks
IV	Record	5Marks
V	Viva voce	5Marks

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B.SC. III YEAR SEMESTER VI
DEPARTMENT OF MICROBIOLOGY
2018-2019

HINDI MAHAVIDYALAYA

2018-19 CBCS STRUCTURE

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

THIRD YEAR SEMESTER-V

Code	Course Title	Course Type	HPW	Credits	Semester End exam		Continuous Internal Evaluation		Total	Practical 2 HRS
					Duration in HRS	Marks	Exam Duration	Marks		
S501	E/F	SEC-3	2	2	2	40	30 min	10	50	-
S502		GE-1	2 T	2	2	40	30 min	10	50	-
S503	BIO-CHEMISTRY / BIO- TECHNOLOGY - V	DSC-1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S504	MICROBIOLOGY - V	DSC-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S505	CHEMISTRY - V	DSC-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S506	BIO-CHEMISTRY / BIO- TECHNOLOGY - VI	DSE- 1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S507	MICROBIOLOGY - VI	DSE-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S508	CHEMISTRY - VI	DSE-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		440		110	850	

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

THIRD YEAR SEMESTER-VI

Code	Course Title	Course Type	HPW	Credits	Semester End exam		Continuous Internal Evaluation		Total	Practical 2 HRS
					Duration in HRS	Marks	Exam Duration	Marks		
S601	G/H	SEC-4	2	2	2	40	30 min	10	50	-
S602		GE-2	2 T	2	2	40	30 min	10	50	-
S603	BIO-CHEMISTRY / BIO- TECHNOLOGY - V	DSC-1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S604	MICROBIOLOGY - V	DSC-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S605	CHEMISTRY - V	DSC-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S606	BIO-CHEMISTRY / BIO- TECHNOLOGY - VI	DSE- 1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S607	MICROBIOLOGY - VI	DSE-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
S608	CHEMISTRY - VI	DSE-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		440		110	850	
	TOTAL Credits			164						4200

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DEPARTMENT OF MICROBIOLOGY
B.SC. III YEAR MICROBIOLOGY
SEMESTER – V PAPER-VI
SKILL ENHANCEMENT COURSE (SEC)

MUSHROOM CULTIVATION

Code: BS501
HPW: [redacted]2P

SEC-3
Credits: [redacted] 2

Objective: The course is aimed at exposing the students to some knowledge of Molecular Biology in depth.

Unit-I

1. Introduction to mushroom cultivation
2. Importance and history of mushroom cultivation in India
3. Global status of mushroom production
4. Food value of mushroom

Unit-II

1. Steps in mushroom cultivation
   - (a) Selection of site and types of mushroom
   - (b) Mushroom farm structure, design layout
   - (c) Principle and techniques of compost and composting
   - (d) Principle of spawn production
   - (e) Casing and crop production
   - (f) Harvesting and marketing
2. Pest and pathogens of mushrooms
3. Post harvest handling and preservation of mushrooms

Reference:

1. Mushroom cultivation in india by B.C.Suman and V.P. Sharma Published by Daya publishing house New Delhi.
2. Mushrooms Cultivation, Marketing and Consumption Manjit Singh Bhuvnesh Vijay Shwet Kamal G.C. Wakchaure Directorate of Mushroom Research (Indian Council of Agricultural Research) Chambaghat, Solan –173213 (HP)

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SEMESTER – V PAPER-1

GENERIC ELECTIVE

MICROBIOLOGY AND HUMAN HEALTH

Code: BS502
HPW: 2

GE-1
Credits: 2

Objective:

UNIT- I:

Historic developments of Microbiology, contributions of Van Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch. Types of microorganisms, Morphological characteristics of bacteria, Staining, cultivation methods of bacteria, Culture Media.

UNIT- II: Biomolecules and Metabolism

Microorganisms related to human health. Normal microbial flora, Pathogenic microbes and their diseases - typhoid, T.B, syphilis, AIDS, Influenza.

References

1. Michael J. Pelczar, Jr. E.C.S.Chan, Noel R. Krieg Microbiology Tata McGraw- Hill Publisher.
2. Prescott, M.J., Harly, J.P. and Klein Microbiology 5th Edition, WCB Mc GrawHill, New York.
3. Madigan, M.T., Martinkl, J.M and Parker,j. Broch Biology of Microorganism, 9th Edition, MacMillan Press, England.
4. Dube, R.C. and Maheshwari, D.K. General Microbiology S Chand, New Delhi.
5. Ananthanarayan and Panikar. Text book of Microbiology. Universities Press.

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B.SC. III YEAR SEMESTER – V / VI

MICROBIOLOGY AND HUMAN HEALTH

GE- 1/2 Credits – 2

GE - THEORY MODEL PAPER

TIME: 2 HOURS MAX MARKS: 40

SECTION-A

Answer the following Questions in short: **5 x 2 = 10 Marks**

1. Question from Unit I
2. Question from Unit II

SECTION-B

Answer the following essay type questions: **2x15=30 Marks**

3 (a) Question from Unit I

OR

(b) Question from Unit I

4 (a) Question from Unit II

OR

(b) Question from Unit II

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SEMESTER – VI PAPER-VII

DICIPLINE SPECIFIC CORE THEORY

MEDICAL MICROBIOLOGY

Code: BS 603
HPW: 3T+2P

DSC-1F
Credits:3T+1P

Objective:

UNIT-I: INTRODUCTION TO MEDICAL MICROBIOLOGY 15h/week

1.Histroy of medical Microbiology.
2.Normal flora of human body.
3.Definition of infection.
4.Non specific defence mechanism- Mechanical barriers.
5.Antibacterial substance- Lysozyme, Complement, Properdin, Antiviral substances, Phagocytosis.
6.Host pathogen interactions. Bacterial toxins, Virulence and Attenuation.

UNIT-II- DIAGNOSTICAND THERAPEUTICAL MICROBIOLOGY 15h/week

1.General principles of diagnostic microbiology
2.Collections, transport & processing of clinical samples.
3.General methods of lab diagnosis-cultural, biochemical, serological & molecular methods
4.Test for antimicrobial susceptibility.
5.Elements of chemotherapy-Therapeutic drugs, Mode of action of Pencillin & sulpha drugs & their clinical use. Drug resistance.
6.Antiviral agents- Interferon, Base analogues.
7.Preventive control of diseases- active & passive immunization.

UNIT-III MEDICAL BACTERIOLOGY, VIROLOGY & PARASITOLOGY 15h/week

1.General account of following diseases, casual organisms, pathogenesis, epidemology, diagnosis, prevention & control
2.Air born diseases-Tuberculosis, Influenza
3.Food & waterborn diseases- Typhoid. Hepatitis-A, Amoebiosis
4.Contact diseases- Syphilis, Gonorrhoea. General account of Nosocomial infections.
5.Insect born diseases-Malaria, Filariasis, Dengue fever.
6.Zoonotic diseases –Anthrax, Rabies.
7.Blood born diseases- Serum hepatitis, AIDS

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References:

1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
3. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
4. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
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6. Singh, R.P. (2007). Immunology and Medical Microbiology. Kalyani Publishers, New Delhi.

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SEMESTER – VI PAPER-VII
PRACTICALS
MEDICAL MICROBIOLOGY

CODE : BS603P
HPW: 2 **Credits:1**

1. Biochemical tests for identification members of enterobacteriacea.
2. IMVIC test-indole test,methyl red test,voages proskeures test,citrate utilization test.
3. Oxidase test.
4. Catalase test.
5. Study of medically important microorganisms-Ecoli, Klebsiella, Staphylococcus,
6. Psedomonus.
7. Test for disinfectant (Phenol coefficient)
8. Antibiotic sensitivity testing – Disc diffusion method

Slides
Mycobacterium
Candida albicans
Entamoeba histolytica
plasmodium

References:

1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
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B.SC MICROBIOLOGY III YEAR
SEMESTER – VI PAPER - VII
MEDICAL MICROBIOLOGY
Theory Model Question Paper

Time: 3hrs **Max. Marks: 60**

SECTION A

I Write short notes on any Five of the following: **5X3 = 15 Marks**

1. A Question from Unit I
2. A Question from Unit II
3. A Question from Unit III
4. A Question from Unit I
5. A Question from Unit II
6. A Question from Unit III
7. A Question from any of I,II,III units
8. A Question from any of I,II,III units

SECTION B

II Essay Questions. Answer all the Questions **3X15 = 45 Marks**

9. (a) A Question from Unit I
   (OR)
   (b) A Question from Unit I

10. (a). A Question from Unit II
    (OR)
    (b). A Question from Unit II

11. (a) A Question from Unit III
    (OR)
    (b) A Question from Unit III

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B.SC MICROBIOLOGY III YEAR
SEMESTER – VI PAPER – VII
DSC
PRACTICAL MODEL QUESTION PAPER

Time – 3 Hrs **Total Marks:50.**

I	Major Practical Question	20Marks
II	Minor Practical Question	10Marks
III	Identify the following spotter(5 x 2=10)	10Marks
IV	Record	5Marks
V	Viva voce	5Marks

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SEMESTER – VI PAPER-VIII

DICIPLINE SPECIFIC ELECTIVE THEORY

FOOD MICROBIOLOGY (A)

Code: BS606
HPW: 3T+2P

DSE-1F
Credits:3T+1P

Objective:

UNIT-I **15h/week**

1.Microorganisms of food materials and their sources.
2.Spoilage of different food materials (Fruits, vegetables, Meat,Fish and Canned foods).
3.Food born diseases (Salmonellosis & Shigellosis) and their detection.

UNIT-II **15h/week**

1.Microbiological production of fermented foods- Bread, Cheese ,Yoghurt.
2.Biochemical activities of microbes in milk.
3.Microorganisms as food – SCP, Edible mushrooms (white button oyster, Paddy straw).
4.Concepts of Probiotics.

UNIT-III **15h/week**

1.Methods of Food preservation, food poisoning (Staphylococci, C. botulinum) Food intoxication.
2.Microbiology of potable and polluted water E.coli and streptococcus of water pollution
3.Sanitation of potable water
4. Solid waste disposal-sanitary landfills composting

References

1. Stanbury, P.F., Whitaker, A. and Hall, S.J. (1997). Principles of Fermentation Technology, Aditya Books (P) Ltd. New Delhi.
2. Doyle, M.P., Beuchat, L.R. and Montville, T.J. (1997). Food Microbiology: Fundamentals and Frontiers. ASM Press, Washington D.C., USA.
3. Frazier, W.C. and Westhoff, D.C. (1988). Food Microbiology, Mc Graw-Hill, New York.

4. Jay, J.M. (1996). Modern Food Microbiology, Chapman and Hall, New York.15
5. Ray, B. (1996). Fundamentals of Food Microbiology, CRC Press, USA.
6. Rangaswami, G. and Bhagyaraj, D.J. (2001). Agricultural Microbiology, 2nd Edition, Prentice Hall of India, New Delhi.
7. Atlas, R.M. and Bartha, R. (1998). Microbial Ecology - Fundamentals and Applications, Addison Wesley Longman, Inc., USA
8. Paul, E.A. and Clark, F.E. (1989). Soil Microbiology and Biochemistry, Academic Press, USA.

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SEMESTER – VI PAPER-VIII
PRACTICALS
FOOD MICROBIOLOGY (A)

Code: BS606P
HPW: 2

DSE-1F
Credits: 1

1. Isolation of microorganisms by crowded plate technique.
2. Isolation of Amylase producing organisms.
3. Isolation of microorganisms in air by petriplate exposure method.
4. Determination of microbiological quality of milk by MBRT method.
5. Isolation of fungi & bacteria from spoiled fruits & vegetables.
6. Microbiological examination of water by coliform test.
7. Determination of biological oxygen demand.
8. Spoiled foods-bacterial soft rot,bread& bakery products,milk& milk products, eggs, meat and meat products, canned foods, cheese, yoghurt.
9. Bacterial slides- Escherichia coli, Bacillus, Lactobacillus, Azospirillum, Azotobacter, Rhizobium, Yeast, Rhizopus, Penicillium

References

1. Stanbury, P.F., Whitaker, A. and Hall, S.J. (1997). Principles of Fermentation Technology, Aditya Books (P) Ltd. New Delhi.
2. Doyle, M.P., Beuchat, L.R. and Montville, T.J. (1997). Food Microbiology: Fundamentals and Frontiers. ASM Press, Washington D.C., USA.
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4. Jay, J.M. (1996). Modern Food Microbiology, Chapman and Hall, New York.15
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B.SC MICROBIOLOGY III YEAR
SEMESTER – VI PAPER - VIII
DSE(A / B)
THEORY MODEL QUESTION PAPER

Time: 3hrs Max. Marks: 60

SECTION A

I Write short notes on any Five of the following: 5X3 = 15 Marks

1. A Question from Unit I
2. A Question from Unit II
3. A Question from Unit III
4. A Question from Unit I
5. A Question from Unit II
6. A Question from Unit III
7. A Question from any of I,II,III units
8. A Question from any of I,II,III units

SECTION B

II Essay Questions. Answer all the Questions 3X15 = 45 Marks

9. (a) A Question from Unit I
   (OR)
   (b) A Question from Unit I

10.(a). A Question from Unit II
   (OR)
   (b). A Question from Unit II

11.(a) A Question from Unit III
   (OR)
   (b) A Question from Unit III

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SEMESTER – VI PAPER-VIII
DISIPLINE SPECIFIC ELECTIVE THEORY
INDUSTRIAL MICROBIOLOGY (B)

Code: BS606 **DSE-1F**
HPW: 3T+2P **Credits:3T+1P**

Objective:

UNIT-I **15h/week**

1.Microorganisms of industrial importance-Yeast , Molds, Bacteria, Actinomycetes.
2.Screening and isolation of industrially useful microbes.
3.Methods of Screening and strain improvement.

UNIT-II **15h/week**

1.Types of fermentation- Aerobic, anaerobic , batch, continuous, submerged, surface, solid state Dual and multiple.
2.Design of stirred tank reactor fermentor

UNIT-III **15h/week**

1.Inoculation media and fermentation media
2.Raw material used in fermentation industry and their processing
3.Downstream processing Microbial products Industrial production of alcohol (ethyl alcohol), Beverages (beer), Amylases, Antibiotics(pencillin) Aminoacids(glutamic acid), Organic acid(citric acid.) VitaminB12, Biofuels (biogas-methane).

References

1. Patel, A.H. (1984). Industrial Microbiology, Mac Milan India Ltd., Hyderabad.
2. Cassida, L.E. (1968). Industrial Microbilogy, Wiley Eastern Ltd. & New Age International Ltd., New Delhi.
3. Crueger, W. and Crueger, A. (2000). Biotechnology – A Text Book of Industrial Microbiology, Panima Publishing Corporation, New Delhi
4. Reedy, G. (Ed.) (1987). Prescott & Dunn's Industrial Microbiology, 4th Edition, CBS Publishers & Distributors, New Delhi.
5. Reddy, S.R. and Singara Charya, M.A. (2007). A Text Book of Microbiology – Applied Microbiology. Himalaya Publishing House, Mumbai.
6. Singh, R.P. (2007). Applied Microbiology. Kalyani Publishers, New Delhi.
7. Demain, A.L. and Davies, J.E. (1999). Manual of Industrial Microbiology and Biotechnology, ASM Press, Washington, D.C., USA.

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B.SC. III YEAR MICROBIOLOGY
SEMESTER – VI PAPER-VIII
PRACTICALS
INDUSTRIAL MICROBIOLOGY (B)

Code: BS606P
HPW: 2

DSE-1F
Credits: 1

1. Screening for amylase producing microorganisms
2. Screening for organic acid producing microorganisms
3. Production and Estimation of Ethanol by potassium dichromate method.
4. Production and Estimation of Citric acid by titrimetry method.
5. Estimation of streptomycin.
6. Bacterial slides- Bacillus, Lactobacillus, Yeast, Aspergillus, Pencillium

References

1. Patel, A.H. (1984). Industrial Microbiology, Mac Milan India Ltd., Hyderabad.
2. Cassida, L.E. (1968). Industrial Microbilogy, Wiley Eastern Ltd. & New Age International Ltd., New Delhi.
3. Crueger, W. and Crueger, A. (2000). Biotechnology – A Text Book of Industrial Microbiology, Panima Publishing Corporation, New Delhi
4. Reedy, G. (Ed.) (1987). Prescott & Dunn's Industrial Microbiology, 4th Edition, CBS Publishers & Distributors, New Delhi.
5. Reddy, S.R. and Singara Charya, M.A. (2007). A Text Book of Microbiology – Applied Microbiology. Himalaya Publishing House, Mumbai.
6. Singh, R.P. (2007). Applied Microbiology. Kalyani Publishers, New Delhi.
7. Demain, A.L. and Davies, J.E. (1999). Manual of Industrial Microbiology and Biotechnology, ASM Press, Washington, D.C., USA.

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B.SC MICROBIOLOGY III YEAR

SEMESTER – VI PAPER – VIII

DSE (A /B)

PRACTICAL MODEL QUESTION PAPER

Time – 3 Hrs   Total Marks:50.

I	Major Practical Question	20Marks
II	Minor Practical Question	10Marks
III	Identify the following spotter(5 x 2=10)	10Marks
IV	Record	5Marks
V	Viva voce	5Marks

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B.SC. III YEAR MICROBIOLOGY
SEMESTER – VI [redacted]
SKILL ENHANCEMENT COURSE – 4
HOSPITAL WASTE MANAGEMENT

Code: BS601 **SEC-4**
HPW: 2 **Credits:2**

Objective:

Unit-I

1. Types of Hospital waste and its Management.
2. General , Hazardous , Health care waste, Infectious waste, Genotoxic Waste.
3. Specification of Materials and colour coding for Identification.
4. Biomedical waste management and handling rules.
5. Guidelines of Central Pollution Contreol Board (CPCB).
6. Safe disposal of the Radioactive waste rules.

Unit-II

1. Basic steps in health care waste management- Segregation,
2. Decontamination/Disinfection, Storage and Transportation.
3. Mechnical and Chemical Treatment of the Waste.
4. Liquid waste treatment-Autoclaving, Incrimination.
5. Waste minimization- Recyclinf and reusing.
6. Health and safety practices.
7. Estimation of various items of waste management.

References:

8. B.D. Acharya, Meeta Singh. Hospital Waste Management and Its Monitoring.

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DEPARTMENT OF MICROBIOLOGY
B.SC. III YEAR SEMESTER – V / VI

SEC-3/4 Credits – 2

SEC - THEORY MODEL PAPER

TIME: 2 HOURS **MAX MARKS: 40**

SECTION-A

Answer the following Questions in short: 5 x 2 = 10 marks

1. Question from Unit I
2. Question from Unit II

SECTION-B

Answer the following essay type questions: 2 x 15 = 30 marks

3 (a) Question from Unit I

OR

(b) Question from Unit I

4 (a) Question from Unit II

OR

(b) Question from Unit II

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DEPARTMENT OF MICROBIOLOGY
B.SC. III YEAR MICROBIOLOGY
SEMESTER – VI
GENERIC ELECTIVE - 2
CONTAGIOUS DISEASES AND IMMUNISATION

Code: BS602 **GE-2**
HPW: 2 **Credits:2**

Objective:

Unit-1: Contagious diseases

1. Types of Infections,
2. Sources of infections,
3. Mode of infections.
4. Bacterial diseases: Diphtheria, woophing cough, Gonorrhoea,
5. Viral Diseases: HSV, HIV, HBV.

Unit-2: Immunization

1. Immunity,
2. Types of Immunity.
3. Immunization,
4. Types of immunization,
5. Vaccines- Live and killed vaccines,
6. Vaccination schedule.

References:

1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
3. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
4. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
5. Shetty, N. (1994). Imuunology – Introductory Textbook. New Age International Pvt. Ltd., New Delhi.
6. Singh, R.P. (2007). Immunology and Medical Microbiology. Kalyani Publishers, New Delhi.

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DEPARTMENT OF MICROBIOLOGY
B.SC. III YEAR SEMESTER – V / VI

GE- 1/2

Credits – 2

GE - THEORY MODEL PAPER

TIME: 2 HOURS

MAX MARKS: 40

SECTION-A

5 x 2 = 10 Marks

Answer the following Questions in short:

1. A Question from Unit I
2. A Question from Unit II

SECTION-B

2 x 15 = 30 Marks

Answer the following essay type questions:

3. (a) A Question from Unit I

   OR

   (b) A Question from Unit I

4. (a) A Question from Unit II

   OR

   (b) A Question from Unit II

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DSC(V, VII) & DSE (VI,VIII) A/B - INTERNAL MODEL PAPER

MAX MARKS: 15

TIME: ½ HOUR

SECTION-A — 10 x ½ = 5 Marks

MULTIPLE CHOICE QUESTIONS

TEN (10) MCQ ½ MARK EACH

SECTION-B — 10 x ½ = 5 Marks

FILL IN THE BLANKS:

TEN (10) FIB ½ MARK EACH

SECTION-C — 5 x 1 = 5 Marks

SHORT NOTE QUESTIONS:

FIVE (5) 1(ONE) MARK EACH

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B.SC. III YEAR SEMESTER – V / VI

SEC 3 & 4 / GE 1&2 - INTERNAL MODEL PAPER

TIME: ½ HOURS MAX MARKS: 10

SECTION-A

FILL IN THE BLANKS: 10 x ½ =5 marks

TEN (10) FIB ½ MARK EACH

SECTION-B

MULTIPLE CHOICE QUESTIONS 10 x ½ =5 marks

TEN (10) MCQ ½ MARK EACH

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3. T Sridevi

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2017-18 CBCS STRUCTURE

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

SECOND YEAR SEMESTER-III					Semester End exam		Continuous Internal Evaluation		Total	Practical 3 HRS
Code	Course Title	Course Type	HPW	Credits	Duration in HRS	Marks	Exam Duration	Marks		
BS301	HEMATOLOGY	SEC-1	2	2	2	40	30 min	10	50	-
BS302	English	CC-1C	5	5	3	80	30 min	20	100	-
BS303	Second Language	CC-2C	5	5	3	80	30 min	20	100	-
BS304	BIO-CHEMISTRY / BIO- TECHNOLOGY	DSC-1C	4 T + 2P = 6	4+1=5	3	80	30 min	20	100	25
BS305	MICROBIOLOGY	DSC-2C	4 T + 2P = 6	4+1=5	3	80	30 min	20	100	25
BS306	CHEMISTRY	DSC-3C	4 T + 2P = 6	4+1=5	3	80	30 min	20	100	25
	TOTAL NO. OF CREDITS			27		440		110	625	

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DEPARTMENT OF MICROBIOLOGY

B.SC. MICROBIOLOGY II YEAR
SEMESTER – III
PAPER – III

PRACTICAL MODEL QUESTION PAPER

Time – 2 Hrs **Total Marks: 25 Marks**

I	Major Practical Question	10Marks
II	Minor Practical Question	5Marks
III	Identify the following spotter(5 x 1=5)	5Marks
IV	Record & Viva voce	5Marks

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2017-18 CBCS STRUCTURE

SCHEME OF INSTRUCTIONS & EVALUATION

B.SC. BT MB CH /BC MB CH

SECOND YEAR SEMESTER-IV					Semester End exam		Continuous Internal Evaluation		Total	Practical 3 HRS
Code	Course Title	Course Type	HPW	Credits	Duration in HRS	Marks	Exam Duration	Marks		
BS401	A/B	SEC-1	2	2	2	40	30 min	10	50	-
BS402	English	CC-1D	5	5	3	80	30 min	20	100	-
BS403	Second Language (H/ S/ T)	CC-2D	5	5	3	80	30 min	20	100	-
BS404	BIO-CHEMISTRY / BIO- TECHNOLOGY	DSC-1D	4 T + 2P = 6	4+1=5	3	80	30 min	20	100	25
BS405	MICROBIOLOGY	DSC-2D	4 T + 2P = 6	4+1=5	3	80	30 min	20	100	25
BS406	CHEMISTRY	DSC-3D	4 T + 2P = 6	4+1=5	3	80	30 min	20	100	25
	TOTAL NO. OF CREDITS			27		440		110	625	
	TOTAL NO. OF CREDITS			54						

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B.SC. MICROBIOLOGY II YEAR
SEMESTER –IV PAPER –IV

PRACTICAL MODEL QUESTION PAPER

Time – 2 Hrs **Total Marks: 25 Marks**

I	Major Practical Question	10Marks
II	Minor Practical Question	5Marks
III	Identify the following spotter(5 x 1=5)	5Marks
IV	Record & Viva voce	5Marks

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B.Sc Microbiology III Year
Semester – VI
Paper – VII &VIII
Practical Model Question Paper

Total Marks:50.

Time – 3 Hrs

I	Major Practical Question	20Marks
II	Minor Practical Question	10Marks
III	Identify the following spotter(5 x 2=10)	10Marks
IV	Record	5Marks
V	Viva voce	5Marks

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2	**Mrs. J.Sridevi** Department Of Microbiology Indira Priyadarshini Govt. Degree College for Women, Nampally, Hyderabad Email Id:	
3	**Ms. A.Ch. Pradyutha** Department Of Microbiology RBVRR Women College, Narayanguda, Hyderabad Email Id:	
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6	**Mrs. MarthaPaul** Department Of Microbiology Shadan Degree College, Khairatabad, Hyderabad Email Id:	
7	**Dr. K. Anuradha** Department Of Microbiology Bharatiya Vidya Bhavans Vivekananda College of Science, Humanities, Commerce Sainikpuri, Hyderabad Email Id:	
8	**Dr. S.P. Sreedhar Bhattar** Department Of Microbiology Bharatiya Vidya Bhavans Vivekananda College of Science, Humanities, Commerce Sainikpuri, Hyderabad Email Id:	

Head of Micro Biology