MAHATMA GANDHI UNIVERSITY of MEDICAL SCIENCES & TECHNOLOGY JAIPUR

Syllabus

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT)

(6 SEMESTERS U.G. DEGREE PROGRAM)

2023-24

Recommended by Committee of Courses of Health Informatics at its meeting held on 03/03/2023 and approved by Academic Council at its meeting held on 28/04/2023.

NOTICE

1. Amendments made by the university in rules/ Regulations of the courses shall automatically apply.

2. The university reserves the right to make changes in the syllabus /books/ guidelines, fee-structure or any other information at any time without prior notice. The decision of the university shall be binding on all.

2. The jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

RULES & REGULATIONS OF
B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT)
PROGRAM CODE: - **BSC2723**

(6 SEMESTERS U.G. DEGREE PROGRAM)

1. Introduction:

The Bachelor of Medical Record Science and Clinical Information Technology course covers a wide variety of topics including medical terminology, computer skills, and healthcare records management. In addition, students are also taught billing techniques and how to use medical office software. They are also trained in the old-fashioned method of filing and retrieving records. This three-year program is ideal for anyone who is interested in the medical field and wants to learn more about it. The course also prepares students for employment as a front desk receptionist, biller, or accountant.

Career opportunities are numerous in the health care industry, including hospitals, nursing homes, and rural health centers. The course offers an excellent career path for graduates who are looking to build a career in medical records.

Program Outcome:

1. students will be able to do classification and codification of drugs, diseases and their treatment, and in the organization of hospitals.
2. students will have sufficient knowledge of the prevailing system of scientific documentation with computerization, information search and retrieval.
3. students will have knowledge of the networking of hospitals and institutions by the Internet and Intranet.
4. students will get familiarity with large databases dealing with various categories of entities such as diseases, pathological conditions, symptoms, drugs and concepts such as ‘data mining’
5. knowledge of the current trends in Medical Record Science like health insurance and third-party payers.
6. Students can integrate advanced knowledge and skills in health care data.
7. Students can Apply effective communication skills and strategies in interactions with multidisciplinary and multi-facility professionals.

2. TITLE OF THE PROGRAM:

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT)

3. DURATION OF THE COURSE:

Duration of the course: 3 Years (6 Semesters)

4. MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for all the subjects of study and for examination of the course.

5. ELIGIBILITY FOR ADMISSION:

Pass in 12th class of 10 +2 of CBSE or equivalent with minimum aggregate of 45% marks in physics**,** chemistry and biology or mathematics, provided the candidate has passed in each subject separately.

OR

Diploma in Medical Record Science after Pass in 12th class of 10 +2 of CBSE or equivalent with minimum aggregate of 50% marks in physics chemistry and biology or Mathematics provided the candidate has passed in each subject separately.

OR

Candidates with two years diploma from a recognized Government Board in a subject for which the candidate desires to enrolment, in the respective Allied Health Sciences course and shall have passed plus 12 [10+2] with Physics, Chemistry and Biology or mathematics, as principal subjects or candidates with 3 years diploma from a recognized Government Board in a subject for which the candidate desires to enrol, in the respective Allied Health Sciences course & should have studied Physics, Biology and Chemistry as principal subjects during the tenure of the course.

6. PROCESS OF ADMISSION:

Admission to B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Program shall be made on the basis of written entrance examination conducted for the purpose.

7. RESERVATION POLICY:

Reservation in admissions shall be applicable as per policy of the State Government.

8. ENROLLMENT:

Every candidate who is admitted to B. Sc. in Medical Record Science and Clinical Information Technology Degree Program in Mahatma Gandhi Institute of Health Informatics shall be required to get himself/herself enrolled with the Mahatma Gandhi University of Medical Sciences & Technology (MGUMST) after paying the prescribed eligibility and enrolment fees.

A candidate shall deposit enrolment fees along with tuition fees at the time of his/her admission to the course. Such a candidate who fails to submit, to the college Principal, duly filled enrollment form along with

original documents including migration certificate required for enrolment within prescribed period then after he/she shall pay late fee applicable at that time. No student will be allowed to appear in the university examination without his/her enrollment.

9. ATTENDANCE:

Minimum 75 % attendance is required in each Semester, both for theory and practical classes separately, student with deficient attendance will not be permitted to appear in university examination.

10. WORKING DAYS:

Each semester shall consist of approximately 120 working days including examination**.**

11. CONDUCTION OF THE UNIVERSITY EXAMINATION:

University semester examination shall be conducted twice in a year with an interval of six months. Even Semester examination shall be conducted after 6 months of odd semester examination.

12. ELIGIBILITY TO APPEAR FOR UNIVERSITY EXAMINATION

Student is required to have minimum 75% attendance (in theory and practical separately) /to make him/her eligible to Candidates failing in one or more, subject in a semester will be required to appear in their failing subject in the next examination of the same semester next year.

A candidate will have to clear all the subjects of First to Fifth semester before appearing at sixth semester university examination.

13. APPOINTMENT OF EXAMINER & PAPER SETTER

- All the examiners - Paper setters, Theory examination answer books evaluators, External and internal Examiners for Practical examinations shall be appointed by the president of the University from the panel submitted by Principal through concerned dean of faculty.
- Paper setters shall be external, who will assess answer sheets of their respective papers.
- Professor/ Assoc. Professor /Assistant Professor/Lecturer/Allied Health Professional having PG qualification and 03 years' teaching experience after PG in respective field is eligible to act as Internal/External examiner of theory/practical examination.

14. SCHEME OF EXAMINATION

The University Examination (End of Semester Examination or EOSE) for the Course shall be conducted semester wise at the end of every semester.

i. Theory

(a) There shall be five Theory papers in each semester.

(b) Each Theory paper examination shall be of 3 hours duration and of maximum 70 marks.

(c) Internal assessment (Continuous Assessment or CA) shall be of 30 marks for each Theory Paper.

(d) The Paper Setter shall set the questions within the prescribed course of study of the concerned paper. There will be a set pattern of question papers duly approved by Academic Council.

Pattern of question papers (Attached)

(g) Passing Marks: A candidate will have to obtain aggregate 50% marks including internal assessment in each theory paper to pass.

II. Practical and Viva-Voce Examination

(a) At the end of each semester there shall be practical and viva-voce examination of 200 marks. It shall be conducted after the Theory examination is over. A candidate will have to obtain at least 50% marks in practical and viva-voce examination

(b) practical and viva-voce examination shall be of 140 marks (Practical 100 marks + viva voce 40 marks) and internal assessment of 60 marks.

(b) The pattern of practical examination shall be as follows –

Semester	Practical Marks			Total Marks	Min. Pass Marks	Practical Examiners
	EOSE (End of Semester Examination)					
	Practical	viva-voce	CA			
I to VI Each	100	40	60	200	100	One Internal & one External Examiner

III. Result

1. Candidate have to obtain at least 50% marks separately in each Theory paper including continuous assessment and a minimum of 50% marks in the practical examination including viva-voce for him to be declared pass.
2. A Candidate who has failed in a Paper (s) will reappear in respective paper(s) in next examination of the same semester next year.
3. Candidate who has failed in Practical examination will reappear in practical examination only in next practical examination of the same semester.

IV. Supplementary Examination.

(a) There shall be a supplementary examination of only VI semester within two months

of the declaration of the result of the main examination of VI Semester.

(b) Continuous assessment marks obtained in the concerned failed paper(s)/practical shall be carried forward for working out the result of next Theory paper(s) and/or practical examination.

(c) If A failing candidate, wants to improve his/her Continuous assessment marks shall be allow to do so. In case he does appear for improvement or gets lesser marks in internal assessment, his earlier marks will be considered for working out the result of the failing subject.

V. Promotion to the Next Semester

1. A candidate who has passed or failed in one or more subjects shall be promoted to respective next semester.

2. A candidate will be allowed to appear for the VI semester examination only when the backlog of all papers (theory papers and practical) of I semester to V semester exams including elective papers (if any) is cleared.

3. The student is required to clear all the End of Semester Examination within 6 years from the year of joining of the Program otherwise he/she will have to leave the course.

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Marks Distribution of Semester – I Examination

Course/Paper Name	**Course/Paper Code**	**Credits**	**Theory/ Practical/Viva**			
CORE COURSES			UE	IA	Total	Pass Marks
Basics of Medical record Science	BSC2723S101T	5	70	30	100	50 % aggregate including continuous assessment marks separately in theory and practical.
Basics of Clinical Science	BSC2723S102T	5	70	30	100	
Basics of Computer	BSC2723S103T	5	70	30	100	
ELECTIVE COURSES (ANY TWO)						
Communicative English	BSC2723S104T	4	70	30	100	
Basics of Healthcare Information Technology	BSC2723S105T	4	70	30	100	
Medical Terminology	BSC2723S106T	4	70	30	100	
PRACTICAL/ABILITY ENHANCEMENT COURSE						
Practical & Viva	BSC2723S107P	7	140	60	200	
TOTAL	**06** **(05 Theory Paper 01 Practical)**	**30**	**490**	**210**	**700**	

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Marks Distribution of Semester – II Examination

Course/Paper Name	Course/Paper Code	Credits	Theory/ Practical/Viva			
CORE COURSES			UE	IA	Total	Pass Marks
Basics of Management	BSC2723S201T	5	70	30	100	50 % aggregate including continuous assessment marks separately in theory and practical.
Basics of Biostatistics	BSC2723S202T	5	70	30	100	
Health Insurance	BSC2723S203T	5	70	30	100	
ELECTIVE COURSES (ANY TWO)						
Innovation and IPR	BSC2723S204T	4	70	30	100	
Quality In Healthcare	BSC2723S205T	4	70	30	100	
Hospital Statistics	BSC2723S206T	4	70	30	100	
PRACTICAL/ABILITY ENHANCEMENT COURSE						
Practical & Viva	BSC2723S207P	7	140	60	200	
TOTAL	**06 (05 Theory Paper 01 Practical)**	**30**	**490**	**210**	**700**	

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Marks Distribution of Semester – III Examination

Course/Paper Name	Course/Paper Code	Credits	Theory/ Practical/Viva			
CORE COURSES			UE	IA	Total	Pass Marks
Basics of Health Information Management	BSC2723S301T	5	70	30	100	50 % aggregate including continuous assessment marks separately in theory and practical.
Clinical and Ward Management services	BSC2723S302T	5	70	30	100	
Basics of Data Analysis and Visualization	BSC2723S303T	5	70	30	100	
ELECTIVE COURSES (ANY TWO)						
Personality Development	BSC2723S304T	4	70	30	100	
Healthcare Services and its Application	BSC2723S305T	4	70	30	100	
Basic Life Support	BSC2723S306T	4	70	30	100	
PRACTICAL/ABILITY ENHANCEMENT COURSE						
Practical & Viva	BSC2723S307P	7	140	60	200	
TOTAL	**06 (05 Theory Paper 01 Practical)**	**30**	**490**	**210**	**700**	

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Marks Distribution of Semester – IV Examination

Course/Paper Name	Course/Paper Code	Credits	Theory/ Practical/Viva			
CORE COURSES			UE	IA	Total	Pass Marks
Clinical Information Technology	BSC2723S401T	5	70	30	100	50 % aggregate including continuous assessment marks separately in theory and practical.
Database Management System	BSC2723S402T	5	70	30	100	
Professionalism and Values	BSC2723S403T	5	70	30	100	
ELECTIVE COURSES (ANY TWO)						
Medical Law and Ethics	BSC2723S404T	4	70	30	100	
Disaster Management	BSC2723S405T	4	70	30	100	
Yoga Practices	BSC2723S406T	4	70	30	100	
PRACTICAL/ABILITY ENHANCEMENT COURSE						
Practical & Viva	BSC2723S407P	7	140	60	200	
TOTAL	**06** **(05 Theory Paper 01 Practical)**	**30**	**490**	**210**	**700**	

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Marks Distribution of Semester – V Examination

Course/Paper Name	Course/Paper Code	Credits	Theory/ Practical/Viva			
CORE COURSES			UE	IA	Total	Pass Marks
Quality Assurance	BSC2723S501T	5	70	30	100	50 % aggregate including continuous assessment marks separately in theory and practical.
Clinical Classification and Coding Systems	BSC2723S502T	5	70	30	100	
Electronic Health Records	BSC2723S503T	5	70	30	100	
ELECTIVE COURSES (ANY TWO)						
Artificial Intelligence in Healthcare	BSC2723S504T	4	70	30	100	
Basics of Computer Graphics	BSC2723S505T	4	70	30	100	
Basics of Machine Learning	BSC2723S506T	4	70	30	100	
PRACTICAL/ABILITY ENHANCEMENT COURSE						
Practical & Viva	BSC2723S507P	7	140	60	200	
TOTAL	**06** **(05 Theory Paper 01 Practical)**	**30**	**490**	**210**	**700**	

B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT) Marks Distribution of Semester – VI Examination

Course/Paper Name	Course/Paper Code	Credits	Theory/ Practical/Viva			
CORE COURSES			UE	IA	Total	Pass Marks
Introduction to Research	BSC2723S601T	5	70	30	100	50 % aggregate including continuous assessment marks separately in theory and practical.
Hospital Accounting and Finance	BSC2723S602T	5	70	30	100	
Information Security	BSC2723S603T	5	70	30	100	
ELECTIVE COURSES (ANY TWO)						
Strategic Management in Healthcare	BSC2723S604T	4	70	30	100	
Medical Transcription and Telemedicine	BSC2723S605T	4	70	30	100	
Project Management	BSC2723S606T	4	70	30	100	
PRACTICAL/ABILITY ENHANCEMENT COURSE						
Practical & Viva	BSC2723S607P	7	140	60	200	
TOTAL	**06** **(05 Theory Paper 01 Practical)**	**30**	**490**	**210**	**700**	

15. REVALUATION / SCRUTINY:

Revaluation of answer book(s) and security of the marks shall be permissible as per the policy of the university.

16. TEACHING HOURS:

Teaching hours shall be approximately 400 hours in every semester.

17. AWARD OF DEGREE:

The degree shall be awarded by the University only after receipt of Course completion certificate and NO dues from the Principal of the college.

18. LETTER GRADES AND GRADE POINTS

LETTER GRADE	GRADE	PERCENTAGE OF MARKS
O (Outstanding)	10	100 %
A+(Excellent)	9	90-99.99 %
A (Very Good)	8	80-89.99 %
B+(Good)	7	70-79.99 %
B (Above Average)	6	60-69.99 %
C(Average)	5	50-59.99 %
F(Fail)	0	0 Less than 50 %
Ab (Absent)	0	0 Absent

19. Grades Qualifying for Pass:

Theory and Practical Examination

1. Minimum 5 Grade in the university examination and **5 Grade** in internal assessment evaluated by the department are required to pass **who fails to obtain 5 Grade shall be declared failed.**

2. A student obtaining **Grade F** shall be considered **failed** and will be required to reappear in the examination.

3. Letter Grade **Ab (Absent)** will be showing the absent of the candidate in examination and will be required to reappear in the examination.

Continuous Assessment:

Continuous Assessment will be conducted two times in a semester. Continuous Assessment marks will consist of departmental examinations, assignments, departmental posting, and evaluations.

End of Semester Examinations:

a. Each theory paper examination shall be of 3 hours duration.

b. There will be Five theory papers in Each Semester as following-

20. Weightage Distribution (%)

Item	Credit Weight (%)
1. Continuous Assessment	
Continuous Assessment Examinations	10.00%
Assignment, Class participation/presentation, study records	10.00%
Departmental Postings, case studies, project reports	10.00%
2.University Exam	
70.00%	
Total	**100%**

21. Authority to issue transcript

The Controller of Examination of the University shall be the authority for issuing transcript after receiving the described fee from the candidate.

22. Working Hours/Days

Duration	3 Years (6 Semesters)
Working Days	6 Days in A Week
Working Hours	36 Hours in A Week

23. Distribution of Courses Semester-Wise

Semester	Core Course Component (CCC)	Elective Course Component (ECC)	Ability Enhance Component (AEC)/Practical	Total No. Of Courses/Papers
Semester I	**3**	**2**	**1**	**6**
Semester II	**3**	**2**	**1**	**6**
Semester III	**3**	**2**	**1**	**6**

Semester IV	**3**	**2**	**1**	**6**
Semester V	**3**	**2**	**1**	**6**
Semester VI	**3**	**2**	**1**	**6**
Total	**18**	**12**	**6**	**36**

24. Distribution of Courses in Each Semester

Sr. No.	Type of Course	Numbers
1	**Core Course**	**3**
2	**Elective Course**	**2**
Total	**05 (Five)**	

25. Types of Courses in B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT): -

1. Core Course-course designed under this category aim to cover the basics that a student is expected to imbibe in the discipline of B.Sc. in Bioinformatics. A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core Course.

2. Elective Course-it is a course which can be chosen from a pool of courses it is specific or specialized or advanced or supportive to the discipline of B. Sc. in Medical Record Science and Clinical Information Technology (B. Sc. MRS&CIT). Students have to **CHOOSE ANY TWO COURSE IN EACHSEMSTER** from the pool of course given to that semester.

3. **Ability Enhancement Courses (AEC) /Practical:** The Ability Enhancement (AE) Courses or practical are the courses based upon the content that leads to Knowledge enhancement. They are skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$\textbf{SGPA}\ (Si) = \sum(C_i \times G_i) / \sum C_i$$

where C_i is the number of credits of the ith course and G_i is the grade point scored by thestudent in the ith course.

ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a program, i.e.

$$\textbf{CGPA} = \sum(Ci \times Si) / \sum Ci$$

where Si is the SGPA of the semester and Ci is the total number of credits in that semester.

iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

Illustration of Computation of SGPA and CGPA and Format for Transcripts

i. Computation of SGPA and CGPA

Illustration for **SGPA**

Course	**Credit**	**Grade letter**	**Grade point**	**Credit Point** (Credit x Grade
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	20			139

Thus, **SGPA =139/20 =6.95**

Illustration for **CGPA**

Semester 1	**Semester 2**	**Semester 3**	**Semester 4**
Credit : 20 SGPA:6.9	Credit : 22 SGPA:7.8	Credit : 25 SGPA: 5.6	Credit : 26 SGPA:6.0

Semester 5	**Semester 6**		
Credit : 26 SGPA:6.3	Credit : 25 SGPA: 8.0		

Thus, **CGPA =** 20 x 6.9 + 22 x 7.8 + 25 x 5.6 + 26 x 6.0 + 26 x 6.3 + 25 x 8.0

_____ = **6.73**

Course Content

SEMESTER- I

Placement Semester	Semester I
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Medical Record Science
Course Code	BSC2723S101T
Course Type	Core
Credits	5
Hours per Semester	75

History of Development of Medical Records.

Early Ancient Times to Renaissance Period (16th &17th Centuries) 18th -20th Centuries and Till Date In U.S.A. At International Level In India.

Characteristics of quality Medical Records.

Definition, Characteristics of 'Good' Medical Record, Values of 'Good' Medical Record to various users, Required Characteristics of entries in medical Records, Responsibility for Medical Record Quality, Source-oriented, Problem-oriented, and Integrated medical records, Medical Record Forms and their Content. Standard Order of Arrangement of Medical Record forms. Analysis of Medical Record-Quantitative & Qualitative, Incomplete Record Control

Filing and Organizational Aspects of Medical Record.

Policies, Functions, Location, Space and Layout, Equipment, Forms Designing and Control, Medical Records Flow and Processing, Principles of Identification of a Patient, Methods of Collection of Identification Data, Types of Central Admitting Services, Admitting Policies, Procedure Outlines for Admissions, Flow of Records following Admissions, Advantages of good Admitting Policies and Procedures, Pre-requisites for smooth & efficient functioning of the Centralized, Admitting Services

Placement Semester	Semester I
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Clinical Science
Course Code	BSC2723S102T
Course Type	Core
Credits	5
Hours per Semester	75

Human Anatomy and Physiology: - Identify all anatomical structures of the human body • Understand the technical functions of various organs and systems of the body • Acquire knowledge about various body fluids, hormones and enzymes i. Integumentary system • Epithelium –• Cartilage – • Bone • Muscles • Neuron • Blood • Joints • Nasal Cavity, Larynx, Trachea, Thoracic Cage, Diaphragm, pleura, lungs Cardiovascular system • v. Blood and lymphatic system vi. Digestive system • vii. Urogenital viii. Endocrine system • Spinal cord, Brain, ix. Organs of special sense • Gross anatomy of eye; Gross anatomy of external, middle and internal ear; Skin

• **Introduction to Pathology -** Cell Injury, Cell Growth and Differentiation, • Inflammation • Infection, • Degeneration • Neoplasia • Blood groups, cross-matching, transfusions • Tests done on various body fluids and tissues • Infectious Disease • Disease of white cells and lymph nodes

Biochemistry i. Chemistry of the human body fluids in health and diseases ii. Cerebrospinal fluid iii. Clotting mechanism of the blood, iv. Enzymes produced in the G.I.Tract, v. Vitamins, Hormones, Proteins and Non-proteins, vi. Nitrogenous substances, lipids, carbohydrates, vii. Electrolytes viii. Metabolism, acid-base balance, ix. Normal values and ranges of biochemistry investigations

Microbiology i. Introduction to Microbiology, ii. Classification and characteristics of organisms, iii. Cultivation and identification of organisms, bacteria etc.,iv. Disinfection, antiseptics, sanitation, v. Immunity, vi. Allergy vii. Pathogenic organisms, non-pathogenic organisms ,virus and fungus.

Introduction to pharmacology• Route of Drug Administration • Pharmacokinetics and Pharmacodynamics • Drug Toxicity and Safety • Autonomic nervous system, including skeletal muscle relaxants • Introduction to ANS • Cholinergic drugs, Anticholinergic drugs, Neuromuscular blocking drugs and Adrenergic drugs • Adrenergic Receptor Antagonist ii. General and Local anesthetics iii. Hypnotics and Sedatives iv. Narcotic analgesics, narcotic antagonists v. Non-narcotic analgesics, antipyretics vi. Psycho-pharmacological agents vii. Drugs acting on autonomic nervous system viii. Antihistamines ix. Blocking agents x. Respiratory pharmacology, cardiovascular pharmacology, GIT.

Placement Semester	Semester I
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Computer
Course Code	BSC2723S103T
Course Type	Core
Credits	5
Hours per Semester	75

Introduction to computers- types of computers-characteristics -Classification of digital computer systems-Microcomputers-minicomputers-supercomputers-functions and components of computers-Central processing unit.

NUMBER SYSTEM: Number System-Decimal number system-Binary number system-Complements-Gray code-ASCII code-Bits, Bytes and words-Memory unit-ROM, RAM, PROM, EPROM, EEPROM Auxiliary storage devices-Magnetic tape- hard disk, floppy disk-Input Devices-Output devices.

COMPUTER NETWORKS: Computer networks- Overview of a network- Communication Processors-Modems Message Switcher-Communication Media-Types of network-network topology-Introduction to Multimedia-Applications of Multimedia-Multimedia tools.

INTERNET: Internet and World wide web-Introduction-Internet access-Internet basics-Internet Protocols-Internet Addressing-WWW-HTML- HTML Tags-Web Browsers-Searching web- 56 Introduction to E-mail –Mailing Basics-E-mail Ethics-Advantages and disadvantages-Useful email services-Mailing list.

Placement Semester	Semester I
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Communicative English
Course Code	BSC2723S104T
Course Type	Elective
Credits	4
Hours per Semester	60

Identifying Common Errors in Writing with Reference to Articles and Prepositions Basic Writing Skills: Sentence Structures -Use of Phrases and Clauses in Sentences- Analysis of sentences- Transformation and Synthesis of sentences- Assertive to Negative and vice versa, Interrogative to Assertive/Negative and vice versa., Identifying Common Errors in Writing with Reference to Noun-pronoun Agreement and Subject-verb Agreement., Conversion of lexical words into meaningful paragraphs, Articulation according to IPA**,** Stress and Intonation.

Nature and Style of Sensible Writing- Defining- Describing Objects, Places and Events – Classifying- Providing Examples or Evidence., Writing Practices--Writing Introduction and Conclusion - Essay Writing-Précis Writing, Paragraph writing – Types, Structures and Features of a Paragraph - Creating Coherence-Organizing Principles of Paragraphs in Documents- Format of a Formal Letter-Writing Formal Letters eg., Letter of Complaint, Letter of Requisition, Job Application with Resume., Technical Reports- Introduction – Characteristics of a Report – Categories of Reports Formats- Structure of Reports (Manuscript Format) -Types of Reports - Writing a Report.

Communication and its Process, Communication in Healthcare, Communication and Patient’s Safety, Barriers and Strategies of Communication.

Placement Semester	Semester I
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Healthcare Information Technology
Course Code	BSC2723S105T
Course Type	Elective
Credits	4
Hours per Semester	60

Fundamentals of Health Care Information Technology (HCIT): its applications, challenges, and impact on the healthcare industry, Introduction to Health Care Information Technology, Current trends and challenges in HCIT implementation.

Electronic Health Records (EHRs): Understanding EHR systems and their benefits, EHR adoption and interoperability

Health Information Exchange (HIE): Overview of HIE and its role in healthcare data sharing, Standards and protocols for secure data exchange, Privacy and security concerns in HIE implementation

Health Informatics: Introduction to health informatics and data analytics, Using health data for decision-making and quality improvement, Application of informatics in public health and population management

Health Care Mobile Applications: Overview of health-related mobile apps and wearables

Computer Applications and Technologies in Healthcare

Office Applications

This section focuses on the concepts and operation of the main components of word processor, electronic spreadsheet, database management, and presentation software programs. Students will gain fundamental knowledge of a major software suite and learn skills that have practical application in real world situations.

Placement Semester	Semester I
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Medical Terminology
Course Code	BSC2723S106T
Course Type	Elective
Credits	4
Hours per Semester	60

1. Derivation of medical terms. 2. Define word roots, prefixes, and suffixes. 3. Conventions for combined morphemes and the formation of plurals. 4. Basic medical terms. 5. Form medical terms utilizing roots, suffixes, prefixes, and combining roots. 6. Interpret basic medical abbreviations/symbols. 7. Utilize diagnostic, surgical, and procedural terms and abbreviations related to the integumentary system, musculoskeletal system, respiratory system, cardiovascular system, nervous system, and endocrine system. concepts of body systems, components within individual systems, and relationships between systems, division of the body into body cavities and planes. Disease, disorders and dysfunctions, terminology of body systems to issues of disease, diagnostic and therapeutic tests, and procedures. Common sign and symptoms of disease conditions.

Course Content

SEMESTER- II

Placement Semester	Semester II
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Management
Course Code	BSC2723S201T
Course Type	Core
Credits	5
Hours per Semester	75

Introduction to Management

Importance of Management, Definition of Management Characteristic features of Management

Roles of Management Role of a Manager Levels of Management and their functions

Process of Management Managerial skills Management and Administration Management – Science or an Art? Management – a profession?

Principles of Management

Meaning of principle Nature of Management principles Need for Management principles

Early Management approaches Scientific Management Administrative Management Human Relation Movement Modern Management Approaches Behavioral Approach Quantitative approach System approach Contingency approach

Decision Making

Meaning Types of decisions Steps in Rational decision-making Difficulties in decision-making

Communication

Importance of communication Purposes of communication Formal communication Forms of communication Informal communication The communication process. Barriers to communication Principles of effective communication, communication networks in a working group Checks on in-plant communication. Communication in Indian industries

Placement Semester	Semester II
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Biostatistics
Course Code	BSC2723S202T
Course Type	Core
Credits	5
Hours per Semester	75

Statistics and Biostatistics

- Definition of Statistics and Biostatistics
- Role of statistics in Health Sciences
- Variables: Qualitative & Quantitative, Continuous & Discrete, Dependent & Independent
- Scales of Measurement: Nominal, Ordinal, Interval, Ratio
- Organization of data
- Types of class intervals: Inclusive, Exclusive & Open ended
- Frequency Distribution: Measures of Central Tendency – Arithmetic Mean, Median and Mode for un-grouped and grouped data.
- Presentation of data: Bar diagram, Pie Diagram, Histogram, Frequency polygon, Frequency curve, and Line diagram.
- Measures of Variation: (Definition, computation, merits, demerits & application), Range, Inter Quartiles, Mean Deviation, Standard Deviation Co-efficient of Variation.
- Partition values: Quartiles, Percentiles
- Probability: Definitions of Classical Probability (Priori) and Frequency, Probability (Posteriori), Addition and Multiplicative Theorems of Probability
- Normal Distribution: Concept, Normal curve, Properties, Skewness and Kurtosis
- Probability Distribution: Binomial distribution, Poisson distribution and Normal distribution
- Sampling- Definition: Population and simple Sampling, Simple Random Sampling, Stratified Random Sampling, Systematic Random Sampling and Cluster Sampling
- Correlation and Regression: Scatter Diagram, Linear Correlation and Linear Regression Equation Test of Significance – Procedure Test of Significance for large samples and for small samples, Properties of correlation coefficient, Examples
- Research Process and Research Methodology
- Chi-square Test – Testing for association Misuse of Chi-square Test

Placement Semester	Semester II
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Health Insurance
Course Code	BSC2723S203T
Course Type	Core
Credits	5
Hours per Semester	75

Introduction to Health Insurance: What & Why of Health insurance - Evolution and growth of Health insurance in India - Understanding the Health System in India - Constitutional provisions in areas of Public Health - Government Health Department at the Central, State, District & Locallevels - Infrastructure of the Health care system

Health financing models and health financing in India: Health financing models - Financing of Health in India - National Rural Health Mission - Challenges of access to Health care and Service Quality - Health insurance mechanisms & Financial Protection

Health Insurance Products in India: Types of Health Insurance Products in India -Hospitalization Indemnity products - Personal Accident products - Critical Illness product - Daily Hospital Cash benefit - Disease management covers - Outpatient covers - Investment products in health insurance & health savings components - Products for senior citizens - Micro-insurance products - International Coverage products - Other specialized health insurance products - wellness products.

Social Health Insurance, Government and Mass Schemes [6 hours]: Role of government in health care provisioning and financing - CGHS - ESIS - social health schemes - community based health insurance schemes - micro insurance schemes - Rural and Informal Sector reforms - respective coverages and operating models - monitoring and control mechanisms - Rural and Informal sector initiatives - New Universal Health Scheme for all

Government health insurance scheme - RSBY: Scheme details - cover - publicity and awareness - beneficiary enrolment - smart card operation - premium collection - provider networking - claims management - IT platform - data and analytics - fraud control

Placement Semester	Semester II
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Innovation and IPR
Course Code	BSC2723S204T
Course Type	Elective
Credits	4
Hours per Semester	60

Introduction to Innovation: Definition and types of innovation**,** Importance of innovation in economic development**,** Innovation ecosystems and drivers.

Overview of Intellectual Property Rights (IPR): Meaning and significance of IPR**,** Forms of IPR: Patents, trademarks, copyrights, trade secrets**,** Balancing IPR with public interest and innovation diffusion

Patents and Patenting Process: Understanding patents and patentable subject matter**,** Criteria for patentability and novelty**,** Patent application, examination, and grant process**,** Trademarks and Copyrights**,** Meaning and purpose of trademarks**,** Copyrightable works and copyright protection**,** Fair use and infringement issues.

Trade Secrets and Confidentiality: Definition and characteristics of trade secrets, Protecting trade secrets and confidential information, non-disclosure agreements (NDAs)

IPR Management and Commercialization: Developing an IPR strategy**,** Licensing, technology transfer, and commercialization**,** Valuation, and monetization of intellectual property.

Global IPR Landscape

International treaties and agreements (e.g., TRIPS, WIPO), Challenges in enforcing IPR internationally, Cultural and ethical aspects of IPR in a global context

Placement Semester	Semester II
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Quality in Healthcare
Course Code	BSC2723S205T
Course Type	Elective
Credits	4
Hours per Semester	60

Fundamentals of Quality Management: Introduction, Objectives, Historical Background, Concept of Quality Management, contributions by Quality Management Gurus (Kaoru Ishikawa, Juran's triology, Kaizen, Philip Crosby's principles, Deming, Pareto)

Quality control tools & techniques - Brain storming, Bench marking, Business process reengineering (BPR), statistical process control, fish bone diagram, six sigma concept, poka yoke, Quality Assurance, Continuous quality improvement (CQI), quality circles.

Techniques of Quality Management - Improving Hospital Performance, Patient Participation, Quality Health Care through Patient Satisfaction, conceptual model for assessing quality in health care.

Organization wide Quality Improvement in Health Care – Introduction, organizing for Quality Assessment, Quality Improvement fundamentals, A Quality Improvement model of daily Patient Care.

Assessing Quality Health Care - Attributes of Quality in Health Care, Attributes of a Good Patient Practitioners Relationship, Patient Satisfaction Survey, and The measurement of Quality in health care. Total quality management - The implementation of Total Quality, Planning Quality, organizing Quality, Evaluating Quality, Transforming organizations to a Total Quality Philosophy and Culture. Outcome Management and Total Quality - Background of Quality outcome, what is quality outcome and what is outcome Management?

Concepts of Accreditation in Hospitals: NABH, NABL, JCI - ISO 9000 Quality Management, Effects and Benefits of ISO 9000 management System & clauses. Audits for quality assessment & Management-Antibiotic audit, Infection control Review & Tissue Committee review

Placement Semester	Semester II
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Hospital statistics
Course Code	BSC2723S206T
Course Type	Elective
Credits	4
Hours per Semester	60

Definition of hospital statistics and important Hospital Terms •Sources of Hospital Statistics – Registers, Medical Records and Daily Ward Census •Analysis of Hospital Services and Discharges –Important Rates, Ratio and Percentages with Formula •Uses and Limitations of Hospital Statistics •Hospital Statistics Reporting Crude Rates o Specific Rate o Prevalence, Incidence, Morbidity, fertility rates o Mortality Rates – Crude Death Rate, Specific Death Rates with respect to age , sex etc. Cause-of-death Rates; Infant Mortality Rates; Neonatal Mortality Rates o Post-Neonatal Mortality Rate or Late Infant Mortality Rate Collection of hospital statistical data: Birth, Death, fetal death, live birth and immature infants, reporting, determination of basic data, daily analysis of hospital service, discharge analysis procedure, cumulative method, monthly and annual reports, computation of percentage (ratios) inpatient census and bed occupancy rate (computerized and manual), presentation of hospital data. •Criteria of ill health • Classification of healthy and sick •Measurement of morbidity

Course Content

SEMESTER- III

Placement Semester	Semester III
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Health Information Management
Course Code	BSC2723S301T
Course Type	Core
Credits	5
Hours per Semester	75

Informatics and Health Information Management

Introduction, Health care delivery systems, Informatics in Health Care, Health Information

Management profession, Data and formation management, Information systems Development Aggregate Health care data Secondary records and Health care database, Clinical classification and Terminologies, Reimbursement methodologies

Intradepartmental and Interdepartmental Relationships

Developing Intradepartmental Relationship

Developing Interdepartmental Relationships with various Departments of the Hospital

Knowledge of leadership, management, organizational structures theory

Knowledge of accreditation requirements, licensing regulations, and certification

requirements relevant to department/organization, Knowledge of financial management and budgeting, Strategy development, Policy development, Ability to create agendas, lead meetings, maintain documentation, and follow up, Effective communication and negotiation skills, Conduct a stakeholder analysis

Placement Semester	Semester III
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Clinical and Ward Management Services
Course Code	BSC2723S302T
Course Type	Core
Credits	5
Hours per Semester	75

Clinical Services
a) Overview of clinical departments and services – OPD, In-patients, ICU, Surgical, Emergency, Community/family Health, Paramedical & Rehabilitation b) Types of doctors, their training, roles and responsibilities c) The role & responsibilities of the HOD d) Medical Audit e) Medical Negligence & Litigation

Nursing Services and Wards
a) Objectives of the nursing service

b) Nursing service organization, types of nurses, their training, qualifications and functions, other ward staff, personnel issues. c) Ward management

Product-based services
a) Pharmacy purchasing and stores b) Pharmacy dispensing c) Prosthetics & Orthotics

Diagnostic Services
a) Overview – main services and their functions (Radiology, Laboratories, Blood Bank etc.)

b) In-house services

Patient Services (non-medical)
a) Reception, Welcome/Help Desk b) Patient facilities, wheelchairs, Ambulances

c) Public Relations – objectives, functions, policies, different media, methodologies, networking

Managing Support Services

a) Overview of functions of all support services including Laundry, Catering, Cleaning, CSSD, Transport, Security, Materials (Purchase and Stores) etc.

b) Functions of General Supervisior Office

Placement Semester	Semester III
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Data Analysis and Visualization
Course Code	BSC2723S303T
Course Type	Core
Credits	5
Hours per Semester	75

Introduction to Data Analysis and Visualization, Importance and applications of data analysis and visualization, Overview of the data analysis process, Introduction to data visualization tools and software,

Data Types and Data Cleaning, Different types of data (numerical, categorical, etc.),

Data cleaning and preprocessing techniques, Dealing with missing data and outliers,

Exploratory Data Analysis, Summary statistics and measures of central tendency, Data visualization techniques (histograms, box plots, scatter plots, etc.), Principles of effective data visualization, Graphical representations of data (bar charts, line graphs, pie charts, etc.), Visualizing multidimensional data, Data Visualization Tools and Software,

Introduction to popular data visualization tools (e.g., Python, ggplot2, matplotlib).

Placement Semester	Semester III
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Personality Development
Course Code	BSC2723S304T
Course Type	Elective
Credits	4
Hours per Semester	60

Definition of Personality - Determinants of Personality- biological, psychological and socio- cultural factors. - Misconceptions and clarifications - Need for personality development

SELF-AWARENESS AND SELF MOTIVATION Self-analysis through SWOT and Johari window - Elements of motivation - Seven rules of motivation - Techniques and strategies for self-motivation - Motivation checklist and Goal 138 setting based on principle of SMART - Self motivation and life - Importance of self esteem and enhancement of self-esteem.

UNIT III MEMORY AND STUDY SKILLS Definition and importance of memory - Causes of forgetting - How to forget (thought stopping), how to remember (techniques for improving memory) - The technique of passing exams-management of examination fear.

Placement Semester	Semester III
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Healthcare Services and Its Application
Course Code	BSC2723S305T
Course Type	Elective
Credits	4
Hours per Semester	60

Health and Disease

Concept, Definitions & Dimensions of health, Wellbeing, Determinants of health, Evolution of medicine, Public Health, Health indicators, Health service philosophies, Disease & causation, Natural history of disease, Disease control & prevention, Changing patterns of disease.

Medical sociology –Introduction Sociological perspective of health, illness and healing. Institutional perspective and Organizational perspective.

Public and Private Health Care Services in India

Evolution of public health systems in India (ancient, colonial & post-independence), Health Planning in India (Committees, Planning commission, Five year plans, National Health Policies), Public health systems in India (Center, State, District & Village level), Rural development, Corporate philosophy, Evolution and organization of private health systems in India and Current trends in private health care in India.

WHO- Objective, functions, **UNICEF**- objective and functions. Different Model of Healthcare-The Beveridge Model, The Bismarck Model, The National Health Insurance Model, The Out-of-Pocket Model. Brief Introduction of Health System of different countries: USA, UK, Canada, Australia, Sweden, and Germany.

Population Health

Introduction to population studies, Issues of Indian society & culture, Nuptiality & Fertility, Reproductive health, Population and Development (policies, programs &evaluation), introduction to epidemiology (concept, terms, aims & uses), definition of epidemic, endemic, pandemic, sporadic. Prevalence and Incidence. Epidemiological methods- basic idea of Cohort study, Case Control study and RCT. Epidemiology of communicable diseases (TB, STDs, Diarrhea& HIV/AIDS) and Epidemiology of Non communicable diseases(CHD, Cancer, Diabetes, Hypertension &Obesity).

Contemporary Issues in Health Services Management

National Health Policy; Reproductive, Maternal, Newborn, Child, and Adolescent Health(RMNCH+A) ; National Vector Borne Disease Control Program (NVBDCP).

Placement Semester	Semester III
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basic Life Support
Course Code	BSC2723S306T
Course Type	Elective
Credits	4
Hours per Semester	60

- Adult BLS, Adult chain of survival Scene safety and assessment adult compressions, AED, and Bag Mask Device
- Successful Resuscitation teams
- Infant and Child BLS, Pediatric chain of survival, AED for Infants, and children less than 8 years age 6,
- Special considerations: Mouth to mouth breaths Breath with an advanced airway Opioid associated life-threatening emergency
- Adult, infant and child choking Relief of choking in a responsive adult or child Relief of choking in an unresponsive adult or child
- Practical demonstration of CPR, AED in adults and pediatric patients

SEMESTER- IV

Placement Semester	Semester IV
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Clinical Information Technology
Course Code	BSC2723S401T
Course Type	Core
Credits	5
Hours	75

Define the Internet , How the Internet works ,Internet capabilities and limitations ,How to connect to the Internet via modem ISDN, etc. ,Navigate the World Wide Web ,Identify services and tools offered on the Internet ,Use services and tools offered on the Internet ,Explain book marks ,Safety,

Define electronic mail , Compose electronic messages ,Send electronic messages using appropriate format ,Transmit document using electronic mail system, Explain communications standards ,Describe network structures ,Explain network types and protocols ,Explain network connectivity ,Explain the function of servers in a graphic network ,Describe various network

operating systems, Explain the difference between network software and individual use software ,Use a network to access, file, and store files

Placement Semester	Semester IV
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Database Management System
Course Code	BSC2723S402T
Course Type	Core
Credits	5
Hours	75

Introduction and Basic Concepts - Structure of DBMS - Advantages & Disadvantages - Relational and their schemes integrity rules - Relational algebra: Basic operations additional operations, relational algebraic operations. Relational Calculus: Tuple Calculus domain calculus - Physical Implementation Issues What is database ,Data base System Applications, Purpose of Database Systems, View of Data – Data Abstraction – Instances and Schema – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base Architecture – Storage Manager – the ,Normalization – Introduction, Non loss decomposition and functional dependencies, First, Second, and third normal forms – dependency preservation, Boyed/Codd normal form. Higher Normal Forms - Introduction, Multi-valued dependencies and Fourth normal form, join dependencies and Fifth normal form, Overview of the SQL Query Language – Basic Structure of SQL Queries, Set Operations, Aggregate Functions – GROUPBY – HAVING, Nested Sub queries, Views, Triggers.

Placement Semester	Semester IV
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Professionalism and Values
Course Code	BSC2723S103T
Course Type	Core
Credits	5
Hours	75

Introduction to Professional Ethics: Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics and Profession. Professional Practices in Engineering: Professions and Norms of Professional Conduct, Norms of Professional Conduct vs. Profession; Responsibilities, Obligations and Moral Values in Professional Ethics, Professional codes of ethics,

Work Place Rights & Responsibilities; Organizational Complaint Procedure, research misconduct distinguished from mistakes and errors, recent history of attention to research misconduct, the emerging emphasis on understanding and fostering responsible conduct, responsible authorship, reviewing & editing.

Placement Semester	Semester IV
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Medical Law and Ethics
Course Code	BSC2723S104T
Course Type	Elective
Credits	4
Hours	60

Medical ethics - Definition - Goal - Scope , Introduction to Code of conduct , Basic principles of medical ethics – Confidentiality ,Malpractice and negligence - Rational and irrational drug therapy , Autonomy and informed consent - Right of patients ,Care of the terminally ill- Euthanasia , Organ transplantation , Medico legal aspects of medical records – Medico legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects, Professional Indemnity insurance policy , Development of standardized protocol to avoid near miss or sentinel events ,Obtaining an informed consent.

Placement Semester	Semester IV
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Disaster Management
Course Code	BSC2723S105T
Course Type	Elective
Credits	4
Hours	60

Disaster and its type, Flood Draught, Cyclone, Geographical Disaster, Earthquake, Landslide, Avalanches, Volcanic Eruptions, Climatic Disaster-Heat and Cold Wave, Climate Change, Global Warming, Sea level Rise, Ozone Depletion. Disaster Preparedness, Disaster Prevention, Preparation and Mitigation, Disaster Information, System, Megha Satellite, Role of Various Agencies in Disaster Mitigation- National level and State levels, Disaster Response: Disaster Medicine, Rehabilitation, Reconstruction and Recovery. Disaster Response: Disaster Medicine, Rehabilitation, Reconstruction and Recovery.

Placement Semester	Semester IV
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Yoga Practices
Course Code	BSC2723S106T
Course Type	Elective
Credits	4
Hours	60

FOUNDATIONS OF YOGA: HISTORY

- Origin of Yoga, History and Development of Yoga; Etymology and Definitions, Misconceptions, Aim and Objectives of Yoga, True Nature and Principles of Yoga
- Introduction to Vedas, Upanishads, Prasthanatrayee and Purushartha Chatushtaya
- General introduction to Shad-darshanas with special emphasis on Samkhya and YogaDarshana, Yoga in Vedanta

EVOLUTION OF YOGA

Introduction to Epics - (Ramayana, Mahabharata), Yoga in Ramayana, Yoga in Mahabharata

- Introduction to Smritis and Yoga in Smritis; General introduction to Agamas and Tantra, Yoga in Tantra; Concepts of Nadi and Prana in Tantra, Kundalini, Effects of Kundalini Shaktiand Shatchakra Sadhana Yoga in Medieval Literature, Bhakti Yoga of Medieval Saints, Yoga in Narada Bhakti Sutras.
- Yoga in Modern Times: Yogic Traditions of Ramakrishna and Swami Vivekananda, Shri Aurobindo; Yoga traditions of Maharshi Ramana and Swami Dayanand Saraswati
- Yoga in Contemporary Times: Brief Introduction to important Yoga Paramparas (lineages) Yoga Parampara of Sri T. Krishnamacharya, Yoga Parampara of Swami Shivanada Saraswati, Swami Rama of Himalayas, Maharshi Mahesh Yogi and their contributions for thedevelopment and promotion of Yoga.

EVOLUTION SCHOOLS OF YOGA

- Introduction to Schools (Streams)of Yoga: Yoga Schools with Vedanta Tradition (Jnana, Bhakti,Karma and Dhyana), Yoga Schools with Samkhya-Yoga Tradition (Yoga of Patanjali)and Yoga Schools with Tantric Tradition (Hatha Yoga, Swara Yoga and Mantra Yoga)

Elements of Yoga and Yogic practices in Jainism, Buddhism and Sufism

Course Content

SEMESTER- V

Placement Semester	Semester V
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Quality Assurance
Course Code	BSC2723S501T
Course Type	Core
Credits	5
Hours per Semester	75

Quality assurance and management -

- Concepts of Quality of Care , Quality Improvement Approaches
- Standards and Norms
- Quality Improvement Tools
- Introduction to NABH guidelines

Bio medical waste management and environment safety-

- Definition of Biomedical Waste , Waste minimization
- BMW – Segregation, collection, transportation, treatment and disposal (including color coding)
- Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste
- BMW Management & methods of disinfection
- Modern technology for handling BMW
- Use of Personal protective equipment (PPE)
- Monitoring & controlling of cross infection (Protective devices)

Infection prevention and control -

- Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],
- Prevention & control of common healthcare associated infections,
- Components of an effective infection control program, and
- Guidelines (NABH and JCI) for Hospital Infection Control
-

Placement Semester	Semester V
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Clinical Classification and Coding Systems
Course Code	BSC2723S502T
Course Type	Core
Credits	5
Hours per Semester	75

Nomenclatures and Classification Systems:

- Coding of final diagnosis and secondary diagnosis.
- Disease and operation nomenclatures, International Classification of Disease 10, International Classification of Disease – 9CM indexing of patient care data.
- Introduction and usage of International Classification of Disease in practical's
- International Classification of Diseases
- ICD-10, ICD-9 CM (Surgical Procedures)
- CPT – Current Procedural Terminology (Introduction)
- HCPCS – Healthcare Common Procedure Coding System (Introduction)
- ICD-10 - Alpha-numeric coding
- Volume 1 – Tabular list , Volume 2 – Instruction manual
- Volume 3 – Alphabetical Index
- Classification of Diseases according to Clinical Pertinence
- ICD-9CM (Procedure) coding – International Classification of Diseases – Clinical modification
- SNOMED-CT , Standard Nomenclatures of diseases (SNDO)
- Current Medical Information Terminology , Systematized Nomenclature of Pathology (SNOP)
- International Classification of Functioning, Disability and Health (ICF) , Case-Mix Classifications

Placement Semester	Semester V
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Electronic Health Record
Course Code	BSC2723S503T
Course Type	Core
Credits	5
Hours per Semester	75

components of EHRs including laboratory information systems, pharmacy information systems, picture archiving and communication systems, order sets, clinical protocols, provider orders, medication administration records, point-of-care charts, and clinical decision support systems

EHR – definitions

- contents and examples of EHR practices
- Preliminary steps in implementation of EHR
- Issues and challenges in implementation of EHR
- Planning for the introduction of EHR
- Factors to be considered when developing EHR & implementation plan
- Implementation plan

EHR Standards

- Identification & Demographics,
- Patient Identifiers,
- Architecture Requirements
- Functional Requirements
- Reference
- Model and Composition
- Terminology
- Coding System
- Digital Imaging and Communications in Medicine
- Scanned or Captured Records
- Data Exchange
- Personal Healthcare and medical Device Interface

Placement Semester	Semester V
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Artificial Intelligence In Healthcare
Course Code	BSC2723S504T
Course Type	Elective
Credits	4
Hours per Semester	60

Artificial Intelligence

What is Artificial Intelligence? , Philosophy of AI ,Goals of AI , History of AI , Contributes to AI?,

Programming Without and With AI, What is AI Technique? , Applications of AI ,What is Intelligence ,

Types of Intelligence, What is AI Technique?

Intelligence Composition, Difference between Human and Machine Intelligence, Research Areas of AI ,Search Algorithms ,Logic Systems ,Natural Language Processing ,Robotics ,

Uses of AI in Health Care.

Placement Semester	Semester V
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of computer Graphics
Course Code	BSC2723S505T
Course Type	Elective
Credits	4
Hours per Semester	60

Introduction to Computer Graphics

- Overview of computer graphics
- Applications of computer graphics in various industries
- History and evolution of computer graphics

Image Representation and Manipulation

- Introduction to digital images
- Image formats and color spaces
- Image acquisition and sampling
- Basic image manipulation techniques (resizing, cropping, filtering)

2D Graphics, Raster Graphics,3D Graphics

Introduction to Computer Animation

Graphics Applications and Projects

- Overview of real-world graphics applications (games, simulations, visualizations)
- Final project development (e.g., a simple 2D/3D game, interactive demo)

Placement Semester	Semester V
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Basics of Machine Learning
Course Code	BSC2723S506T
Course Type	Elective
Credits	4
Hours per Semester	60

Introduction to Machine Learning

- What is Machine Learning?

- Types of Machine Learning: Supervised, Unsupervised, Reinforcement Learning

- Machine Learning Applications and Real-world Examples

- Data Cleaning and Handling Missing Values

- Feature Scaling

- Data Transformation and Encoding

Introduction to Neural Networks

- Perceptrons and Multilayer Perceptrons (MLPs)

- Activation Functions

- Backpropagation Algorithm

Introduction to Natural Language Processing (NLP)

- Text Preprocessing

- Bag-of-Words and Word Embeddings

- Sentiment Analysis

SEMESTER- VI

Placement Semester	Semester VI
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Introduction to Research
Course Code	BSC2723S601T
Course Type	Core
Credits	5
Hours	75

Introduction to Research: Definition of research, Role of research in various field, Characteristics of good research, Types of research (basic, applied, exploratory, descriptive, etc.)

Research Process: Steps involved in the research process, Developing a research problem and research questions, Literature review: Importance and techniques, Formulating research hypotheses

Research Designs: Experimental, non-experimental, and quasi-experimental designs, Cross-sectional and longitudinal studies, Case studies and survey research, Qualitative research methods and their applications

Data Collection Methods: Surveys: Questionnaire design and administration, Interviews: Types, techniques, and ethical considerations, Observations: Participant and non-participant observations, Secondary data sources and their utilization

Data Analysis and Interpretation: Quantitative data analysis: Descriptive and inferential statistics, Qualitative data analysis: Coding, thematic analysis, and narrative interpretation, Integrating qualitative and quantitative data (mixed methods)

Ethical Considerations in Research: Informed consent and confidentiality**,** Institutional Review Board (IRB) approval**,** Addressing bias and ensuring research integrity

Research Communication: Writing a research report: Structure and components**,**Presenting research findings: Effective visual aids and presentation skills**,** Disseminating research through conferences and publications

Placement Semester	Semester VI
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Hospital Accounting and Finance
Course Code	BSC2723S602T
Course Type	Core
Credits	5
Hours	75

Section A : Fundamentals of Financial Accounting ,Accounting Process , Theoretical Framework (meaning, scope and usefulness of Accounting; Generally Accepted Accounting Principles, Concepts and Conventions) , Capital and Revenue transactions- capital and revenue expenditures, capital and revenue receipts , Preparation of Ledger Accounts , Accounting for Depreciation (a) Depreciation Policy (b) Methods, computation and Accounting treatment , Balance Sheet (i) Preparation of Receipts and Payments Account; (ii) Preparation of Income and Expenditure Account (iii) Preparation of Balance Sheet

Section B: Fundamentals of Cost & Management Accounting, Fundamentals of Cost Accounting (a) Cost and Management Accounting – Generally Accepted Cost Accounting Principles (b) Accounting for Material cost (including Accounting of Inventory – LIFO, FIFO, Weighted Average Cost) (c) Accounting for Labor costs, Direct Expenses and Overheads 7.Fundamentals of Management Accounting

Section C: •National health spending •Paying for healthcare •Basics of Health Insurance •Different types of healthcare financing in India

Placement Semester	Semester VI
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Information Security
Course Code	BSC2723S603T
Course Type	Core
Credits	5
Hours	75

Elements of Information Security, Information security supports the mission of the organization, Information security is an integral element of sound management , Information security protections are implemented so as to be commensurate with risk , Information security roles and responsibilities are made explicit, Information security responsibilities for system owners go beyond their own organization , Information security requires a comprehensive and integrated approach , Interdependencies of security controls , Other interdependencies , Information security is assessed and monitored regularly, Information security is constrained by societal and cultural factors,

Threats and Vulnerabilities: A Brief Overview, Examples of Adversarial Threat Sources and Events , Fraud and Theft, Insider Threat ,, Malicious Hacker , Malicious Code, Examples of Non-Adversarial Threat Sources and Events , Errors and Omissions , Loss of Physical and Infrastructure Support , Impacts to Personal Privacy of Information Sharing, Information Security Policy

Standards, Guidelines, and Procedures, Program Policy, Basic Components of Program Policy , Issue-Specific Policy , Example Topics for Issue-Specific Policy , Basic Components of Issue-Specific Policy, System-Specific Policy, Security Objectives, Operational Security Rules,-Specific Policy Implementation, Interdependencies, Cost Considerations,

Information Security Risk Management, Implement , Assess , Authorize, Monitor, Assurance, Authorization , Authorization and Assurance, Cost Considerations, Security Considerations in System Support and Operations , Support, Software Support , Configuration Management, Backups , Media Controls, Documentation, Maintenance, Interdependencies, Cost Considerations, Cryptography, Uses of Cryptography , Data Encryption, Integrity, Electronic Signatures, Implementation Issues , Selecting Design and Implementation Standards, Deciding between Software, Hardware, or Firmware Implementations , Managing Keys, Security of Cryptographic Modules, Applying Cryptography to Networks , Complying with Export Rules, Interdependencies

Placement Semester	Semester VI
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Strategic Management in Healthcare
Course Code	BSC2723S604T
Course Type	Elective
Credits	4
Hours	60

Business Policy- Introduction, Definition and Importance, Purpose & objectives of business policy. Utility and application of strategic management- Meaning and definition of strategy, Need & process of strategic management, Strategic decision-making. Reasons for failure of strategic management, Strategists and their role in strategic management.

Environment appraisal- The concept of environment, The Company and its environment, scanning the environment, relating opportunities and resources based on appraisal of the environment (situation analysis - opportunities and threats analysis).

Strategic planning - Process, strategic plan. Corporate level strategies [Stability strategy, expansion strategy, merger strategy, retrenchment strategy, restructures strategy]. Business level strategy - SBU (strategic business units, cost leadership, decentralization).

Implementation of strategies: Activating strategy - interrelationship between formulation and implementation, aspects of strategy implementation, project implementation, and procedural implementation, Structural implementation, structural considerations & structures for strategies. Organizational Design and change, Organizational systems, Behavioral implementation, Leadership implementation, corporate culture, corporate politics and use of power. Functional and operational implementation - Functional strategies, Functional Plans and policies, Financial, marketing, operational and personnel dimensions of functional plans and policies, Integration of functional plans and policies.

Strategy evaluation - Strategic evaluation and control, operational control, overview of management control, focus on KRA (Key Result Areas).

Social responsibilities - The Company and its social responsibilities, social responsibility for economic growth, Social audit.

Placement Semester	Semester VI
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Medical Transcription and Telemedicine
Course Code	BSC2723S605T
Course Type	Elective
Credits	4
Hours	60

Medical Transcription: • Basics of Medical Transcription• Objectives of Medical Transcription • Rules of Medical Transcription • Advantages of Medical Transcription • Division of medical words into their component parts • Forms, Suffixes, Prefixes and Terminology • Laboratory tests, Clinical procedures and Abbreviations

Telemedicine: • Basic health care • Classification of Telemedicine • Technology of Telemedicine • Objectives of Telemedicine • Rules of Telemedicine •Telemedicine Act • Merits of Telemedicine • Future Telemedicine plans • Research

Placement Semester	Semester VI
Name of the Program	B.Sc. MRS&CIT
Program Code	BSC2723
Name of the Course	Project Management
Course Code	BSC2723S606T
Course Type	Elective
Credits	4
Hours	60

Project Management - Introduction, Meaning & Definition of project. Defining - Project Managers, Functional Managers & Executive's role. Project Manager as a planning agent, Project Driven Vs Non Project Driven organization, marketing in the Project Driven Organization, Programs and Projects, Product Vs Project Management, Project Life Cycles, program evaluation, project analysis & management. Project Planning- Identifying strategic project variables, Project planning, Statement of work, Project specifications, Milestone schedule, Work breakdown structure, Planning cycle, Management Control, categories of project. Project Feasibility - technical feasibility, marketing feasibility, socio-economic feasibility, managerial feasibility, financial feasibility and potential feasibility. UNIT – 4 Project Evaluation and Review techniques - Estimating activity time, Estimating total program time, PERT/CPM planning, Crash time, project sustainability, operations research. Project Management Functions - Controlling, Directing, Project authority, Team building, Leadership, communications, Project review meetings, Management policies and procedures, proposal writing. UNIT – 6 Pricing Estimating & Cost Control - Types of estimates & Pricing process, Labor distributions, Overhead rates, Material/Support costs, Pricing review, Budgeting for projects variance & earned value, Status reporting, project accounting.

MODEL PAPER

B. Sc. MRS&CIT Semester I **BOMRC-1**

BSC2723S101T

First Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-I

Basic of Medical Record Science

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Define Medical Record. What is good medical record?

B Role and responsibilities of MRO?

C Standard order of arrangement of medical record forms?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Policies of medical record departments?

B Methods of collecting good data in medical record department?

C Medico Legal Cases.

3. Short notes (Any four) **4X5 = 20**

A. Medical record flow

B. Advantage of good admitting Policies and Procedures

C. Benefit of digital medical record

D Uses of medical record in hospital

E. Medical record forms

MODEL PAPER

B. Sc. MRS&CIT Semester I **CIT-2**

BSC2723S102T

First Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-II

Clinical Information Sciences

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Identify all anatomical structures of the human body.

B Describe Integumentary system.

C Describe Chemistry of the human body fluids in health and diseases

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Gross anatomy of external, middle and internal ear.

B What is Inflammation?

C Describe Infectious Disease.

3. Short notes (Any four) **4X5 = 20**

A. hormones.

B. carbohydrates.

C. Cardiovascular system.

D . Disease of white cells and lymph nodes.

E. Blood groups.

MODEL PAPER

B. Sc. MRS&CIT Semester I **BOC-3**
BSC2723S103T

First Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-III

Basic of Computer

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A What is computer? Define types of computers.

B Use of CPU in Computer?

C Explain Computer networking?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Explain Input & Output Devices?

B Mail Formatting.

C Describe Internet Pro type?

3. Short notes (Any four) **4X5 = 20**

A. TCP/IP

B. E-Mail Writing

C.

D CPU

E. Excel

MODEL PAPER

B. Sc. MRS&CIT Semester I **CE-4**
BSC2723S104T

First Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Communicative English

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Define Communication in detail with its various types and forms.

B Illustrate a note on the elements of sentence.

C Demonstrate the process of communication?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Define between spoken and written communication.

B "in healthcare, clear communication can be the difference between life and death".

C Communication in healthcare?

3. Short notes (Any four) **4X5 = 20**

A. Communication Channels.

B. Barriers and Strategies of communication.

C. She has been learning to swim for a long time.

D He offered his friend some helpful advice.

E. she carefully placed the delicate vase on the table.

MODEL PAPER

B. Sc. MRS&CIT Semester I **BHIT-5**
BSC2723S105T

First Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-V

Basic of healthcare information Technology

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Discuss about HCIT?

B Describe about Current trends and challenges in HCIT implementation.?

C Describe EHR adoption and interoperability?

2. Short Essay (Attempt any Two) **2X10 = 20**

A What is Health Information Exchange?

B Discuss about health data for decision-making and quality improvement?

C Describe Health Care Mobile Applications?

3. Short notes (Any four) **4X5 = 20**

A. EMR

B. HIS

C. CDSS

D. EMR

E. Information Technology

MODEL PAPER

B. Sc. MRS&CIT Semester I **MT-6**
BSC2723S106T

First Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-VI

Medical Terminology

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Describe word roots, prefixes, and suffixes with example?

B Describe terms position, direction, and planes of the body and their applications.

C Explain the role of medical terminology in hospital management?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Explain the rule of word building in medical terminology?

B Mentioned procedures medical terms related to the integumentary system.?

C Explain diagnostic medical terms related to the nervous system.?

3. Short notes (Any four) **4X5 = 20**

A. Suffixes and prefixes medical terms of Cardiovascular system.

B. Laboratory medical terms of skin.

C. Diagnostic & Procedure terms of Endocrine system.

D. Structure and Function medical terms of Bones.

E. Pharmacological medical terms of Reproductive system.

MODEL PAPER

B. Sc. MRS&CIT Semester II **BOM-1**
BSC2723S201T

Second Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-I

Basics of Management

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Role & Responsibilities of management.

B Explain Principal of management.

C Types of Decision-making step.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Nature of Principal.

B Types of communication process.

C Communication in healthcare?

3. Short notes (Any four) **4X5 = 20**

A. Use of communication Indian industries.

B. Barriers and Strategies of communication.

C. Behavioral Approach.

D Planning.

E. Leadership Quality.

MODEL PAPER

B. Sc. MRS&CIT Semester II **BOB-2**
BSC2723S202T

Second Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-II

Basics of Biostatics

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Biostatistics & research methodology.

B Discuss about principles of probability theory.

C Describe types of variables & scales of measurements.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Types of errors and levels of significance

B Discuss about Meta-analysis.

C Sequence Analysis

3. Short notes (Any four) **4X5 = 20**

A Sampling & Non sampling errors.

B. Methods of minimizing errors

C. Measures of central tendency and dispersion

D . Structure of research protocol

E. Normal distribution

MODEL PAPER

B. Sc. MRS&CIT Semester II **HI-3**
BSC2723S203T

Second Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-III

Health Insurance

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Discuss about Health Insurance. Types of health insurance.

B Health insurance in India.

C Define ECHS & CGHS.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Social Health Schemes.

B Insurance Schemes in India.

C Role of Gov. Health Insurance

3. Short notes (Any four) **4X5 = 20**

A Describe private Health insurance.

B. Types of health insurance.

C. Smart card Operations.

D . Claims Management

E. Community Based health insurance

MODEL PAPER

B. Sc. MRS&CIT Semester II **IAI-4**
BSC2723S204T

Second Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Innovation and IPR

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Discuss about economic developments. Define eco system.

B Significance of IPR.

C Public interest and innovation diffusion.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe criteria for patentability.

B Meaning and purpose of Trademark.

C Fair use and infringement issues.

3. Short notes (Any four) **4X5 = 20**

A Describe TRIPS.

B. WIPO.

C. Smart card Operations.

D . Challenges in enforcing IPR

E. IPR Licensing

MODEL PAPER

B. Sc. MRS&CIT Semester II **QIH-5**
BSC2723S205T

Second Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-V

Quality in health care

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Discuss about Quality control tools.

B Use of NABH in private sector.

C Discuss quality improve in health care.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Benefit of ISO 9000Quality management.

B Outcome management.

C What is continuous quality improvement.

3. Short notes (Any four) **4X5 = 20**

A JCI.

B. Quality Indicators tools.

C. Good patients Relationship.

D . what is patients satisfaction survey?

E. Concepts of accreditation in hospital

MODEL PAPER

B. Sc. MRS&CIT Semester II **HS-6**
BSC2723S206T

Second Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-VI

Hospital Statistics

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Importance and Sources of hospital statistics ?

B Describe Uses and Limitations of Hospital Statistics**.**

C Explain the Analysis and Discharges process of Hospital Services ?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Measurement and Importance of morbidity ststictics.?

B Explain the role of hospital statistical data?

C Explain inpatient census and bed occupancy rate?

3. Short notes (Any four) **4X5 = 20**

A. Bed occupancy rate.

B. Bed turnover rate

C. Hospital Census

D. Crude rate

E. Hospital Indicators

MODEL PAPER

B. Sc. MRS&CIT Semester III **BHIS-1**
BSC2723S301T

Third Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-I

Basics of Health information Management

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Informatics and Health Information Management?

B Describe Health care delivery systems.

C Explain Intradepartmental and Interdepartmental Relationships?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Knowledge of leadership,

B Explain organizational structures theory.

C Explain Knowledge of financial management and budgeting.

3. Short notes (Any four) **4X5 = 20**

A. Health Information.

B. Health care data Secondary.

C. ggplot2

D. leadership

E. Planning

MODEL PAPER

B. Sc. MRS&CIT Semester III **CWMS-2**
BSC2723S302T

Third Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-II

Clinical Ward Management Services

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Objectives of the nursing service?

B Describe Patient Workflow In OPD, In-patients.

C Explain types of nurses, their training, qualifications and functions?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Patient facility.

B Explain organizational structures theory.

C Explain Functions of General Supervisor Office

3. Short notes (Any four) **4X5 = 20**

A. Catering,

B. CSSD,

C. ggplot2

D. Public Relations

E. Ambulances

MODEL PAPER

B. Sc. MRS&CIT Semester III **BDAAV-3**
BSC2723S303T

Third Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-III

Basic of Data Analysis and Visualization

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain Data Analysis and Visualization?

B Describe the data analysis process.

C Explain Importance and applications of data analysis and visualization?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe statistics and measures of central tendency.?

B Explain Data cleaning and preprocessing techniques?

C Explain Principles of effective data visualization?

3. Short notes (Any four) **4X5 = 20**

A. Scatter plots.

B. Python

C. ggplot2

D. matplotlib

E. Multidimensional data

MODEL PAPER

B. Sc. MRS&CIT Semester III **PD-4**
BSC2723S304T

Third Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Personality Development

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Explain the role of personality in health care organization?

B Describe the need for personality development**.**

C Explain biological and psychological factors of personality?

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe self-awareness and self-motivation.?

B Explain Seven rules of motivation?

C Explain Techniques and strategies for self-motivation?

3. Short notes (Any four) **4X5 = 20**

A. Self-esteem.

B. SMART

C. SWOC

D. Memory

E. Management

MODEL PAPER

B. Sc. MRS&CIT Semester III **HSAA-5**
BSC2723S305T

Third Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-V

Healthcare Services and Its Application

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Discuss about public health systems in India.

B. Describe about Health Planning in India.

C. Describe National Health Policy?

2. Short Essay (Attempt any Two) **2X10 = 20**

A. What are Determinants of health.

B. Discuss about The Bismarck Model.

C. Describe Rural Health development.

3. Short notes (Any four) **4X5 = 20**

A. WHO

B. UNICEF

C. NVBDCP

D. CANCER

E. Hypertension

MODEL PAPER

B. Sc. MRS&CIT Semester III **BLS-6**
BSC2723S306T

Third Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-VI

Basic Life Support

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Explain the role of basic life support in health care.

B. Explain rules and regulations of basic life support.

C. Describe the importance of successful resuscitation teams.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Explain BLS process of adult compression.

B. Discuss about Child basic life support.

C. Describe special consideration of advanced BLS.

3. Short notes (Any four) **4X5 = 20**

A. Choking

B. Bag mask device

C. CPR

D. Infant choking

E. AED

MODEL PAPER

B. Sc. MRS&CIT Semester IV **CIT-1**
BSC2723S401T

Fourth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-I

Clinical Information Technology

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Biostatistics & research methodology.

B Discuss about principles of probability theory.

C Describe types of variables & scales of measurements.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Types of errors and levels of significance

B Discuss about Meta-analysis.

C Sequence Analysis

3. Short notes (Any four) **4X5 = 20**

A Sampling & Non sampling errors.

B. Methods of minimizing errors

C. Measures of central tendency and dispersion

D . Structure of research protocol

E. Normal distribution

MODEL PAPER

B. Sc. MRS&CIT Semester IV **DMS-2**
BSC2723S402T

Fourth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-II

Data Base Management System

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) 2X15 = 30

A. What are the basic Concepts and Structure of DBMS?

B. What is database and its Applications and Purpose of Database Systems?

C. Describe about database Access for applications Programs.

2. Short Essay (Attempt any Two) 2X10 = 20

A. Relational and their schemes integrity rules.

B. Transaction Management

C. Data base Architecture

3. Short notes (Any four) 4X5 = 20

A. Relational Model

B. Advantages & Disadvantages of DBMS

C. Database Languages

D. Storage Manager

E. Purpose of Database Systems

MODEL PAPER

B. Sc. MRS&CIT Semester IV **PAV-3**
BSC2723S403T

Fourth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-III

Professionalism and Values

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Professionalism and Values.

B Discuss Personal & Professional Ethics,.

C Describe Obligations and Moral Values in Professional Ethics.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe research misconduct

B Discuss Professional codes of ethics.

C Professional Risks,

3. Short notes (Any four) **4X5 = 20**

A Organizational Complaint Procedure

C. Governing Ethics,

D . Values of Education

E. Emotional Intelligence

MODEL PAPER

B. Sc. MRS&CIT Semester IV **MLAE-4**
BSC2723S404T

Fourth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Medical Law and Ethics

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Medical Law and Ethics.

B Discuss Introduction to Code of conduct.

C Describe Basic principles of medical ethics.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Records and document related to MLC

B Discuss Confidentiality of medical record.

C Medico legal case and type-

3. Short notes (Any four) **4X5 = 20**

A MLC

B. IPD&OPD

C. Patient health data

D . Patients Right and education

E. Obtaining an informed consent.

MODEL PAPER

B. Sc. MRS&CIT Semester IV **DM-5**
BSC2723S405T

Fourth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-V

Disaster Management

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Geographical Disaster.

B Discuss Introduction Global Warming.

C Describe Basic Disaster management.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Rehabilitation

B Discuss Disaster Medicine

C Reconstruction and Recovery.

3. Short notes (Any four) **4X5 = 20**

A National level and State levels Disaster management.

B. IPD&OPD

C. Disaster Response:

D Volcanic Eruptions

E. Ozone Depletion.

MODEL PAPER

B. Sc. MRS&CIT Semester IV **YP-6**
BSC2723S406T

Fourth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Yoga Practices

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Explain the importance and Origin of Yoga.

B. Explain the Etymology of Yoga.

C. Describe the History and Development of Yoga.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Explain Aim and Objectives of Yoga.

B. Discuss about Misconceptions of yoga.

C. Describe True Nature and Principles of Yoga.

3. Short notes (Any four) **4X5 = 20**

A. Evolution of yoga

B. Vedas, Upanishads, Prasthanatrayee and Prashanth Chatushtaya

C. Yoga in Ramayana

D. Yoga of Patanjali

E. Yogic practices in Jainism, Buddhism and Sufism

MODEL PAPER

B. Sc. MRS&CIT Semester V **QA-1**
BSC2723S501T

Fifth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-I

Quality Assurance

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Quality Improvement Approaches.

B Discuss about NABH guidelines.

C Describe types of Liquid BMW, Radioactive waste.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Types of Drug waste.

B Discuss about Modern technology for handling BMW.

C Standards and Norms

3. Short notes (Any four) **4X5 = 20**

A Use of Personal protective equipment

B. Monitoring & controlling of cross infection

C. NABH and JCI

E. Use of Personal protective equipment

MODEL PAPER

B. Sc. MRS&CIT Semester V **CCCS- 2**
BSC2723S502T

Fifth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-II

Clinical Classification and Coding Systems

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to Coding of final diagnosis and secondary diagnosis.

B Discuss about Disease and operation nomenclatures.

C Describe types of ICD-10, ICD-9 CM.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe Current Procedural Terminology.

B Discuss about Modern technology for handling BMW.

C Alpha-numeric coding

3. Short notes (Any four) **4X5 = 20**

A SNOMED-CT

B. Systematized Nomenclature of Pathology

C. ICF

E. indexing of patient care data.

MODEL PAPER

B. Sc. MRS&CIT Semester V **EHR- 3**
BSC2723S503T

Fifth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-III

Electronic Health Record

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A Introduction to EHR.

B Discuss about Standard of EHR.

C Describe point-of-care charts.

2. Short Essay (Attempt any Two) **2X10 = 20**

A Describe laboratory information systems,.

B Discuss about clinical decision support systems.

C Implementation plan

3. Short notes (Any four) **4X5 = 20**

A Architecture Requirements

B. Model and Composition

C. Data Exchange

E. Personal Healthcare and medical Device Interface.

MODEL PAPER

B. Sc. MRS&CIT Semester V **AIH- 4**
BSC2723S504T

Fifth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Artificial Intelligence in Healthcare

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

1. **Long Answer (Attempt any two)** **2X15 = 30**

A. Describe about Artificial Intelligence in Health Care.

B. What are the Goals of the AI Project.

C. Describe about AI Technique.

2. **Short Essay (Attempt any Two)** **2X10 = 20**

A. Explain any two examples of AI?

B. What are the Difference between Human and Machine Intelligence?

C. What are the Research Areas of AI?

3**. Short notes (Any four)** **4X5 = 20**

A. NLP

B. Search Algorithms

C. Robotics

D. Intelligence

E. Logic System.

MODEL PAPER

B. Sc. MRS&CIT Semester V **BCG- 5**
BSC2723S505T

Fifth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-V

Basics of Computer Graphics

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. **Long Answer (Attempt any two)** **2X15 = 30**

A. Discuss about computer graphics.

B. Explain about evolution of computer graphic s.

C. Describe Introduction to digital images.

2. **Short Essay (Attempt any Two)** **2X10 = 20**

A. What are Applications of computer graphics in various industries?

B. Discuss about image manipulation techniques.

C. Describe Assessment of real-world graphics.

3. **Short notes (Any four)** **4X5 = 20**

A. Visualizations

B. Image acquisition

C. Interactive demo

D. Digital images

E. 2D/3D game

MODEL PAPER

B. Sc. MRS&CIT Semester V **BML-6**
BSC2723S506T

Fifth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-VI

Basic of Machine Learning

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Discuss about Machine Learning.

B. Explain about Data Cleaning and Handling.

C. Describe Backpropagation Algorithm.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. What are Applications of Machine Learning in various industries?

B. Discuss about Bag-of-Words and Word Embeddings.

C. Describe Types of Machine Learning**.**

3. Short notes (Any four) **4X5 = 20**

A. Activation Functions

B. Sentiment Analysis

C. Text Preprocessing

D. Feature Scaling

E. Real-world Examples of ML.

MODEL PAPER

B. Sc. MRS&CIT Semester VI **IOR-1**
BSC2723S601T

Sixth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-I

Introduction to Research

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Describe about role of research in various field?

B. Describe about Types of research?

C. Describe about Qualitative research methods?

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Describe Data Collection Methods.

B. What are the Secondary data sources and their utilization?

C. What are the Principle of Research?

3. Short notes (Any four) **4X5 = 20**

A. Institutional Review Board

B. Research ethical considerations

C. Case studies

D. Formulating research hypotheses

E. Survey

MODEL PAPER

B. Sc. MRS&CIT Semester VI **HAAI-2**
BSC2723S602T

Sixth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-II

Hospital Accounting and Finance

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Describe about Fundamentals of Financial Accounting.

B. Describe about Accounting Process.

C. Describe about Accounting Principles.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Describe LIFO, FIFO.

B. What are the 7.Fundamentals of Management Accounting?

C. What are the Preparation of Ledger Accounts?

3. Short notes (Any four) **4X5 = 20**

A. National health spending

B. Paying for healthcare

C. Basics of Health Insurance

D. Different types of healthcare financing in India

E. Accounting for Labor costs

MODEL PAPER

B. Sc. MRS&CIT Semester VI **IS-3**
BSC2723S603T

Sixth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-III

Information Security

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Describe about Elements of Information Security.

B. Describe Information security roles and responsibilities.

C. Describe Fraud and Theft.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Describe Program Policy.

B. Basic Components of Issue- Specific Policy.

C. What are the Selecting Design and Implementation Standards,

3. Short notes (Any four) **4X5 = 20**

A. Cryptography to Networks

B. Complying with Export Rules

C. Firmware Implementations

D. Information Security Risk Management, Implement

E. Malicious Hacker

MODEL PAPER

B. Sc. MRS&CIT Semester VI **SMH- 4**
BSC2723S604T

Sixth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-IV

Strategic Management in Healthcare

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Describe about Business Policy in healthcare .

B. Describe objectives of business policy.

C. Describe Corporate level strategies.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Describe project implementation.

B. Basic Plans and policies.

C. What are the focus on KRA,

3. Short notes (Any four) **4X5 = 20**

A. The Company and its social responsibilities

B. Social audit.

C. Need & process of strategic management

D. Integration of functional plans

E. Strategic business units

MODEL PAPER

B. Sc. MRS&CIT Semester VI **MTT- 5**
BSC2723S605T

Sixth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-V

Medical Transcription and Telemedicine

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Describe about Basics of Medical Transcription.

B. Describe Division of medical words into their component parts.

C. Describe Rules of Telemedicine.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Describe Laboratory tests.

B. Advantages of Medical Transcription.

C. What are the types tele-health ,

3. Short notes (Any four) **4X5 = 20**

A. tele communication

B. Drawback of Tele-health .

C. Future of Telemedicine

D. Telemedicine Act

E. Forms & Suffixes

MODEL PAPER

B. Sc. MRS&CIT Semester VI **PM-6**
BSC2723S606T

Sixth Semester

B. Sc. Medical Record Science & Clinical Information System

Examination (Month/year)

PAPER-VI

Project Management

Time: Three Hours

Maximum Marks: 70

Attempt all Questions

All the parts of one question should be answered at one place.

Only one Supplementary Copy along with one main answer book is allowed

Only one Supplementary Copy along with one main answer book is allowed

1. Long Answer (Attempt any two) **2X15 = 30**

A. Describe about Definition of project..

B. Describe Project Life Cycles,.

C. Describe Project Feasibility.

2. Short Essay (Attempt any Two) **2X10 = 20**

A. Describe - Estimating activity time.

B. Pricing Estimating & Cost Control -

C. Budgeting for projects variance & earned value.

3. Short notes (Any four) **4X5 = 20**

A. Product Vs Project Management,

B. Planning

C. Project Evaluation

D. Review techniques

E. Leadership