Lesson Plan

Name of the faculty. : Kavita

Discipline : MLT

Semester : Ist

Subject : CM (CLINICAL MICROBIOLOGY -I)

Lesson Plan Duration : 14 week

Work Load (Lecture/Practical) per week (in hours): 3+6

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| week | Theory | | Practical | | |
| Lecture day |  | Practical day | Topics |
| 1 | 1 | Definition, history, relationship of microorganisms to man. | 1 | 1. Demonstration of safety rules (Universal precautions) in a microbiology laboratory.  2. Preparation of cleaning agents and techniques of cleaning glasswares. |
| 2 | Safety guideline in a microbiology laboratory. Universal precautions. |
| 3 | Bio-safety cabinets: principle, |
| 2 | 4 | Types of bio-safety cabinets and their applications | 2 | 1. Preparation of materials for sterilization in an autoclave and hot air oven.  2. Sterilization in autoclave and hot air oven and placing of the sterilization indicators. |
| 5 | Classification of micro-organisms |
| 6 | Morphology of Bacteria, Bacterial cell wall |
| 3 | 7 | Physiology of bacteria, Cell wall structures | 3 | 1. Sterilization by filtration by membrane method.  2. Handling and care of different types of microscopes. |
| 8 | Bacterial growth and nutrition |
| 9 | **Revision** |
| 4 | 10 | Physical methods of sterilization:  autoclave and hot air oven, | 4 | 1. Staining techniques: Gram, Albert’s staining, 2. Ziehl Neelson staining, Capsule and |
| 11 | sterilization control and sterilization indicators. |
| 12 | Sterilization by radiation and filtration (membrane) |
| 5 | 13 | Chemical methods of Sterilization: Antiseptics and disinfectants- | 5 | 1. bacterial spore staining. 2. Demonstration of bacterial motility by hanging drop technique |
| 14 | propertie of common Antiseptics and disinfectants (e.g. Formaldehyde, Ethylene oxide, phenol compounds, Alcohol, hypochlorite ). |
| 15 | Uses of common Antiseptics and disinfectants (e.g. Formaldehyde, Ethylene oxide, phenol compounds, Alcohol, hypochlorite ). |
| 6 | 16 | **Revision** | 6 | Preparation of culture media:   1. Nutrient agar, 2. blood agar, |
| 17 | **Test** |
| 18 | Definition of Phenol coefficient and determination Phenol coefficient by Rideal Walker method. |
| 7 | 19 | Handling of a compound microscope | 7 | Preparation of culture media:   1. chocolate agar, 2. MacConkey agar,. |
| 20 | Care and maintenance of different parts of a compound microscope |
| 21 | Principle of working of fluorescent microscope. |
| 8 | 22 | Staining techniques: Method of smear preparation. | 8 | Preparation of culture media:   1. DCA 2. XLD and Peptone water. |
| 23 | staining of capsule. |
| 24 | Differential staining methods: Gram staining |
| 9 | 25 | Albert’s staining | 9 | 1. Isolation of organisms in pure culture 2. study of colony characteristics |
| 26 | AFB staining |
| 27 | Preparation of staining solutions and their storage. |
| 10 | 28 | Definition, synthetic media., | 10 | 1. Demonstration of haemolysis on blood agar 2. Preparation of cleaning agents and techniques of cleaning glasswares. |
| 29 | Definitionnon-synthetic media., |
| 30 | Types of culture media: liquid media |
| 11 | 31 | Types of culture media: solid media | 11 | 1. Preparation of materials for sterilization in an autoclave and hot air oven.  2. Sterilization in autoclave and hot air oven and placing of the sterilization indicators. |
|  | 32 | routine laboratory media (Basal.Enriched, selective, enrichment, indicator, transport, and storage) with two examples of each type |
| 33 | **Revision** |
| 12 | 34 | **Test** | 12 | 1. Sterilization by filtration by membrane method.  2. Handling and care of different types of microscopes. |
| 35 | Different types of inoculating loops |
| 36 | Different types of swabs and their uses. |
| 13 | 37 | Types of bacterial culture: broth culture, | 13 | 1. Staining techniques: Gram, Albert’s staining, 2. Ziehl Neelson staining, Capsule and |
| 38 | stab culture, slant culture. |
| 39 | Culture techniques: streak plate, pour plate |
| 14 | 40 | spreading/ lawn culture | 14 | Preparation of culture media:   1. Nutrient agar 2. blood agar |
| 41 | Aerobic and anaerobic culture, |
| 42 | Isolation of pure cultures and disposal of cultures. |
| 15 | 43 | Revision of Vth unit | 15 | Preparation of culture media:   1. chocolate agar, 2. MacConkey agar |
| 44 | Test |
| 45 | Revision of complete syllabus |