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

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| 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
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| 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 |