Lesson Plan

Name of the Faculty : Ms Pratima Saini

Discipline : MLT

Semester : Ist

Subject : CLINICAL MICROBIOLOGY -I

Lesson Plan Duration : 30 WEEKS(from October 2021)

Work Load (Lecture/Practical) per week (in hours): 3+4

week	Theory		Practical	
	Lecture day	Topics (including assignment/test)	Practical day	Topics
1	1	Introduction to microbiology,	1	Demonstration of safety rules (universal precautions) ina microbiology laboratory
	2	history		
	3	Importance of microbiology		
2	4	Anatomical structure of bacteria	2	Preparation of cleaning agents and techniques of cleaning of glass and plastic ware. Disposal of cultures
	5	spores, flagella and capsule		
	6	Bacterial Growth curve		
3	7	Nutrition of bacteria	3	Preparation of material for sterilization in autoclave and hot air oven
	8	Morphological Classification of Bacteria		
	9	Test		
4	10	Assignment -1	4	Use of sterilization by autoclave and hot air oven
	11	Microscopy, Care, principle, working of simple and compound microscope		
	12	preventive maintenance of simple and compound microscope		
5	13	principle of dark ground, fluorescent microscope	5	Use of filtration for sterilization (Seitz)
	14	phase contrast and electron microscope		
	15	Assignment -11		
6	16	Sterilization introduction	6	Handling and use of different types of microscopes
	17	Autoclave and hot air oven structure and functioning		
	18	Preventative measure, control and sterilization indicators		
7	19	Sterilization by radiation and filtration	7	Staining techniques: Gram, Albert's, Ziehl – Neelsen's
	20	Assignment -II		

	21	Antiseptic and disinfection introduction		
8	22	Types of antiseptic and disinfectant	8	Demonstration of Spore, capsule and flagella staining
	23	Uses of antiseptic and disinfectant		
	24	Bacterial culture and culture techniques		
9	25	Inoculations of culture media,	9	Demonstration of motility (Hanging drop/Semi solid method)
	26	aerobic and anaerobic culture,		
	27	isolation of pure cultures and disposal of cultures of bacteria by microscopic examination		
10	28	Culture Media-Liquid and solid media	10	Demonstrationof Preparation and sterilization of various solid and liquid culture media (including standardization of pH), nutrient agar, nutrient broth, blood agar, chocolate agar, macconkey agar, lowenjensen and special media
	29	defined and synthetic media		
	30	routine laboratory media (basal, enriched, selective, enrichment, indicator, and transport media)		
11	31	Staining techniques introduction, methods of smear preparation	11	Aerobic and anaerobic culture methods (use of anaerobic jars)
	32	Gram stain, AFB stain,		
	33	Albert's stain and		
12	34	special staining for spore,	12	Biochemical tests for identification of bacteria: Principle, procedure and interpretation of following biochemical tests – Catalase, coagulase, oxidase, indole, MR, VP, Urease, citrate, carbohydrate utilization test and motility – demonstration of commercial available rapid biochemical test
	35	capsule and flagella		
	36	Class test-II		
13	37	Assignment- III	13	Antimicrobial susceptibility testing by Stokes disc diffusion method
	38	Colony characteristics		
	39	Bio-chemicals such as: carbohydrate		
14	40	utilization tests Catalase, oxidase,	14	Handling and use of different types of microscopes
	41	Coagulase, indole,		
	42	Citrate, MR and VP, Urease		
15	43	Motility demonstration methods	15	Use of sterilization by autoclave and hot air oven
	44	Antibiotic sensitivity Disc Diffusion method – principle		
	45	procedure and precautions		

16	46	Introduction to bacteriology	1st	L1 : collection, transportation, and processing of urine sample
	47	General characterstics of bacteria on morphology		L2:collection,transportation,and processingofstool sample
	48	Characterstics of bacteria based on staining		
17	49	Characterstics on the bases of culture	2nd	L3:collection,transportation,and processingofpus and pus swab
	50	Biochemical characterstics of bacteria		L4 : collection of blood by vein puncture method
	51	Introduction about staphylococci in detail		
18	52	Introduction about streptococcus in detail	3rd	L5 : collectionofbloodbycapillarymethod
	53	Introduction about pneumococci		L6 : Transportation and processing of blood sample
	54	Introduction about E-coli		
19	55	Introduction about salmonella	4th	L7 : collection and transportation of skin sample
	56	Introduction about shigella		L8 :processing of skin sample
	57	Introduction about pseudomonase		
20	58	Introduction about Proteus	5th	L9 : collection and transportation of throat swab
	59	Introduction about neisseria		L10 :Processing of throat swab sample
	60	Introduction about Treponema pallidum		
21	61	Introduction about mycobacterium tuberculosis in detail	6th	L11 : collection and transportation of eye swab
	62	Assignment		L12 : processing of eye swab
	63	Test		
22	64	Introduction about bacterial pathogenicity	7th	L13 :collection and transportation of ear swab
	65	Introduction about infection		L14 : Processing of ear swab
	66	Different sources of infection		
23	67	Differenttypesofinfection(bacterialmeningitis,pneumonia,tuberculosis)	8th	L15 : collection and transportation of CSF sample
	68	Typesofinfection(RTI,UTI,skin infection)		L16 : Processing of CSF sample
	69	Mode of spread of infection		

24	70	Assignment	9th	L17 : preparation of blood agar culturefor urine sample
	71	Test		L18 : preparationofmackonkey agarcultureforurinesample
	72	Introduction aboutNosocomial Infection		
25	73	Common types of nosocomial infection	10th	L19 : preparationofchocolate agarcultureforsputum sample
	74	Blood stream infection,skin infection		L20 : preparation of eosin methylene blue agar for stool sample
	75	Gastro-intestinal infection,surgical site infection		
26	76	Central nervous system infection	11th	L21 : preparationofmackonkey agarculturefor sputumsample
	77	Sources of infection		L22 : preparation of blood agar for pus sample
	78	Control of nosocomial infection		
27	79	Assignment	12th	L23 : preparation of chocolate agar for pus sample
	80	Test		L24 : preparation of mackonkey agar for pus swab
	81	Lab diagnosis of RTI by throat swab		
28	82	Lab diagnosis of RTI by by sputum sample	13th	L25 : preparation of blood agar for blood sample
	83	Introduction and lab diagnosis of wound infection		L26 : preparation of mackonkey agar for blood sample
	84	Introduction and lab diagnosis of urinary tract infection		
29	85	Assignment	14th	L27 : preparation of blood agar plate for CSF sample
	86	Test		L28 : preparation of mackonkey agar for skin sample
	87	Lab diagnosis of enteric fever		
30	88	Lab diagnosis of intestinal infection	15th	L29 : preparation of broth culture for common pathogens
	89	Assignment		L30 : preparation of agar culture for common pathogens
	90	Test		