Department of Civil Engineering-I.I.T. Delhi CVL100: Environmental Science (1st Semester 2016-17)/Minor 2 Exam (60 minutes; 20 points)

	7 (500/ pagative marking)	10 poin
Section A	A. Write "Yes" or "No" (50% negative marking) ffluent turbidity of secondary sedimentation tank is always high due to poor	
IE	ffluent turbidity of secondary sedimentation task to a	Yes
SC	ettling of MLSS.	Yes
2 H	ligh F/M gives lower treatment efficiency. Irganic matter degradation is always conducted after killing pathogens.	No
3 0	rganic matter degradation is always conducted after kinning parties in always done using alum	20
4 pl	H adjustment in coagulation is always done using alum.	Yes
5 S	ettling velocity of nanoparticles is always higher than that of bacteria.	No
6 N	utrient removal from wastewater is achieved during primary treatment.	
7 0	xygen requirement during anaerobic oxidation of organic matter is always higher	000
th	an that during aerobic oxidation of organic matter.	
	ecirculation in biological unit process is done to decrease oxygen requirement of	000
th	e process.	
9 0	xygen requirement during nitrification of Imole/L ammonium ions is higher than	Yes
1 th	at during denitrification stage.	
10 De	ewatering of sludge is done to decrease solid content of sludge.	201
) I. Selec	t pathogenic organism [options: feet	00111
otal colif	forms, rotavirus] [1 point]	
	ring forced uptake of phosphorus, bacteria are forced to in excess. [1 point]	cor
C	ring forced uptake of phosphorus, bacteria are forced to in excess. [1 point]	
C	uring forced uptake of phosphorus, bacteria are forced to	
C	ring forced uptake of phosphorus, bacteria are forced to in excess. [1 point]	
Q4. Effec	ring forced uptake of phosphorus, bacteria are forced to in excess. [1 point] tive pH range for alum or ferric chloride for phosphorous removal is: 5.5	7
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Q4. Effection point	tive pH range for alum or ferric chloride for phosphorous removal is: 5.5 w many moles/L of FeCl ₃ required for removing one mole/L of 1 point	of HF
Q4. Effection point	tive pH range for alum or ferric chloride for phosphorous removal is:	of HF
Q4. Effect point Q5. How	tive pH range for alum or ferric chloride for phosphorous removal is: 5.5 w many moles/L of FeCl ₃ required for removing one mole/L of 1 point	of HI
Q4. Effect point Q5. How Q6. A fiel Spinach, §	tive pH range for alum or ferric chloride for phosphorous removal is:	of HF
Q4. Effect point Q5. How Q6. A field Spinach, gas accumu	tive pH range for alum or ferric chloride for phosphorous removal is:	of HF
Q4. Effection [Q5. How Q6. A field Spinach, gas accumulated]	in excess. [1 point] tive pH range for alum or ferric chloride for phosphorous removal is: 5.5 w many moles/L of FeCl ₃ required for removing one mole/L of [1 point] Id is irrigated with wastewater effluent containing chromium, fecal coliforms, and grown in the field, can adsorb fecal coliforms (loading: 50 MPN/100mg spinach allate chromium (loading: 1 mg chromium/g spinach leaf). If Ram consumes 100 mly activity leading to exposure), answer the following: [2+1+1+1=5 points]	of HF and antibleaf) as
Q4. Effection [1] Q5. How Q6. A field spinach, gas accumus	tive pH range for alum or ferric chloride for phosphorous removal is:	of HF ad antibleaf) as Dmg sp
Q4. Effectiont] Q5. How Q6. A fiel Spinach, g as accumulated as (o	in excess. [1 point] tive pH range for alum or ferric chloride for phosphorous removal is:	of HP and antib leaf) as leaff
Q4. Effectiont] Q5. How Q6. A fiel Spinach, g as accumulated as (o	tive pH range for alum or ferric chloride for phosphorous removal is:	of HP and antib leaf) as leaff
Q4. Effectiont] Q5. How Q6. A fiel Spinach, gas accumulated day (of)	tive pH range for alum or ferric chloride for phosphorous removal is: w many moles/L of FeCl ₃ required for removing one mole/L of [1 point] Id is irrigated with wastewater effluent containing chromium, fecal coliforms, and grown in the field, can adsorb fecal coliforms (loading: 50 MPN/100mg spinach alate chromium (loading: 1 mg chromium/g spinach leaf). If Ram consumes 100 and activity leading to exposure), answer the following: [2+1+1+1=5 points] Toxic constituents in wastewater antibiotics, chromium (fecal coliforms)	of HF and antible leaf) as long sp efficients
Q4. Effectiont] Q5. How Q6. A fiel Spinach, g as accumulated as (o	tive pH range for alum or ferric chloride for phosphorous removal is: w many moles/L of FeCl ₃ required for removing one mole/L of [1 point] Id is irrigated with wastewater effluent containing chromium, fecal coliforms, and grown in the field, can adsorb fecal coliforms (loading: 50 MPN/100mg spinach alate chromium (loading: 1 mg chromium/g spinach leaf). If Ram consumes 100 and activity leading to exposure), answer the following: [2+1+1+1=5 points] Toxic constituents in wastewater antibiotics, chromium) Hazard to Ram chromium (fecal coliforms)	of HF and antible leaf) as long sp efficients
Q4. Effection (26. A field spinach, ges accumulated (a)	tive pH range for alum or ferric chloride for phosphorous removal is: w many moles/L of FeCl ₃ required for removing one mole/L of [1 point] Id is irrigated with wastewater effluent containing chromium, fecal coliforms, and grown in the field, can adsorb fecal coliforms (loading: 50 MPN/100mg spinach alate chromium (loading: 1 mg chromium/g spinach leaf). If Ram consumes 100 and activity leading to exposure), answer the following: [2+1+1+1=5 points] Toxic constituents in wastewater antibiotics, chromium (fecal coliforms)	of HF ad antib leaf) as long sp effl colife
(2)4. Effection (1)5. How (2)6. A field pinach, go accumuler day (0) (i)	tive pH range for alum or ferric chloride for phosphorous removal is: w many moles/L of FeCl ₃ required for removing one mole/L of [1 point] d is irrigated with wastewater effluent containing chromium, fecal coliforms, and grown in the field, can adsorb fecal coliforms (loading: 50 MPN/100mg spinach alate chromium (loading: 1 mg chromium/g spinach leaf). If Ram consumes 100 mly activity leading to exposure), answer the following: [2+1+1+1=5 points] Toxic constituents in wastewater antibiotics, chromium) Hazard to Ram chromium (spinach: fecal coliforms; chromium)	of HF and antibleaf) as Dmg sp efficilities
Q4. Effection (26. A field spinach, ges accumulated (a)	ming forced uptake of phosphorus, bacteria are forced to in excess. [1 point] tive pH range for alum or ferric chloride for phosphorous removal is:	of HF ad antib leaf) as leaf) as colife wastew
Q4. Effectiont] Q5. How Q6. A field Spinach, g s accumulater day (of) (ii)	tive pH range for alum or ferric chloride for phosphorous removal is: The proper	of HF
Q4. Effection [25]. How Q6. A field Spinach, gas accumulated accum	tive pH range for alum or ferric chloride for phosphorous removal is:	of HF and antibleaf) as Dmg sp efficilities wastev
Q4. Effection [25]. How Q6. A field Spinach, gas accumulated accumulated (i)	tive pH range for alum or ferric chloride for phosphorous removal is: The proper	of HI ad antibleaf) as Dmg sp eff colific