Year and Program:2018-19   **School of Technology**   **Department of SY B.Tech**

Course Code:CET212   **Course Title: Hydraulics &**   **Semester – II**
Water Resources Engineering

Day and Date   **End Semester Examination**   **Time: Max Marks: 100**
Tuesday, 21st may 2019   (ESE)   10:30Am to 1:30Pm

Instructions:	1) All questions are compulsory.
	2) Assume suitable data wherever necessary.
	3) Figures to the right indicate full marks.

			Marks	Bloom's Level	CO
Q.1		**Solve any Two**			
	a)	A rectangular channel is designed for a terrain with Chezy's constant as 56. The discharge is 1000lit/s and width of flume is 3m. Find bed slope required when the depth of flow is 60 cm. Find conveyance k of the channel.	07	L_3	CO1
		OR			
	a)	Design an economical Trapezoidal channel with side slope 2H:1V, bed slope 1:3600 to carry discharge of 5 m^3/s. Take manning's n=0.02	07	L_3	CO1
	b)	Draw M1, M2, S1, S2 profiles and explain them in details.	08	L_4	CO2
		OR			
	b)	Derive the dynamic equation for Gradually varied flow in the form $dy/dx = (S_o-S_f) / (1-Fr^2)$	08	L_4	CO2
Q.2		**Solve any Two**			
	a)	Derive the equation for the discharge through triangular notch and modify it for a right angled triangular notch.	07	L_3	CO3
		OR			
	a)	Derive an expression for force exerted by a jet on single moving flat plate held normal to jet. Also derive expression for work done/sec.	07	L_3	CO3
	b)	Explain elements of hydro-electric power plant with neat sketch. What are the advantages of hydro-electric power generation?	08	L_4	CO4
		OR			
	b)	Draw schematic diagram of Francis turbine. Explain briefly its construction and working	08	L_4	CO4

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Q.3		**Solve any Two**			
	a)	Explain the following:	08	L₂	CO1

Q.3   **Solve any Two**

a) Explain the following: 08 L_2 CO1
    1) Velocity distribution in open channel.
    2) Specific Energy Curve with neat sketch

b) Explain the following: 08 L_2 CO2
    1) Classification of hydraulic jump
    2) Classification of Channel bed slopes

c) Explain the following: 08 L_2 CO3
    1) Cipolletti notch   2) Inlet and outlet triangle of velocities

d) Explain the following: 08 L_2 CO4
    1) Classification of hydraulic turbine based on various criterion
    2) Classification of centrifugal pump

Q.4   **Solve any Two**

a) Which are the methods of irrigation? Explain any two methods in   09 L_3 CO5
    detail.

b) What are the functions of Irrigation Water? Derive relationship   09 L_3 CO5
    between duty and delta. Find delta for a crop if duty for base period of
    110 days is 1400 hectares/cumec

c) An irrigation canal has gross commanded area of 80,000 hectares out of   09 L_3 CO5
    which 85% is culturable commanded area. The intensity irrigation for
    kharif season is 30% and for rabi season 60%. Find discharge required
    at head of canal if the duty at its head is 800 hectares/cumecs for kharif
    season and 1700 hectares/cumecs for rabi season.

Q.5   **Solve any Two**

a) Explain with the help of sketch types of earthen dam with components   09 L_3 CO6
    and their function.

b) Explain in detail with neat sketch reservoir sedimentation. Discuss   09 L_3 CO6
    various methods of reservoir sediment control.

c) What do you understand by gravity dam? What are the various forces   09 L_3 CO6
    acting on a gravity dam?

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Q.6   **Solve any Three**

a)	Explain the Types of Irrigation	06	L_1	CO5
b)	Write short note on crop rotation	06	L_1	CO5
c)	Define with neat sketch control levels in reservoir.	06	L_1	CO6
d)	Describe elementary profile and practical profile of gravity dam.	06	L_1	CO6

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