Total No. of Questions – [Q.9] Total No. of Printed Pages: 3

G.R. No.	

P118-123(ESE)

DECEMBER 2018 / END-SEM

F. Y. M. TECH. (WREE) (SEMESTER - I)

COURSE NAME: WRSP (ELECTIVE I)

COURSE CODE: (CVPA11183A)

(PATTERN 2018)

Solution

Time: [3 Hour] [Max. Marks: 50]

(*) Instructions to candidates:

1) **Answer Q.1, Q.2, Q.3, Q.4 OR Q.5, Q.6 OR Q.7, Q.8 OR Q.9**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**

Q.1) a)	Theory	3
	OR	
b)	Theory	3
Q.2) a)	Theory	3
	OR	
b)	Theory (for two norms 1 mark)	3
Q.3) a)	Theory	2
	OR	
b)	Theory	2
Q.4) a)	In a farm, the transplantation of rice takes 16 days, and the total depth of water required by the crops 60cm on the field. During this transplantation period of 16 days, rain starts falling and about 10 cm of rain is being utilized to fulfil the rice demand. Find duty of irrigation	4

	water required for rice during transplantation period. (a) Assuming 25% losses of water in water courses, find the duty of water at the head of water course.(b) Find the duty of water at the head of distributary, assuming 15% losses from the distributary head to the water course head. Duty of irrigation water = 2765 hect/ cumec .....(2) (a) assuming 25% losses , duty = 2074 hect/cumec .....(1) (b) assuming 15% losses , duty = 1763 hect/cumec .....(1)	
b)	Theory (conflicts in space time and discharge)	6
c)	Theory	4
	OR	
Q.5) a)	A pump is installed on a well to lift the water and to irrigate rice crop, sown over three hectors of land. If duty for rice is 864 hectares/cumec on the field and the pump efficiency is 48%;determine the minimum required input (H.P) of the pump , if the lowest well water level is 8 meters below the highest portion of the field. Assume negligible field canal losses. Discharge required for rice = 1/288 cumec .....(1) Wt. of water lifted = 3.47 kg .....(1) Work done by the pump = 27.76 kg.m/sec .....(1) Input (H.P) =0.7777 =0.8 .....(1)	4
b)	Theory	4
c)	Theory	6
Q. 6) a)	Theory	4
b)	What is the equipment present worth about 10% interest of 3 investments of Rs. 60,00,000, one made now , one made at the end of 3 years and one at last of 10 years from now? Solution : P at the end of three years = 45,07,888/- .....(2)	4

	P at the end of 10 years = 23,13,259/- Equivalent present worth = 4.2737 x10^6 .....(1) Avg . Equivalent present worth = 12.821 x 10^6 .....(1)	
c)	Theory (2+2+2)	**6**
	OR	
Q. 7) a)	Theory	**4**
b)	Theory	**6**
c)	Total cost of lining for certain canal is Rs. 10 million. If annual benefit resulting from the lining amount to Rs, 1 million. Determine whether the lining would be economical and feasible ? . Rate of interest is 8% per annum and life of lining is considered to be 20 years. If the project is to feasible then determine the estimated life of lining which should render it economically. P = Rs. 9.82 million .....(2) N (life in years) = 21 years .....(2)	**4**
Q. 8) a)	Theory	**6**
b)	Theory	**8**
	OR	
Q. 9) a)	Theory.	**6**
b)	Theory	**8**