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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
07 THRISSUR CLUSTER

SECOND SEMESTER M.TECH. DEGREE EXAMINATION APR 2018

Civil Engineering

Water Resources and Hydroinformatics

07CE6414 WATER POWER ENGINEERING

Time : 3 hours

Max.Marks: 60

Answer all six questions. Part 'a' of each question is compulsory.

Answer either part 'b' or part 'c' of each question

Q.no.	Module 1	Marks
1a	Estimate the water power potential based on the flow duration curve?	4
	Answer b or c	
b	Explain the basic criteria to classify hydropower plants?	5
c	With a schematic sketch, explain the various components of hydro power scheme?	5
Q.no.	Module 2	Marks
2a	Define load factor, plant capacity factor, plant use factor and utilisation factor?	4
	Answer b or c	
b	What are the different methods for the prediction of the load?	5
c	What are the different elements of an intake? What is shaft intake and explain when it is preferred?	5
Q.no.	Module 3	Marks
3a	What are the function of anchor blocks? What are the forces which should be taken into account in their stability analysis?	4
	Answer b or c	
b	State the basic criteria to classify penstocks? Explain any one in detail?	5
c	What are the function of surge tank? Derive the dynamic equation for an inclined surge tank?	5

Q.no.	Module 4	Marks
4a	Explain different elements of a power house?	4

Answer b or c

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| b | What are the general criteria for the design of main dimension of the power house? | 5 |
| c | Explain underground power stations? State its advantages over surface power stations? | 5 |

Q.no.	Module 5	Marks
5a	What are the causes of cavitation in hydro power plant?	5

Answer b or c

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| b | What is draft tube? With neat sketch explain the function of draft tube? | 7 |
| c | Explain characteristics of turbine with a neat sketch? | 7 |

Q.no.	Module 6	Marks
6a	What is meant by depression power plant? Explain with an example?	5

Answer b or c

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| b | Explain regulation of power output in tidal power scheme? | 7 |
| c | Explain the governing equations representing transient flow? Discuss any numerical method for the solution of governing equation? | 7 |