

**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY  
08 PALAKKAD CLUSTER**

**Q. P. Code :ES0819042A-I**

**(Pages:2)**

**Name .....**

**Reg. No:.....**

**SECOND SEMESTER M.TECH. DEGREE EXAMINATION JUNE 2019**

**Branch: Electrical & Electronics Engineering**

**Specialization: Energy Systems**

**08EE6042(A) Hydro Power Systems**

**Time:3 hours**

**Max.marks: 60**

**Answer all six questions.**

**Modules 1 to 6:** Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

<b>Q.no.</b>	<b>Module 1</b>	<b>Marks</b>
<b>1.a</b>	Define specific speed.	<b>3</b>
<b>Answer b or c</b>		
<b>b</b>	Derive the Euler's turbine equation.	<b>6</b>
<b>c</b>	Sketch and explain Francis turbine.	<b>6</b>
<b>Q.no.</b>	<b>Module 2</b>	<b>Marks</b>
<b>2.a</b>	Define Hydrography.	<b>3</b>
<b>Answer b or c</b>		
<b>b</b>	Enumerate the importance of mini and micro hydro power systems.	<b>6</b>
<b>c</b>	Explain the power station operation and maintenance in detail.	<b>6</b>
<b>Q.no.</b>	<b>Module 3</b>	<b>Marks</b>
<b>3.a</b>	Write the concept of institutional framework?	<b>3</b>
<b>Answer b or c</b>		
<b>b</b>	Analyse the recent investigation and studies for water power development.	<b>6</b>
<b>c</b>	Discuss in details about power duration curve	<b>6</b>

<b>Q.no.</b>	<b>Module 4</b>	<b>Marks</b>
<b>4.a</b>	Define load duration curve	<b>3</b>

**Answer b or c**

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|----------|--|----------|
| <b>b</b> | Classify the different types of hydro power development.                 | <b>6</b> |
| <b>c</b> | Discuss the system integrated operational studies in hydro power system. | <b>6</b> |

<b>Q.no.</b>	<b>Module 5</b>	<b>Marks</b>
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|------------|--|----------|
| <b>5.a</b> | What is run of river? Give some example. | <b>4</b> |
|------------|--|----------|

**Answer b or c**

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|----------|--|----------|
| <b>b</b> | With neat sketch explain in details about different types of plants. | <b>8</b> |
| <b>c</b> | Discuss the various economic aspects in hydro power plants.          | <b>8</b> |

<b>Q.no.</b>	<b>Module 6</b>	<b>Marks</b>
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| <b>6.a</b> | What is the function of surge tank? | <b>4</b> |
|------------|-------------------------------------|----------|

**Answer b or c**

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|----------|--|----------|
| <b>b</b> | Enumerate the maintenance of civil and electrical engineering works.                         | <b>8</b> |
| <b>c</b> | Discuss the computer aided power system analysis (CAPSA) is helpful for hydro power systems. | <b>8</b> |