

## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

II B.Tech. II Sem., II Mid-Term Examinations, April – 2014

## MECHANICS OF FLUIDS AND HYDRAULIC MACHINES [MIE,MIM]

## Objective Exam

Name: \_\_\_\_\_ Hall Ticket No.

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.****I Choose the correct alternative:**

- Efficiency of the jet of water having velocity  $V$  and striking a series of vertical plates moving with a velocity  $u$ , is maximum when [      ]  
 (a)  $u = 2V$                       (b)  $u = V/2$                       (c)  $u = 3V/2$                       (d)  $u = 4V/3$
- A turbine is called reaction turbine if at the inlet of the turbine the total energy is [      ]  
 (a) Kinematic energy only      (b) kinetic energy and pressure energy  
 (c) Pressure energy only      (d) none of the above
- Cavitations can take place in case of [      ]  
 (a) Pelton wheel      (b) Francis Turbine      (c) Reciprocating pump      (d) Centrifugal pump
- For high head and low discharge, the suitable turbine is [      ]  
 (a) Pelton                      (b) Francis                      (c) Kaplan                      (d) none of the above
- Spouting velocity means [      ]  
 (a) Actual velocity of jet      (b) ideal velocity of jet  
 (c) Half of ideal velocity      (d) none of the above
- If the head on the turbine is more than 300m, the type of turbine used should be [      ]  
 (a) Kaplan                      (b) Francis                      (c) Pelton                      (d) Propeller
- The flow of water, leaving the impeller in a centrifugal pump is..... [      ]  
 (a) Forced vortex flow      (b) Free vortex flow      (c) Centrifugal flow      (d) none of the above
- Air vessel in a reciprocating pump is used [      ]  
 (a) To obtain a continuous supply of water at uniform rate      (b) To reduce suction head  
 (c) To increase the delivery head      (d) None of the above
- The unit power developed by a turbine is [      ]  
 (a)  $P/H^{1/2}$                       (b)  $P/H$                       (c)  $P/H^{3/2}$                       (d)  $P/H^2$
- The flow ratio of Francis turbine varies from [      ]  
 (a) 0.15 to 0.3                      (b) 0.4 to 0.5                      (c) 0.6 to 0.9                      (d) 1 to 1.5

**Cont.....2**

**II Fill in the blanks:**

11. The most common example of positive displacement pump is.....
12. The ratio of the quantity of water actually striking the runner to the quantity of water supplied to the turbine is called .....
13. The action of a centrifugal pump is just the reverse of a.....
14. The difference between the power developed by generator and the power obtained from shaft is due to .....
15. Draft tube is not required for ..... turbine
16. The ratio of the power developed by the runner to the net power supplied by the water at the entrance to the turbine is called .....
17. Hydropower plants classified on a functional basis are .....
18. The difference between the power developed by the runner and the net power supplied at the turbine entrance is due to.....
19. Example of mixed flow turbine is-----
20. The water after passing through the runner of a reaction turbine flows to the tail race through.. .....

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1. For high head and low discharge, the suitable turbine is [      ]  
(a) Pelton                      (b) Francis                      (c) Kaplan                      (d) none of the above
2. Spouting velocity means [      ]  
(a) Actual velocity of jet                      (b) ideal velocity of jet  
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3. If the head on the turbine is more than 300m, the type of turbine used should be [      ]  
(a) Kaplan                      (b) Francis                      (c) Pelton                      (d) Propeller
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6. The unit power developed by a turbine is [      ]  
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10. Cavitations can take place in case of [      ]  
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**Cont.....2**

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10. Spouting velocity means [      ]  
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