

16119(D)

- 0 DEC 2016

**B. Tech 5th Semester Examination**

**Fluid Mechanics (NS)**

**ME-311**

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Section-A is compulsory and attempt any four questions from Section-B.

**SECTION - A**

*Multiple Choice Question.*

1. A hydraulic press is a device used
  - (a) to lift larger load by the application of a comparatively much smaller force
  - (b) to store pressure energy which may be supplied to a machine later on
  - (c) to increase the intensity of pressure of water by means of energy available from a large quantity of water at a low pressure
  - (d) all of the above
2. The cavitation in a hydraulic machine is mainly due to
  - (a) high velocity
  - (b) low pressure
  - (c) high pressure
  - (d) low velocity
3. The undershot water wheels are those in which
  - (a) the wheel runs entirely by the weight of water
  - (b) the wheel runs partly by the weight of water and partly by the impulse of water
  - (c) the wheel runs entirely by the impulse of water
  - (d) none of the above
4. Mechanical efficiency of a centrifugal pump is the ratio of
  - (a) energy supplied to the pump to the energy available at the impeller
  - (c) energy available at the impeller to the energy supplied to the pump by the prime mover
  - (c) actual workdone by the pump to the energy supplied to the pump by the prime mover
  - (d) manometric head to the energy supplied by the impeller per kN of water
5. If the ratio of the corresponding linear dimensions are equal, then the model and the prototype are said to have
  - (a) none of these
  - (b) dynamic similarity
  - (c) kinematic similarity
  - (d) geometric similarity
6. A turbine is required to develop 1500 kW at 300 r.p.m. under a head of 150 m. Which of the following turbine should be used?
  - (a) Francis turbine
  - (b) Pelton wheel with two or more nozzles
  - (c) Kaplan turbine
  - (d) Pelton wheel with one nozzle
7. Which of the following turbine is preferred for a specific speed of 60 to 300 r.p.m.?
  - (a) Pelton wheel
  - (b) Francis turbine
  - (c) Kaplan turbine
  - (d) none of these
8. The runaway speed of a hydraulic turbine is the speed
  - (a) at full load
  - (b) at which the turbine will run freely without load
  - (c) corresponding to maximum overload permissible
  - (d) at which there will be no damage to the runner.
9. Which of the following statement is correct?
  - (a) In an impulse turbine, the water impinges on the buckets with pressure energy.
  - (b) In a reaction turbine, the water glides over the moving vanes with kinetic energy.
  - (c) In an impulse turbine, the pressure of the flowing water remains unchanged and is equal to atmospheric pressure.
  - (d) In a reaction turbine, the pressure of the flowing water increases after gliding over the vanes.
10. A turbine develops 10000 kW under a head of 25 metres at 135 r.p.m. Its specific speed is
  - (a) 241.5 r.p.m.
  - (b) 175.4 r.p.m.
  - (c) 275.4 r.p.m.
  - (d) 215.5 r.p.m.
11. The specific speed of a turbine is the speed of an imaginary turbine, identical with the given turbine, which
  - (a) delivers unit discharge under unit speed
  - (b) develops unit power under unit head
  - (c) delivers unit discharge under unit head
  - (d) develops unit power under unit speed
12. Which of the following pump is successfully used for lifting water to the turbines?
  - (a) Centrifugal pump
  - (b) Reciprocating pump
  - (c) Jet pump
  - (d) Air lift pump

