Reg. No. : | | | | | | | | | | |

Question Paper Code: 33704

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Mechanical Engineering

01UME304 – FLUID MECHANICS AND MACHINERY

(Regulation 2013)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Capillary rise or fall

   (a) are noticed only in very smooth tubes
   (b) are due to surface tension of the liquid and the tube material
   (c) depends upon the pressure of the surroundings
   (d) does not depend upon the tube material

2. A stream line is a line

   (a) which is along the path of a particle
   (b) which is always parallel to the main direction of flow
   (c) across which is no flow
   (d) on which tangent drawn at any point gives the direction of velocity

3. Navier stokes equation represents the conservation of

   (a) mass (b) momentum (c) energy (d) pressure

4. The following instruments are used in the measurement of discharge through a pipe: 1. Orifice meter, 2. Flow nozzle and 3. Venturimeter. Decreasing order of use

(a) 1, 3, 2 (b) 1, 2, 3 (c) 3, 2, 1 (d) 2, 3, 1

5. Reynold's number is given by

(a) Viscous force / Inertial force (b) Inertial force / Viscous force
(c) Gravitational force / Viscous force (d) Pressure force / Viscous force

6. Euler's number relates

(a) Pressure force & Viscous force (b) Inertia force & elastic force
(c) Inertia force & gravity force (d) Inertia force & pressure force

7. A draft tube is used with

(a) Centrifugal pump (b) Axial flow pump
(c) Reaction turbine (d) Reciprocating compressor

8. A hydraulic turbine working under a head of 16 m develops 640 *kW* power. The unit power of the turbine is

(a) 10 *kW* (b) 40 *kW* (c) 60 *kW* (d) 160 *kW*

9. Cavitation can take place in case of

(a) Pelton Wheel (b) Francis Turbine
(c) Centrifugal Pump (d) Both B and C

10. In axial flow turbines fluid enters and leaves as follows

(a) Radially, axially (b) Axially, axially
(c) Axially, radially (d) Combination of axial & radial

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Discuss the properties of fluids and Types of flow? (8)

12. Derive Bernoulli's equation by considering the motion of fluid elements along the streamline and state the assumptions made in the derivation. (8)

13. Discuss the various Dimensional Parameters with its application. (8)

14. Explain in detail about Impulse turbine and Reaction turbine with a sketch. (8)

15. Explain the construction and working of a single acting reciprocating pump with air vessels fitted. (8)