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**Which of the following statement is incorrect about the impulse turbine?**

Follow Us © EduRev Follow Us © EduRev Discussion Forum Que. Which of the following statement is wrong ? a. The reaction turbines are used for low head and high discharge. b. The angle of taper on draft tube is less than  $8^\circ$ . c. An impulse turbine is generally fitted slightly above the tail race. d. A Francis turbine is an impulse turbine. Correct Answer:A Francis turbine is an impulse turbine. View All Questions on: Hydraulic Machines DownloadApp Which one of the following statements is TRUE? Both Pelton and Francis turbines are impulse turbines. Francis turbine is a reaction turbine but Kaplan turbine is an impulse turbine. Francis turbine is an axial-flow reaction turbine. Kaplan turbine is an axial-flow reaction turbine. Kaplan turbine is an axial-flow reaction turbine 31 – A right-circular cylinder open at top is filled with water and rotated about its vertical axis at such speed that half the water spills out. What is the value of pressure at centre of the bottom?1) One half its value when cylinder was full 2) One fourth its value when cylinder was full 3) Zero 4) Insufficient data Option (3) is correct The gauge pressure at bottom will be equal to zero. 32 – At a point on a streamline, the velocity is 3 m/sec and the radius of curvature is 9 m. If the rate of increase of velocity along the streamline at this point is  $1/3$  m/sec/m, then the total acceleration at this point would be \_\_\_\_\_. 1)  $1 \text{ m/sec}^2$  2)  $3 \text{ m/sec}^2$  3)  $1/3 \text{ m/sec}^2$  4)  $\sqrt{2} \text{ m/sec}^2$  Option (4) is correct This is a very interesting question, it has two acceleration and we need to take the resultant of both of them, Acceleration towards the centre of rotation (radial acceleration)  $a_r = r \omega^2$  ( $r = 3 \text{ m}$ ) ( $\omega = 1/3 \text{ sec}^{-1}$ ) Tangential acceleration It says that velocity increases by  $1/3$  m/s after traveling every 1 m it given that the particles travels 3 m in 1 sec (3 m/sec) or we can say it travels 1 m in  $1/3$  sec, hence we get  $1/3$  m/s after traveling every 1 m or  $1/3$  m/s after traveling every  $1/3$  sec ( $a_t = 1/3 \text{ m/sec}^2$ ) Total acceleration is given by  $a = \sqrt{a_r^2 + a_t^2} = \sqrt{2} \text{ m/sec}^2$  33 – Which of the following statements is correct regarding an impulse turbine? 1) The steam is initially compressed in a nozzle from low pressure to high pressure. 2) The steam is initially expanded in a nozzle from low pressure to high pressure. 3) The steam is initially compressed in a nozzle from high pressure to low pressure. 4) The steam is initially expanded in a nozzle from high pressure to low pressure. 34 – A draft tube is used with \_\_\_\_\_. 1) impulse turbine 2) Pelton wheel turbine 3) reaction turbines 4) axial turbine pumps 35 – For Newtonian fluid behaviour, the shear stress exerted by the fluid is equal to the \_\_\_\_\_. 1) Fluid viscosity divided by the velocity gradient parallel to the direction of shear. 2) Fluid viscosity divided by the velocity gradient perpendicular to the direction of shear. 3) Product of the fluid viscosity and the velocity gradient parallel to the direction of shear. 4) Product of the fluid viscosity and the velocity gradient perpendicular to the direction of shear. 36 – Which of the following are the advantages of impulse turbine over reaction turbines ? A. Occupies less space per unit power. B. Compounding is not necessary for speed reduction as the rotor speeds are usually low. C. Suitable for high power generation. 1) B and C only 2) A only 3) C only 4) A and C only 37 – The compressors used in a gas turbine are typically of which type? 1) Centrifugal 2) Centripetal 3) Reciprocating 4) Axial 38 – Which turbine is also called as the propeller turbine? 1) Kaplan turbine 2) Francis turbine 3) Pelton wheel 4) Thompson turbine 39 – According to Bernoulli's principle in fluid dynamics, for inviscid flow, increase in speed of fluid leads to which of the following? 1) Increase in pressure and/or increase in fluid's potential energy 2) Decrease in pressure and/or increase in fluid's potential energy 3) Increase in pressure and/or decrease in fluid's potential energy 4) Decrease in pressure and/or decrease in fluid's potential energy 40 – The material commonly used for air craft gas turbine is \_\_\_\_\_. 1) stainless steel 2) high alloy steel 3) duralumin 4) titanium

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