Q : 1) Consider the following statements:
1. Pumps in series operation allow the head to increase.
2. Pumps in series operation increase the flow rate.
3. Pumps in parallel operation increase the flow rate.
4. Pumps in parallel operation allow the head to increase.
Which of these statements are correct?

A : 1 and 3

B : 1 and 4

C : 2 and 4

D : 3 and 4

Q : 2) A pump running at 1414 rpm delivers 256/ps of water against a head of 16 m. The pump is Of the

A : Normal speed radial type

B : Double suction type

C : Mixed flow type

D : Axial flow type

Q : 3) Given that atmospheric pressure head = 9 m, vapour pressure head (max.) = 1 m, failure head = 40 m and cavitation coefficient c = 0.15, the height at which the turbine can be set above the tail race level is

A : 6,m

B : 4 m

C : 3 m

D : 2 m

Q : 4) If the radius of the centrifugal pump impeller is reduced from 10 cm to 9 cm, the head developed by the pump will change from 10m to

A : 9m of water

B : 8.1 m of water

C : 9.487 m of water

D : 11.111 m of water

Q : 5) Consider the following statements in case of impulse turbine

A : Always immersed in water

B : Always above the water

C : May either be above or below the water

D : Above or below the water depending on the unit of the turbine

Q : 6) In case of semi-circular vanes, the theoretical maximum efficiency of the wheel can be?

A : 0.5

B : 0.67

C : 0.75

D : 1

Q : 7) Two geometrically similar pumps are running at the same speed of 1000 r.p.m and lifting water against the head of 25 m and 16 m respectively. First pump is having an impeller diameter of 300 mm. The impeller diameter of second pump shall be

A : 192 mm

B : 240 mm

C : 300 mm

D : 469 mm

Q : 8) Which one of the following statements is correct?

A : Reciprocating pumps are less efficient than centrifugal pumps.

B : Delivery from a reciprocating pump is pulsating.

C : Reciprocating pumps are suitable for large discharges and smaller heads.

D : For a negative slip to occur, a reciprocating pump must have a coefficient of discharge less than unity.

Q : 9) The specific speed of a turbine under a head of 150 m to develop 2000 HP while running at 300 r.p.m. is

A : 13058   **B :** 35 – 60   **C :** 60 – 300   **D :** 300 - 1000

Q : 10) A centrifugal pump discharges 260 litres of water per second when running at 6000 rpm. The impeller diameter at the outlet is 80 cm. It develops a head of 15.3 m. What is the approximate minimum starting speed?

A : 425 rpm

B : 450 rpm

C : 475 rpm

D : 500 rpm

Q : 11) Match List-I (Machines) with List-II (Associated with) and select the correct answer using the codes:

List – I	List – II
A. Centrifugal pump	1. Percent slip
B. Reciprocating pump	2. Bucket
C. Francis turbine	3. Guide blade
D. Pelton wheel	4. Volute chamber

A : A - 4, B - 3, C - 1, D – 2   **B :** A - 4, B - 1, C - 3, D - 2

C : A - 2, B - 3, C - 1, D – 4   **D :** A - 2, B - 1, C - 3, D - 4

Q : 12) A pelton wheel operates at 630 rpm taking 3 m³/s of water under a head of 256 m with a speed ratio of 0.48. (Given as 19.63 = 4.43). What is the diameter of the impeller?

A : 0.90 m

B : 1.03 m

C : 1.42 m

D : 1.80m

Q : 13) An impulse turbine of 3 m diameter is rated at 10000 kW at 300 rpm under a head of 500. The turbine is operated under the head of 400. What is the power developed?

A : 15000 kW

B : 14000 kW

C : 13000 kW

D : 12000 kW

Q : 14) An impulse turbine of 3 m diameter is rated at 10000 kW at 300 rpm under a head of 500 m. The turbine is operated under the head of 400 m. What is the speed at which it would run?

A : 324 rpm

B : 336 rpm

C : 348 rpm

D : 364 rpm