P. P. SAVANI UNIVERSITY

Third Semester of B.Sc. Examination

Feb.-March-2020

SSFS2030–Hydraulics and Pumps

26.02.2020, Wednesday Time: 12:30 p.m. to 03:00 p.m. Maximum Marks: 60

Section-A

Q.1 Very Short Questions (attempt all questions) **(10)**

1.1 Objectives (10MCQ Compulsory-0.5 mark each) **05**

1.1a For small discharge at high-pressure following pump is preferred

A Mixed flow
B Centrifugal
C Axial
D Reciprocating

1.1b In a centrifugal pump the liquid enters the pump

A At the top
B At the bottom
C At the center
D From side

1.1c In a centrifugal pumps maximum efficiency is obtained when the plates are

A Strait
B Bent Forward
C Radial
D Bent Backward

1.1d Head developed by centrifugal pump depend on

A Impeller diameter
B Speed
C Fluid density
D (a)and (b)above

1.1e For Starting an axial flow pump, it's delivery valve should be

A Closed
B Open
C Could be either open or closed
D Partly open and partly closed

1.1f The efficiency of centrifugal pump is maximum when it's blades are

A Straight
B Bent forward
C Bent backward
D (a) and (b) both

1.1g Centrifugal pump is started with its delivery valve

A Kept fully closed
B Kept fully open
C Irrespective of any position
D None of the above

1.1h Minor losses occur due to
- A Sudden enlargement in pipe
- B Sudden contraction in pipe
- C Bend in pipe
- D All of the above

1.1i The head loss through fluid flowing pipe due to friction is
- A The minor loss
- B The major loss
- C Both (a) and (b)
- D None of the above

1.1j Minor losses do not make any serious effect in
- A Short pipes
- B Long pipes
- C Both (a) and (b)
- D None of the above

1.2 **Five Questions (Definitions-1 mark each)** 05

1.2a Fluid

1.2b Gas

1.2c Health

1.2d Pump

1.2e Cavitation

Q.2 **Short Notes (attempt any two- 3 marks each)** 06

A Explain the requirement of priming

B Explain in detail pump

C Explain the flow meter

Q.3 **Explain in detail (attempt any two-7 marks each)** 14

A Define the following terms
- Steady flow
- Non uniform flow
- Laminar flow
- Two-dimensional flow

B Explain the construction and working of centrifugal pump

C Describe the fire-hydrants and its application

Section-B

Q.1 Very Short Questions (attempt all questions) **(10)**

1.1 Objectives (10 MCQ Compulsory-0.5 mark each) **05**

1.1a Low specific speed of a pump implies it is
- A Centrifugal pump
- B Mixed flow pump
- C Axial flow pump
- D None of above

1.1b Impulse turbine is generally fitted
- A At the level of fail race
- B Little above the fail race
- C Slightly below the fail race
- D None of the above

1.1c A hydraulic accumulator normally consists of
- A Two cylinder two rams and a storage device
- B A cylinder and ram
- C Cylinder a piston storage tank and control valve
- D None of the above

1.1d Maximum impulse will be developed in hydraulic ram when
- A Waste valve closes suddenly
- B Supply pipe is short
- C Ram chamber is large
- D Supply pipe has critical diameter

1.1e Reaction turbine are used for
- A Low head
- B High head
- C Low head and high discharge
- D None of the above

1.1f Head developed by a centrifugal pump depends on
- A Impeller diameter
- B Speed
- C (a)and(b)both
- D None of the above

1.1g Centrifugal pump is started with its delivery valve
- A Kept fully closed
- B Keep fully open
- C Keep 50% open
- D Irrespective of any position

1.1h One horsepower is equal to
- A 102 watts
- B 735 watts
- C 550 watts
- D 75 watts

1.1i Multistage centrifugal pumps are used to obtain
- A High discharge
- B High head
- C High efficiency
- D Pumping of viscous fluid

1.1j The horse power required in above case will be
- A Same
- B 0.74 B.H.P
- C B.H.P./0.75
- D 1.5 B.H.P

1.2 **Five Questions (Definitions-1 mark each)** 05

1.2a Valve
1.2b Velocity
1.2c Jet pump
1.2d Hydraulic ram
1.2e Hydraulic

Q.2 **Short Notes (attempt any two- 3 marks each)** 06

A Explain in detail centrifugal pump
B Explain "flow through parallel pipes"
C Explain the requirement of priming and method of priming

Q.3 **Explain in detail (attempt any two-7 marks each)** 14

A How are the control valve classified? Write the classification of the control valve?
B Explain in detail types of flow control valve?
C Explain the important properties of water and explain them in detail

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