

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: MEC703 and Course Name: MUS

Time: 1 hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	With the increase in intake air temperature for the compressor, the power consumption?
Option A:	Remains constant
Option B:	Increases
Option C:	Decreases
Option D:	Increases or decreases depending on speed of air
Q2.	Replacing the old pump with new one saves power consumption as per ASME standards are
Option A:	1-2 %
Option B:	2-10 %
Option C:	15-20%
Option D:	20-25%
Q3.	The pump to start pumping at normal condition, the minimum outside diameter required is calculated as?
Option A:	$D_2 = \{97.6(H)^{1/2}\}/N$
Option B:	$D_2 = 97.6(H_m)^{1/2}$
Option C:	$D_2 = \{(H_m)^{1/2}\}/N$
Option D:	$D_2 = \{97.6(H_m)^{1/2}\}/N$
Q4.	Energy consumed Energy Meter constant=3200 imp/kWH, time for 10 impulse is 12 sec, the power input to the pump is
Option A:	0.25 kW
Option B:	0.94 kW
Option C:	1.23 kW
Option D:	2.12 kW
Q5.	The pressure condition inside cylinder at any point of time during suction stroke is
Option A:	$h_s + h_{as}$
Option B:	$h_s + h_{fs}$
Option C:	$h_s - h_{as} - h_{fs}$

Option D:	hs±has-hfs
Q6.	Degree of reaction is the ratio of?
Option A:	Pressure rise in compressor to the pressure rise in rotor
Option B:	Pressure rise in rotor to the pressure rise in compressor
Option C:	Pressure rise in blade to the pressure rise in rotor
Option D:	Pressure rise in blade to pressure rise in compressor
Q7.	The ratio of indicated power to shaft power or brake power of the motor or engine required to drive the compressor , is called
Option A:	Compressor efficiency
Option B:	Volumetric efficiency
Option C:	Isentropic efficiency
Option D:	Mechanical efficiency
Q8.	The clearance volume in reciprocating compressor is provided to
Option A:	To reduce the work done per kg of air delivered,
Option B:	to increase the volumetric efficiency of the compressor,
Option C:	to accommodate valves in the head of compressor,
Option D:	to create turbulence in the air to be delivered.
Q9.	In an axial flow compressor, the ratio of pressure in the rotor blades to the pressure rise in compressor in one stage is known as
Option A:	Work factor
Option B:	Slip factor
Option C:	Degree of reaction
Option D:	Pressure coefficient
Q10.	The variation of head loss due to friction during suction and delivery follow
Option A:	Linear distribution from BDC to TDC
Option B:	Parabolic distribution from BDC to TDC
Option C:	At beginning and at end showing maximum friction
Option D:	Non linear distribution from BDC to TDC
Q11.	In centrifugal pump, water inlet to the impeller is radial, this mean
Option A:	Absolute velocity is zero
Option B:	Whirl velocity is zero
Option C:	Blade velocity is zero
Option D:	Flow velocity is zero
Q12.	A centrifugal pump is to discharge 0.118 m <sup>3</sup> /sec at a speed of 1450 rpm against a head of 25 m. The impeller diameter is 250 mm. Its width at outlet is 50 mm and manometric efficiency is 75%, the vane angle at outer periphery is

Option A:	48.47
Option B:	54.26
Option C:	59.74
Option D:	63.12
Q13.	Energy consumed Energy Meter constant=3200 imp/kWH, time for 10 impulse is 12 sec, the power input to the pump is
Option A:	0.25 kW
Option B:	0.94 kW
Option C:	1.23 kW
Option D:	2.12 kW
Q14.	A two stage compressor with $P_1 = (1 \times 10^5) \text{ N/m}^2$ ; $P_3 = 30 \text{ bar}$ , $T_3 = 27^\circ\text{C}$ , $n = 1.3$ , the cylinder diameter ratio is?
Option A:	1.32
Option B:	3.25
Option C:	2.34
Option D:	4.56
Q15.	The multi stage compressors are preferred to save power for same air output as that of single stage compressor for the reason of?
Option A:	Work done per kg of air is reduced in multistage compression
Option B:	As temperature of air raises, efficiency raises
Option C:	It increases size of the compressor
Option D:	The cost of the compressor increase in double fold
Q16.	The model testing parameters for centrifugal pump are
Option A:	Speed , pressure, discharge
Option B:	Specific speed, tangential velocity, discharge, power
Option C:	Specific speed, discharge, pressure
Option D:	Tangential velocity, discharge, pressure
Q17.	The control of pump which saves power consumption could be
Option A:	Manually locating person for each pump
Option B:	Remote controlled for immediate starting and stopping
Option C:	Use all pumps simultaneously and store liquid in containers
Option D:	Using valves to control the delivery
Q18.	The function of intercooler incase of multi stage compressor is
Option A:	To heat the compressed air
Option B:	To cool the compressed air
Option C:	To increase pressure of air
Option D:	To increase discharge of air.

Q19.	If pressure range of air required over wide band say 3 bar to 7 bar, then in order to save power consumption
Option A:	Its better to go for single stage compressor with throttle
Option B:	Its better to use two different capacity compressors
Option C:	Its better to use multiple air receiving devices
Option D:	Its better to cool the header tank with single stage compressor.
Q20.	The leakage in centrifugal pump could be avoided using
Option A:	Stepped shaft towards casing
Option B:	Gland packing, rubber with metal bush
Option C:	Metal washers
Option D:	Sealant
Q21.	Specific speed of centrifugal pump is
Option A:	Speed of geometrically similar pump delivering 1 litre of water
Option B:	Speed of geometrically similar pump delivering 1 litre of water against head of 1 m
Option C:	Speed of geometrically similar pump delivering 1 litre of water against manometric head
Option D:	Speed of geometrically similar pump delivering 1 litre of water against static head.
Q22.	The suction lift will be smaller if
Option A:	Acceleration head is smaller as compared to suction lift
Option B:	Acceleration head is higher as compared to suction lift
Option C:	Acceleration head is zero as compared to suction lift
Option D:	Friction head is higher as compared to suction lift.
Q23.	Minimum Separation pressure head in case of reciprocating pump in delivery pipe is
Option A:	$h_{sep} = h_d$
Option B:	$h_{sep} = h_d + h_{ad}$
Option C:	$h_{sep} = h_{ad}$
Option D:	$h_{sep} = h_d + h_{ad} - h_s$
Q24.	With respect to the reciprocating pump which of the following statement is incorrect
Option A:	The limiting value of separation pressure head for water is 8 m(absolute)
Option B:	During suction, the separation may take place at the beginning of suction stroke
Option C:	During delivery, the separation may take place at end of delivery stroke
Option D:	Indicator diagram shows variation of pressure head in the cylinder for one revolution of crank
Q25.	The suction lift will be smaller if
Option A:	Acceleration head is smaller as compared to suction lift
Option B:	Acceleration head is higher as compared to suction lift
Option C:	Acceleration head is zero as compared to suction lift

Option D:	Friction head is higher as compared to suction lift.
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