

No.	Ideal Steam & Controls Test Questions 05232016	TRUE	FALSE	No.	Slide
	<b>Name:</b>				
	<b>Boiler License Number</b>				
	<b>Part 1</b>				
1	Water can exist in four different phases			1	
2	Condensing is the phase change from a gas to a liquid			2	
3	Water expands by nearly 10% when it freezes			3	
4	The latent heat of fusion of ice at atmospheric pressure is 144 btu's per pound			4	
5	Water is typically known as the universal solvent			5	
6	Water expands and loses density with every degree of heat added to it above 32F.			6	
7	Pressure determines the boiler temperature of water			7	
8	Steam at 60.3 psig has a saturation temp of 307.60 degrees and a latent heat content of 904.5 (table CG1 steam properties)			8	
9	The definition of a BTU is the amount of heat energy required to raise 1 lb of water 1 degree F.			9	
10	Steam is not invisible			10	
11	One pound of liquid at sea level (14.7psia) increases in volume over 1600 times when evaporated to steam			11	
12	All steam above 705.47 F. is considered superheated steam			12	
13	Flash steam is generated when condensate moves from a high pressure environment to a lower pressure environment			13	
14	Water at 0 psi (at sea level) can exist at temperatures above 212 F.			14	
15	MAWP is the boilers maximum allowable working pressure and design pressure of the boiler			15	
16	Power boilers are typically operated within 1% of the safety valve setting			16	
17	Steam gages and controls are not designed for live steam. Provisions must be made to promote a liquid seal at the device			17	
18	Safety valves are desgied to quickly open and close without chattering			18	
19	Power boiler safety valves must pop fully open and not allow the pressure to rise more than 6 % above the boiler MAWP			19	
20	Power boiler safety valve discharge piping must terminate outside of the building			20	
21	There should be water in the boiler sight glass at all times and under all operating conditions			21	
22	A primary and secondary low water cut-off are required on all high pressure steam boilers			22	
23	Power boilers primarily use continuous blowdown piping to remove air from boiler surface water			23	
	<b>Part 2</b>				
24	A stop valve and a check valve is required at the feedwater inlet on all steam boilers			24	
25	A steam boiler feedwater stop valve must be the same size as the boiler feedwater inlet connection			25	
26	Start-stop boiler feedwater pumps are more efficient than continuous running pumps			26	
27	Dissolved solids in boiler water promote scale build up on waterside metal heating surfaces			27	
28	Oxygen in boiler water promotes corrosion and pitting of metal boiler components			28	

29	Boiler water should always be kept in the alkalinity scale below 10.5 pH			29
30	Condensate can exist above 212 degrees F. at 0 psig atmospheric pressure, at sea level			30
31	Purity of steam has to do with its moisture content			31
32	Quality of steam has to do with its solids content			32
33	Condensation takes place in piping even when the piping is insulated			33
34	Uninsulated steam piping can be a factor that contributes to water hammer			34
35	Steam traps remove air and condensate from equipment and piping			35
36	One pound of pressure can elevate water @ 4 feet			36
37	Faulty steam traps increase fuel, water and chemical costs			37
38	Bucket traps continually discharge condensate as it is formed			38
39	Float and thermostatic traps continually discharge condensate as it is formed			39
40	Thermostatic traps hold back condensate until it cools about 25 F. below saturated steam temperature			40
41	Returning condensate to the boiler room reduces fuel, water and chemical use			41
42	Pressure condensate pumps use steam or air as a motive force to move condensate			42
43	Sparge tubes are used to raise the temperature of condensate with live steam			43
44	Condensate vent condensers are used to recover flash steam energy			44
45	Deaerators heat boiler feedwater and remove soluble air			45
46	Flash economizers recover heat energy from condensate and also provide a means to recover flash steam			46
47	Boiler feedwater economizers recover heat from boiler stack gasses			47
48	Boiler bottom blowdown frequency should be based upon water testing			48
49	Scale on waterside heating surface increases fuel costs and causes the boiler metal to overheat			49
50	High TDS affect steam purity			50
	<b>Part 3</b>			
51	The 2011 OBPVSC (Oregon Boiler & Pressure Vessel Specialty Code) is the current adopted version in the State of Oregon			51
52	Power boiler operating permits are renewed every two years			52
53	The cost of a boiler intallation permit is \$175 plus a service charge of \$21 for a total price of \$196			53
54	A Class 1 boiler license allows installation of boilers by non-welded and welded methods of attachment			54
55	ASME Section 1 Power Boilers operate above 15 psi steam			55
56	NBIC Boiler rules are now included in three individual volumes. Installations, inspection, repairs/alterations			56
57	NFPA 85 sets the rules in regards to Boiler and Combustion Systems for all size boilers			57
58	ASME Section V sets the rules in regards to Fiber-Reinforced Plastic Pressure Vessels			58
59	ASME Section X sets the rules in regards to Non-Destructive Examination			59
60	ASME B31.1 set the rules in regards to Power Piping			60