

API 570 PREPARATORY COURSE
Exam 1 - Open Book

Note : Tick only one alternative, which you think is most appropriate.

1. PWHT is required for all thicknesses of piping over ½ inch for which of the following materials?
 - a. P Nos. 1 and 2
 - b. P Nos. 1 and 3
 - c. P Nos. 2 and 3
 - d. P Nos. 4 and 5

2. NPS 12, Sch 80 and Sch 160 pipes (M.O.C = A 106 gr B) are to be used at –10° C. Determine whether,
 - a. Both pipes require impact testing
 - b. Only Sch 160 will require impact test but Sch 80 would be exempt.
 - c. Both would be exempt
 - d. Sch 80 would require but Sch 160 will be exempt.

3. A 6" NB Sch 40 pipe is selected for following conditions.
 Design Pr = 360 psi
 Design Temp. = 300 degrees F
 M.O.C. = A 53 gr B (ERW)
 Corrosion Allowance = 2.0 mm
 Assume standard mill tolerance

Your assessment is:

- a. Pipe design meets code requirement
 - b. Pipe design does not meet code requirement
 - c. Depends on opinion of Piping Inspector
 - d. Depends on opinion of Piping Design Engineer

4. A piping installation was constructed out of material requiring impact testing. Following two steel materials (material A and B) were tested for impact test results. These materials are to be used for repair work on piping. The test data is as follows:

Material A:	Material B:
SMTS = 65000 psi (Deoxidized)	SMTS = 60,000 psi (Deoxidized)
Reading for specimen (1) = 16.0 ft lb	Reading for specimen (1) = 15.0 ft lb
Reading for specimen (2) = 17.5 ft lb	Reading for specimen (2) = 14.0 ft lb
Reading for specimen (3) = 9.5 ft lb	Reading for specimen (3) = 10.0 ft lb

- a. Both material (A) and (B) are OK
 - b. (A) is OK but (B) is not OK
 - c. (B) is OK but (A) is not OK
 - d. Both are not OK

5. A austentic stainless steel piping system operates between temperatures of – 50 °F and 350 °F .The temperature of installation was 100 °F. The approximate values of minimum expansion and contraction range for sliding support installed at 150 ft from the anchored end will respectively be:
 - a. 2.4 inch and 4.3 inch
 - b. 4.3 inch and 2.4 inch
 - c. 1.9 inch and 4.8 inch
 - d. None of the above

6. A Flat plate (without joints) is used as permanent blank for flanged point with gasket I.D = 200 mm Design pr. = 200 psi. and safe stress value for plate is 18,000 psi, for given temperature of 250°C. what shall be the minimum blank thickness from given options. Corrosion allowance is Nil code of constr B 31.3 8 mm
- 10 mm
 - 12 mm
 - 14 mm
7. A 106 gr B pipe after installation, required Hydrostatic leak test. Following data is presented Design pr = 300 psi, Design temp = 500°F. Considering stress at design as well as ambient temperature determine correct hydrotest pr. If test is carried out at ambient conditions.450 psi
- 476 psi
 - 330 psi
 - 375 psi
8. Calculate pneumatic test pressure for above piping considering stress correction.
- 349 psi
 - 396 psi
 - 408 psi
 - 330 psi
9. Maximum Brinell hardness observed (after PWHT) on following three points was as follows:
 Joint 1: MOC = PNO4, thk = 16mm, Hardness = 240 HB
 Joint 2: MOC = PNO5, thk = 16mm, Hardness = 238 HB
 Joint 3: MOC = PNO3, thk = 20 mm, Hardness = 228 HB
- Your assessment is:
- All joints are okay as per ASME B 31.3
 - Joint 2, and 3 are okay, joint 1 not okay
 - Only joint 1 is okay. Joint 2, and 3 are not.
 - None of the above are correct answers.
10. Identify incorrect statement/s:
- In impact test exemption curves, curve D represents better toughness material than curve B
 - curve C represents more brittle material than Curve B
 - Fully de-oxidized steels are tougher than non-deoxidized materials
 - a and c