

ST. CLAIR COLLEGE OF APPLIED ARTS AND TECHNOLOGY

Skilled Trades Division

BASIC PLUMBING TEST #2

PLB116B – 25W

Total MARK: _____/110

STUDENT'S NAME: _____

Multiple Choice Questions (1 mark each)

/50

1. A building has 12 storeys, and each storey has a height of 4M. If a 2-inch vertical galvanized steel pipe with a total length of 42M were installed, how many pipe supports would be required by code?
 - a. 6
 - b. 7
 - c. 9
 - d. 11
 - e. 13
2. Which of the following wood structures is **NOT** permitted to be drilled or notched?
 - a. roof trusses
 - b. sill plates
 - c. load bearing walls
 - d. bearing top plate
3. Underground cast iron drainage pipe may be supported.
 - a. using hangers fixed to a foundation or structural slab
 - b. on piers every 3m
 - c. with blocks every 3m
 - d. on concrete every 3m
4. Glass pipe used for laboratory drainage may connect to polypropylene using which of the following connections
 - a. mechanical band
 - b. threaded connection
 - c. slip joint connection
 - d. approved glass to plastic adapter
5. Hard copper tube may be joined by all the following methods except
 - a. 50/50 solder
 - b. BCup5
 - c. compression
 - d. flared joint



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6. A plastic pipe that should not be connected using an expanding tool.
 - a. wirsbo
 - b. pex a
 - c. pex b
 - d. PE-RT
7. Which one of the following copper tubes is NOT allowed to be installed in a water distribution system?
 - a. Type K soft
 - b. Type L soft
 - c. Type M soft
 - d. All are ok
 - e. None are allowed
8. How many pipe supports are needed on a 6-inch horizontal PVC drain 115M long in an 18-storey apartment building?
 - a. 48
 - b. 60
 - c. 96
 - d. 120
9. How many hangers are needed on a 1-inch horizontal copper water pipe 32M long in an 3 storey High School?
 - a. 11
 - b. 13
 - c. 15
 - d. 19
10. An old parking garage has an 8-inch horizontal, galvanized rainwater leader that is 70M meters in length. How many clevis hangers would have to be ordered?
 - a. 8
 - b. 12
 - c. 15
 - d. 19
11. Solders shall not be used on potable water systems if lead content is higher than
 - a. 2%
 - b. 0.2%
 - c. 0.02%
 - d. 0.0%



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- 12.** When specifying a soft solder, the content number mentioned first is:
- a. antimony
 - b. lead
 - c. silver
 - d. tin
 - e. zinc
- 13.** Not reaming the cut ends of copper pipe can result in
- a. Reduced capillary action when soldering
 - b. Too much solder running into the joint
 - c. Less erosion, due to increased material
 - d. Faster time to failure due to erosion
 - e. None of the above
- 14.** Copper and Galvanized pipe can best be joined using which:
- a. Male adaptor & galvanized coupling
 - b. An M.J. band
 - c. Grooved ends and coupling
 - d. Dielectric union
- 15.** What does PEX stand for?
- a. Polyethylene Extruded
 - b. Polymer Exchange
 - c. Polyethylene Crosslinked
 - d. Polyethylene Expanded
- 16.** What is the recommended maximum temperature for PEX pipe use in plumbing applications?
- a. 150°F (65°C)
 - b. 180°F (82°C)
 - c. 212°F (100°C)
 - d. 250°F (121°C)
- 17.** Which of the following statements about PEX pipe installation is true?
- a. PEX pipes must always be buried underground to prevent damage.
 - b. PEX pipes are not suitable for use in concrete slabs.
 - c. PEX pipes should not be exposed to direct sunlight for extended periods.
 - d. PEX pipes should not be used for hot water supply lines.



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18. What is the recommended MINIMUM bend radius of PEX pipes without using heat? _____ x diameter.
- a. 3
 - b. 5
 - c. 8
 - d. 12
 - e. 24
19. PEXb pipes may have a recommended minimum “reverse-bending” radius of _____ x diameter, without using heat?
- a. 3
 - b. 5
 - c. 8
 - d. 12
 - e. 24
20. The bend radii above are based on which dimension of the PEX pipe?
- a. Inside diameter
 - b. Outside diameter
 - c. Nominal pipe size
 - d. Wall thickness
 - e. None of the above
21. PEX standard ASTM F2098, allows for this retaining method/material to be used in place of copper crimp rings with brass insert fittings.
- a. Aluminum Crimp Rings
 - b. Metal Compression-Sleeves
 - c. PEX Reinforcing Rings
 - d. Stainless Steel cinch
22. What is the primary purpose of flux in soldering copper pipes?
- a. To add colour to the solder joint
 - b. To increase the melting point of the solder
 - c. To facilitate the flow of solder and improve adhesion
 - d. To prevent overheated solder from running out of the joint
 - e. To reduce the overall strength of the solder joint
23. Which type of flux is most commonly used for soldering copper pipes in plumbing applications?
- a. Acid flux
 - b. Rosin flux
 - c. Water-soluble flux
 - d. No-wipe flux



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- 24.** What is the most common form of solder used for potable water applications?
- a. Lead-free solder
 - b. Silver solder
 - c. Tin-lead solder
 - d. Aluminum solder
- 25.** Which factor determines the appropriate amount of solder to use for a plumbing joint?
- a. The size of the pipe being soldered
 - b. The temperature of the flame
 - c. The distance from the soldering point to the source of heat
 - d. The colour of the flux being used
- 26.** When preparing a copper pipe for soldering, what step should be taken after cleaning the pipe's surface?
- a. Apply flux to the pipe and fitting
 - b. Sand the pipe's surface to roughen it
 - c. Apply a layer of adhesive
 - d. Immediately proceed to soldering without any further preparation
- 27.** Which statement best describes the purpose of soldering flux?
- a. It acts as a lubricant to ease pipe fitting assembly.
 - b. It cleans the pipe surface to ensure a strong bond.
 - c. It protects the pipe from corrosion during the soldering process.
 - d. It reduces the melting point of the solder to facilitate bonding.
- 28.** What safety precaution should be taken when using acid flux for soldering?
- a. Apply flux to small cuts to avoid infection.
 - b. Apply the flux liberally to ensure a strong bond.
 - c. Use in a well-ventilated area to avoid inhaling fumes.
 - d. Heat the flux before applying it to the joint.
- 29.** Which type of flux is recommended for soldering potable water pipes?
- a. Acid flux
 - b. Rosin flux
 - c. Water-soluble flux
 - d. No-clean flux
- 30.** At what temperature does solder typically melt during the soldering process?
- a. Below 100°C
 - b. Between 100°C and 200°C
 - c. Between 200°C and 300°C
 - d. Above 300°C



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- 31.** What should be done after soldering a joint to ensure its integrity?
- a. Apply more solder for extra strength.
 - b. Immediately test for leaks.
 - c. Allow the joint to cool before handling.
 - d. Wipe off excess solder & flux for aesthetic purposes.
- 32.** Hard solders have melting points...?
- a. Above 1000°F
 - b. Below 1000°F
 - c. The same as copper
 - d. The same as lead
- 33.** The solder that usually contains between 24% and 93% silver is?
- a. BCuP
 - b. Bag
 - c. Sil-Phos
 - d. Lead free
- 34.** The colour code for Oxy-Med copper tube is:
- a. Red
 - b. Blue
 - c. Green
 - d. b. or c.
 - e. a. or b.
- 35.** Oxygen Barrier PEX pipe is most commonly used for:
- a. Domestic cold-water lines
 - b. Well pumps
 - c. In-floor radiant heating
 - d. Trap seal primers
- 36.** Pipe used for drainage in a chemical laboratory would be:
- a. ABS
 - b. Cast iron
 - c. PVC
 - d. Glass



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37. If you are installing horizontal glass piping what is one thing you should **never** do?
- a. install the piping so it can move easily
 - b. installing the pipe so that it cannot move sideways
 - c. installing the pipe so that it cannot move
 - d. use Styrofoam to coat the pipe if it is underground
38. Glass pipe may **not** be cut using
- a. inside cutter with heat
 - b. smaller diameter snap cutters with diamond wheels
 - c. diamond blade hacksaw
 - d. chop saw
39. To achieve the maximum deflection in horizontal glass piping hangers should be located
- a. 10" to 12 inches from the coupling
 - b. 12" to 14 inches from the coupling
 - c. 16" to 20 inches from the coupling
 - d. 20" to 24 inches from the coupling
40. Holes provided for glass pipe should be at least _____ larger than the diameter of pipe being used.
- a. 1/2 inch
 - b. 1 inch
 - c. 1 1/2 inch
 - d. 2 inch
41. The annular space around glass pipe penetrating a floor should be packed with
- a. flexible caulking
 - b. mineral wool
 - c. rubber
 - d. Styrofoam
42. Glass pipe installed underground should be wrapped with
- a. flexible caulking
 - b. mineral wool
 - c. rubberized coating
 - d. Styrofoam



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- 43.** Horizontal plastic drainage pipe must be supported every:
- a. 1m
 - b. 1.2m
 - c. 2.5m
 - d. 3m
- 44.** 2" horizontal steel pipe must be supported every:
- a. 1m
 - b. 1.2m
 - c. 2.5m
 - d. 3m
- 45.** A thermosetting plastic may not be joined by
- a. mechanical clamps
 - b. heat fusion
 - c. solvent weld
 - d. both a & b
 - e. neither b nor c
- 46.** In the Drilling & Notching Diagram The structural member indicated at arrow Number 1, is a?
- a. Header
 - b. Joist
 - c. Plate
 - d. Rafter
 - e. Stud
- 47.** In the Drilling & Notching Diagram The structural member indicated at arrow Number 3, is a?
- a. Header
 - b. Joist
 - c. Plate
 - d. Rafter
 - e. Stud
- 48.** In the Drilling & Notching Diagram The structural member indicated at arrow Number 4, is a?
- a. Header
 - b. Joist
 - c. Plate
 - d. Rafter
 - e. Stud



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49. In the Drilling & Notching Diagram The structural member indicated at arrow Number 6, is a?
- a. Header
 - b. Joist
 - c. Plate
 - d. Rafter
 - e. Stud
50. When connecting dissimilar piping materials, the Plumber should account for which of the following?
- a. Different materials may have different temperature/pressure ratings
 - b. Different materials may react differently to electrical currents/UV radiation, etc.
 - c. Different materials may have different resistance to corrosion/chemicals
 - d. Different materials may expand/contract at different rates when heated/cooled
 - e. All the above
 - f. None of the above

SHORT ANSWERS/ Diagrams

/60

3 1. PEX tubing that is used for radiant in-floor heating should be protected from two things. What are they?

a. _____

b. _____

1 2. What should be done to PEX pipe before inserting fittings



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1 **3.** A "Connectite" fitting is most commonly used to join which two pipe materials?

_____ & _____

4 **4.** Explain what is needed when connecting Copper water pipe to Ductile Iron water piping by flanged joint(s).

_____ between _____ faces, and

_____ between bolts and _____

4 **5.** Fill in the chart below with an application and appropriate joining method for each pipe listed.

Materials to be Joined	JOINING METHOD
Cast Iron Soil pipe to ABS	
Copper DWV to Cast Iron Soil pipe	
ABS to PVC	
Large Ductile Iron to Plastic water pipe	



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- 6 **6.** Fill in the chart below with a correct option for each of the empty spaces.

TYPE OF PEX	APPLICATION	JOINING METHOD
		Expanded or crimped joints
		Crimped joints, but not expanded joints
PEX / AL / PEX		

- 9 **7.** List the cause and describe what happens to piping during the Following, and one way to prevent each (3marks each):

a. Corrosion:

b. Erosion:

c. Electrolysis:



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5 **8.** State the correct (**most economical**) colour and type of **copper pipe** to use in the following installations.

EXAMPLE: finned tube radiation

ANSWER Type H hard, colour white

a. Vent pipe, inside a building, underground.

b. Water service pipe, outside a building, underground.

c. Water Distribution, above grade, inside a building.

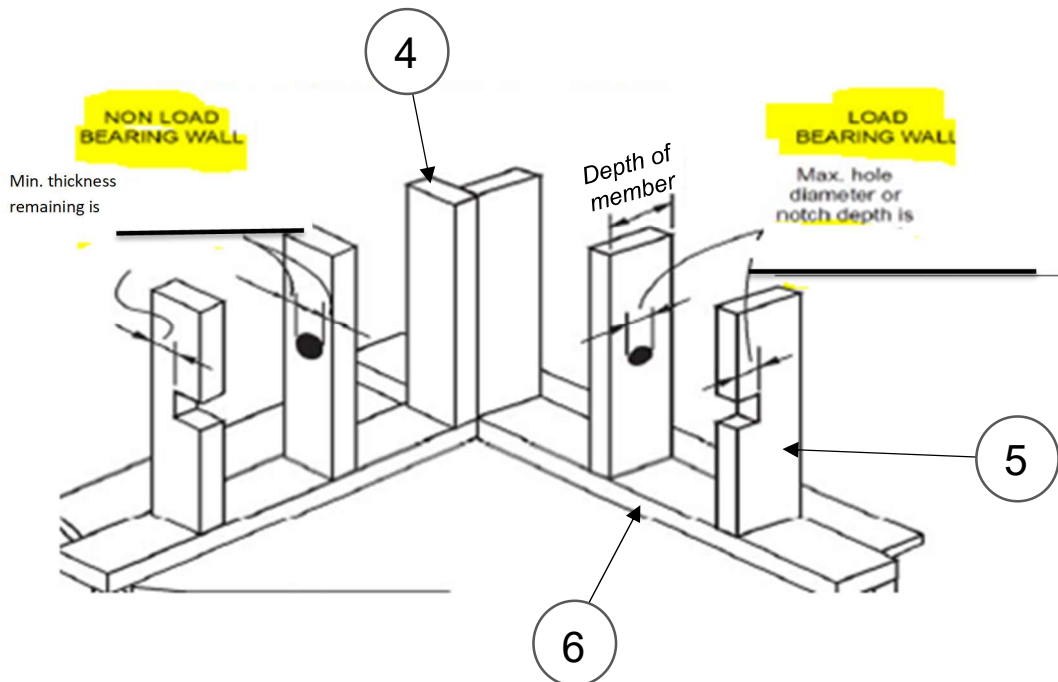
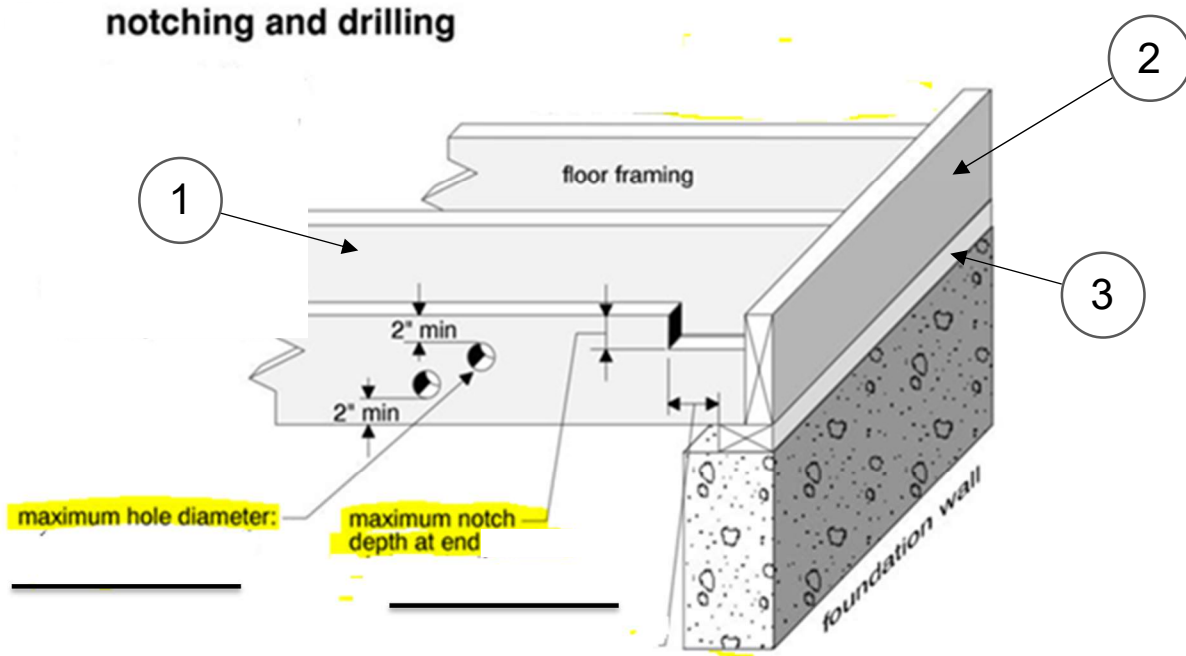
d. Medical gas pipe, above ground.

e. Underground water piping, inside a building.



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- 4 13. Fill in the blanks with the appropriate dimensions for allowable drilling and notching.



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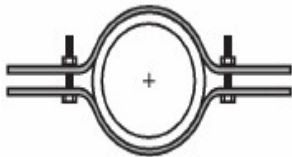
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- 8 10. Fill in the correct option(s) for pipe supports, in the chart below. Place a large "X" in the box if not allowed.

Rod Diameter Inches or mm	Strap Width Inches or mm	Pipe size Inches
		1"
		3"
		4"
		Larger than 4"

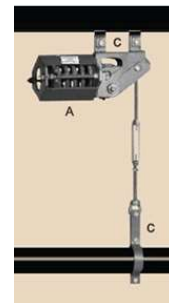
- 9 11. Name the hanger(s)/supports below and list their major function



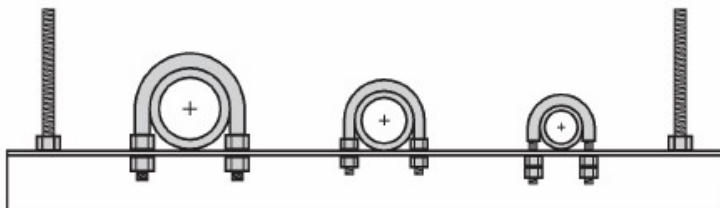
- Riser clamp
- Vertical support



- _____
- _____



- _____
- _____



- _____ - _____ (s) on a _____ hanger
- _____



- _____
- _____



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- 1 **12.** The pipe support that allows movement while maintaining alignment, is called a...?

- 1 **13.** The pipe support that controls the direction of expansion or contraction from one point is called an...?

- 1 **14.** Seismic restraint(s) for pipe hangers/supports would be required in a location prone to what?

- 1 **15.** The implement used to prevent the insulation being compressed/crushed between the pipe and hanger/support is called a...?

- 2 **16.** According to the O.P.C: A copper water distribution pipe of _____ inch size or larger, may be swaged to join another copper pipe of _____ size.

