END-OF-COURSE PAPER COMPLETION EQUIPMENT 5

1. Which of the following statements are true about Permanent Packers?
TWO ANSWERS

a) Can be released and retrieved together with the completion string
b) Can only be pushed down or retrieved by milling or other destructive means
c) May be retrieved with a special pulling tool on a work string, after milling the top slips of the packer
d) Can be converted into a Retrievable Packer by inserting a prong

2. What is the primary barrier when running a completion string in a well that has open hole hole formation or open perforations?

a) The Casing and good quality cement around it
b) The Production Packer
c) The Fluid Hydrostatic Head, provided fluid to surface and of correct density
d) The Sub-Surface Downhole Safety Valve
e) The BOP Stack

3. Which of the following statements is true regarding Xmas Tree Gate Valves?

a) Xmas Tree Gate Valves always function as a Tertiary Barrier
b) Xmas Tree Gate Valves always function as a Primary Barrier
c) Xmas Tree Gate Valves can be Primary, Secondary or Tertiary Barriers, as it depends on the operation and other circumstances

4. How are Hydraulic Packers normally set?

a) Run the Packer to depth, then apply pressure to the control line
b) First set a plug in the tail pipe, then apply pressure on the tubing
c) Run the Packer to depth, then apply pressure against the casing below the tail pipe, provided the well is not yet perforated
d) First set a plug in the tail pipe, then apply pressure below this plug
e) First set a plug in the tail pipe, then apply pressure on the annulus

5. What kind of gas is used for the precharge of accumulator bottles?

a) Air
b) Carbon Dioxide
c) Nitrogen
d) Hydrogen
e) It could be any type of gas

6. What is the API Standard 53 recommended maximum interval between pressure tests for BOPs, before using it for a completion and/or workover operation?

a) Within 21 days of the last test
b) Within 14 days after shutting in on a kick
c) Within 7 days of the last test
d) No specific requirement after a successful stump test
e) No specific requirement as long as there is no leak detected
f) No specific requirement as long as we have not performed a repair

7. Which of the following information should be on a BOP barrier test document?
THREE ANSWERS

a) The test fluid density used for the test
b) The test pressure that has been applied to test the barrier
c) The type of BOP barrier [e.g. Pipe Rams]
d) The name of the person performing the test, including his signature
e) The hydraulic pressure with which the BOP was closed
f) The manufacturer of the BOPs in use

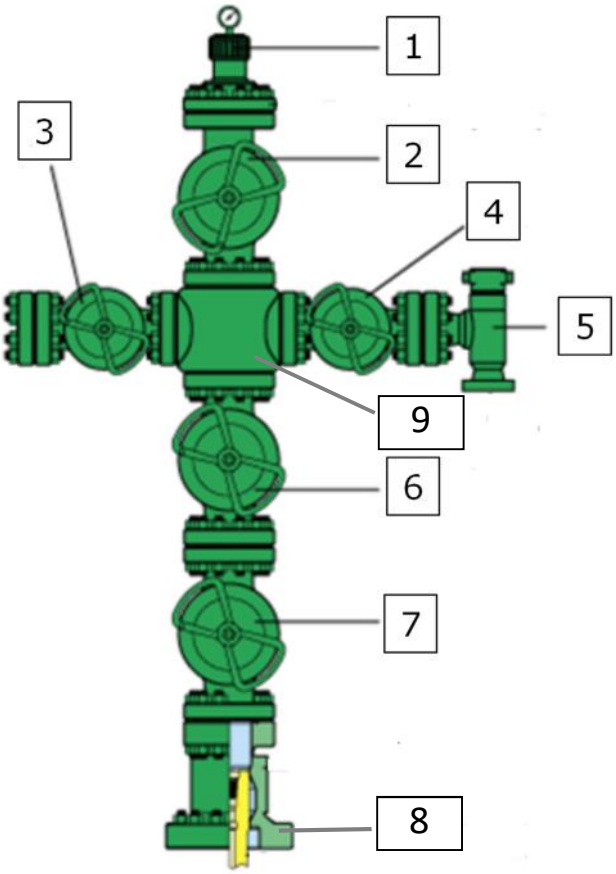
8. Which of the following statements are true about Xmas Trees?
TWO ANSWERS

a) Lower Master Valve should be used to cut slick line in case of an emergency
b) Upper Master Valve are often designed to cut slick line in case of an emergency
c) Flow Wing Valve can be used to cut slick line in case of an emergency
d) Swab Valve can be used to cut slick line, but sealing areas may get damaged

9. Which of the following statements are true about Xmas Trees Gate Valves
THREE ANSWERS

a) A Gate Valve always has an indicator showing how many turns have been made to either open or close the valve
b) A Gate Valve always take 30 turns to open or close the valve
c) After closing a Gate Valve, some tree valve handles should be backed out by a quarter turn
d) After closing a Gate Valve, some tree valve handles should be closed firmly to ensure a good seal
e) Always count the turns as the valve is opened or closed, because this provides an indication of any obstruction across the valve, e.g. a tool string

10. Below is a drawing of a composite Xmas Tree. Match the various components with the identification number



- Lower Master Gate Valve _____
- Tree Cap _____
- Kill Wing Valve _____
- Production Choke _____
- Upper Master Gate Valve _____
- Swab Valve _____
- Choke Line Valve _____
- Flow Cross _____
- Adaptor Flange _____

11. What kind of downhole conditions would trigger a sub-surface controlled DHSV to close, depending on its design?
TWO ANSWERS

a) A change of fluid density, e.g. the packer fluid
b) A change of temperature, e.g. the surrounding formation temperature
c) A change of pressure, e.g. a sudden decrease
d) A change of flow, e.g. a flow increase

12. How should a Down Hole Safety Valve, already installed in the well, be tested?

a) By slam closing the DHSV under high rate flowing conditions, then checking leak rate
b) By closing the DHSV, then pressurizing above it and monitoring the leak rate
c) By closing the DHSV, measuring the control line fluid flowback and then performing an inflow test
d) By closing the DHSV and measuring the volume of the control line fluid flowback

13. How can a sub-surface controlled DHSV be 're-opened' after it has been closed and the pressure above has been bled off?

a) By increasing the pressure above the valve until the pressures below and above the DHSV are equalized
b) By running and then stabbing an opening device
c) By simply opening the well
d) By applying additional control line pressure

14. To permit free flow of fluids through the TR DHSV while running the completion, what kind of method can we use?
TWO ANSWERS

a) Keeping pressure on the control line until we run the Tubing Hanger
b) Keeping pressure on the tubing using an Internal Packer
c) Using an 'hold-open tool' or 'straddle sleeve' that is locked inside the TR DHSV landing nipple
d) Using an 'lock-open' device that is pinned with shear screws
e) By using heavier fluid inside the tubing than in the annulus

15. How is a WR DHSV kept open while running it on wireline to its landing nipple?

a) By a prong fitted to the running and retrieving tools
b) It is held open by hydraulic pressure on the control line
c) By using an 'hold-open-tool' or 'straddle sleeve' fitted inside the WR DHSV
d) By using a J-latch device

16. During a test on a TR DHSV we observe that the leak rate is well above acceptable volume per minute. What should we do to re-commence production, but maintain well integrity?

a) We should use the Annulus Safety Valve instead
b) We have no choice then to perform a workover
c) We should use well intervention to lock open the TR DHSV
d) We should use well intervention to lock open the TR DHSV, then install a WR insert DHSV

17. Which type of Down Hole Safety Valve has the largest 'internal' diameter when comparing it with the internal diameter of the tubing to which it is connected?

a) A WR Down Hole Safety Valve
b) Any DHSV that works on differential pressure
c) Any surface controlled DHSVs
d) A TR Down Hole Safety Valve

18. What type of closing mechanisms are used in WR surface controlled DHSVs?
TWO ANSWERS

a) Poppet Valves
b) Flapper Valves
c) Ball Valves
d) Gate Valves
e) Choke Valves

19. Which types of the following DHSVs are sub-surface operated?
TWO ANSWERS

a) Ambient Pressure DHSV
b) Differential Pressure DHSV
c) WR SC-SSV
d) TR SC-SSV
e) Ball Valves
f) Flapper Valves

20. How are mandrels of wireline running tools 'locked' into a nipple profile?

a) By using metal-to-metal seals
b) By using wedge type slips
c) By using locking dogs that match the nipple profile
d) By using steel re-inforced packings that fit tightly inside the nipple profile
e) By using a landing ring

21. How do wireline running tools 'seal' inside a landing nipple?

a) By using a landing ring
b) By using elastomer packings which seal across the nipple polished bore
c) By using wedge type slips
d) By using elastomer packing that seal on the no-go shoulder
e) By using metal-to-metal seals

22. What is the primary function of a No-Go in a landing nipple?

a) To position the appropriate lock correctly, so that the keys engage the profile in the landing nipple profile
b) To prevent the wireline plug falling through the bottom of the tubing or casing
c) To withstand the force of differential pressure across the wireline plug
d) To engage and lock the keys of the wireline plug

23. What is the primary reason for using landing nipples in the completion string?

a) To serve as a depth reference when running wireline tools
b) To enable installation of gas lift valves
c) To serve as a latch for anchor seal assemblies
d) To enable installation of flow control equipment

24. From which direction should a DHSV be tested?

a) From above, by applying test pressure
b) From below, by inflow testing
c) Can always be tested in both directions
d) From above, through the control line

25. What is the primary reason for installing an Annulus Safety Valve [ASV]?

a) It serves as a back-up to the regular DHSV
b) In gas lift wells, it serves to stop flow from tubing to annulus in case the check valves are not holding
c) In gas lift wells, it serves to stop flow from the annulus below the valve in case of surface damage or another emergency
d) It serves as a back-up production packer

26. What is the primary reason of installing a Down Hole Safety Valve [DHSV]?

a) It enables shutting in the well for maintenance on the Xmas Tree
b) It enables shutting in the well for a temporary suspension of production
c) It stops further flow from the well in case of surface damage or emergency
d) It stops flow from the annulus in gas lift wells

27. What is the most important condition when determining the setting depth for a Down Hole Safety Valve [DHSV]?

a) It should be set deep enough to avoid being damaged by surface impact or by explosion damage at surface
b) It should be set shallow enough to minimize the consequences of an accidental collision with a deep adjacent well being drilled into the producing well
c) It should be set deep enough to prevent sabotage of the valve itself
d) It should be set shallow enough to minimize time to retrieve the DHSV for a repair or maintenance
e) It should be set shallow enough to mimimize loss of well fluid [primarily gas]
f) It should be set deep enough to permit gas lifting of the well above it

28. In gas lift wells, what prevents gas flowing back from tubing to annulus?

a) The differential pressure across the gas lift valve
b) The check valve inside the gas lift valve
c) The friction effect of gas trying to flow through an orifice
d) The dome nitrogen pre-charge setting in the gas lift valve

29. In gas lift wells, what do we install in a Gas Lift Mandrel in order to fully isolate the tubing from the annulus?

a) A circulation valve
b) A gas lift valve
c) A gate valve
d) A dummy valve
e) An injection valve

30. Where would be usually place a Sliding Sleeve in a single string completion to produce a single production zone?

a) Directly above the Production Packer
b) Directly below the Production Packer valve
c) Between two Production Packers
d) Just below the Landing Nipple in the Tail Pipe

31. How will a Production Packer function as a barrier?

a) By stabbing and then sealing within a Liner Polished Bore Receptacle
b) By closing off the flow path between tubing and casing
c) By sealing the upper completion string within the bore of the Production Packer
d) By hydrostatic pressure manipulation from the annulus

32. What is the definition of a Permanent Packer?

a) A completion item that is always retrieved with designated retrieving tools
b) A completion item that can be installed and retrieved with wireline
c) A completion item that can only be retrieved with the tubing in place
d) A completion item that can only be removed by milling or using other destructive methods
e) A completion item that has a setting mechanism which incorporates a releasing system, allowing recovery of the packer

33. What is the primary purpose of a Permanent Packer?

a) To isolate the annulus from the tubing and the formation
b) To anchor the tubing string
c) To support the weight of the tubing
d) To isolate the completion fluid above from the hydrocarbons below it

34. What is the definition of a Retrievable Packer?

a) A completion item that is always retrieved with designated retrieving tools
b) A completion item that can be installed and retrieved with wireline
c) A completion item that can only be retrieved with the tubing in place
d) A completion item that can only be removed by milling or using other destructive methods
e) A completion item that has a setting mechanism which incorporates a releasing system, allowing recovery of the packer

35. How can reverse circulation be established if the Sliding Sleeve is stuck in a closed position?
TWO ANSWERS

a) By applying torsion to the completion string
b) By punching 1 or more holes in the tubing
c) By installing a circulation valve in a Gas Lift Valve
d) By using the DHSV control line
e) There is nothing we can do. Use the bullhead kill method instead

36. Which of the following statements are correct regarding Gas Lift Mandrels?
TWO ANSWERS

a) The Gas Lift Mandrel allows installation of a gas lift valve
b) The Gas Lift Mandrel allows installation of a tubing plug
c) The Gas Lift Mandrel allows communication between tubing and annulus
d) The Gas Lift Mandrel allows installation of a DHSV
e) The Gas Lift Mandrel allows installation of a retrievable tubing bridge plug

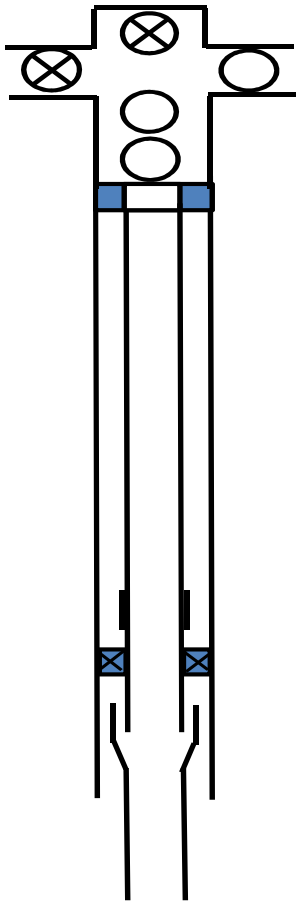
37. Which of the following statements show good practices prior 'opening' a Sliding Sleeve in a completed well?
TWO ANSWERS

a) Check if the pressure rating of the Sliding Sleeve is correct before running it
b) Check if the Sliding Sleeve is fully open prior starting any circulation
c) Check if the tail pipe has a positive plug installed prior opening the Sliding Sleeve
d) Check if the pressure between annulus and tubing at SSD depth is equalized prior opening the Sliding Sleeve
e) Check if we have the correct control line pressure for the DHSV being run

38. How do you open a Sub-Surface Controlled Sub-Surface Safety Valve [SSC-SSSV]?

a) Pull out SSC-SSSV with wireline and reset setting pressure, then rerun again
b) Equalize pressure across the SSC-SSSV
c) Pull out tubing to reset SSC-SSSV
d) Run opening sleeve to open SSC-SSSV

39. You are running a completion in a well designed for water injection [see picture below]. In which 'stroke position' will you set the shear pins or shear ring in the Polished Bore Receptacle [PBR]?

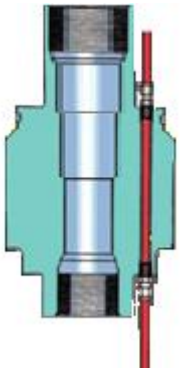


a) Mid Stroke
b) Bottom Stroke
c) Top stroke

40. A Dump Kill Valve is installed in a Side Pocket Mandrel of a completion string. A small positive pressure is keep on the 'A' annulus between completion string and production casing. What will be the indication that tells you that the Dump Kill Valve may be leaking?

a) Increase of tubing pressure
b) Decrease of annulus pressure
c) Increase of annulus pressure
d) Rapid drop of fluid level in annulus

41. You are planning to set a positive plug in a tubing hanger profile [see schematic of tubing hanger below]. What kind of seal[s] should be used to ensure this positive plug can hold pressure from above and below?



a) Not able to be seal in a tubing hanger
b) Set chevron seal facing down
c) Set chevron seal facing up
d) Bonded single elastomer seal

42. You are running a completion assembly with sand screens. The Joint Operations Manual states that if a well control event occurs with a non-shearable assembly across the Shear/Blind Rams, then the procedure is to drop the completion string and close the Shear/Blind Rams. What problem may arise with this procedure?

a) The well can not be killed through the kill line
b) The well can not be killed through the choke line
c) Unable to open the elevator due to the weight of completion string hanging on these elevators