# FE-Quiz-3 20-21

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Answer All question

Which of the Following can be distinguished easily with the help of Litho-Density log (Photo electric adsorption measurements_ (Pe) or (U)

- [ ] Anhydrite and Limestone formation
- [ ] Dolomite and Sandstone formation
- [ ] Sandstone oil and Sandstone water bearing formation
- [ ] Limestone and Sandstone formation
- [ ] Coal and Limestone formation
- [ ] Halite and Sandstone formation

Which of the following are true about neutron logging tool

- ○ Neutron logging tool may use thermal or epithermal or gamma ray detector
- ○ Epithermal neutron detector when used, they are not effected by formation salinity and other thermal neutron absorber
- ◉ Epithermal neutron detector should be placed near to the source compared to thermal neutron detector
- ○ The primary measurement recorded by the tool is porosity
- ○ The primary measurement recorded by the tool is affected by the hydrogen content
- ○ Thermal neutron detector are susceptible to presence of chlorine
- ○ Neutron logging tool only use thermal neutron detector
- ○ Epithermal neutron detector should be placed far from the source compared to thermal neutron detector

Clear selection

Which of the followings are true about sonic porosity logging tool

- ☐ Sonic log computes the effective porosity of the formation
- ☐ High porosity formation will have lower interval transit time
- ☑ Sonic log computes the primary porosity of the formation
- ☑ High porosity formation will have higher interval transit time
- ☐ The primary measurement by tool is porosity of the formation
- ☑ Sonic log tend to read high porosity in case of gas bearing formation
- ☑ The primary measurement by the tool is interval transit time.
- ☐ Sonic log computes the total porosity of the formation

The presence of oil does not affect the neutron log response as it has same hydrogen index as fresh water

- ○ False
- ○ True

Many times density log interpretation are based on taking fluid density equal to 1. This assumption is usually true when invasion is deep and the residual saturation of formation fluid is very low. If this assumption is taken then answer the following. In a gas reservoir where there is no or very little invasion, then apparent porosity calculated using fluid density of 1 would be?

- ○ Not enough Information
- ○ True Porosity
- ○ Too Low
- ◉ Too High
- ○ Zero

Clear selection

A sonic and density log comparison is a good indicator of presence of secondary porosity

- ○ False
- ◉ True

Clear selection

Which of the following is true about neutron log computed porosity (uncorrected for environmental effect)

- [ ] Apparent computed porosity in water zone is greater than the porosity computed by density log
- [ ] Apparent computed porosity in gas zone is greater than the porosity computed by density log
- [x] Apparent computed porosity in water zone usually agree with porosity computed by density log
- [x] Apparent computed porosity in gas zone is less than the porosity computed by density log
- [x] Apparent computed porosity in shale is greater than the porosity computed by density log
- [ ] Apparent computed porosity in water zone is less than the porosity computed by density log
- [ ] Apparent computed porosity in shale is less than the porosity computed by density log

Which of the following are true about Sonic porosity log

- [x] Only the compressional wave travel time inside formation is needed for porosity calculation
- [ ] Cycle skipping decreases the interval transit time
- [x] Sonic log computation from travel time gives you the secondary porosity
- [ ] Whole waveform is needed for porosity computation
- [ ] The compressional wave travel time inside formation and its amplitude is needed for porosity calculation
- [ ] Sonic log computation from travel time gives you the primary porosity
- [x] Cycle skipping increase the interval transit time

The porosity of flushed zone is larger than that of invaded zone

- ◯ True
- ◯ False

Suppose you have recorded a density log and neutron log in a well bore across few of the formation layer. You have no idea about matrix minerology of formation encountered at various depth. You choose the sandstone matrix setting while computing the porosity from the logs. In which of the following formations you would expect the two log reading to differ or a crossover might exist.

- ☐ Sandstone formation, and gas zone
- ☐ Sandstone formation, and water zone
- ☐ Limestone formation, and water zone
- ☐ None of these
- ☐ Limestone formation, and gas zone
- ☐ Shaly formation

Many times density log interpretation are based on taking fluid density equal to 1. This assumption is usually true when invasion is deep and the residual saturation of formation fluid is very low. If this assumption is taken then answer the following.If there is no invasion in a water zone filled with very salty water, then apparent porosity calculated using fluid density of 1 would be?

- ○ True Porosity
- ○ Zero
- ◉ Too High
- ○ Too Low
- ○ Not enough Information

Clear selection

In an water saturated zone of a limestone reservoir, the density and neutron log will overlay on a limestone compatible scaled overlay.

- ○ False
- ○ True

In a sonic log sharp deflection is an indication of presence of

- ○ Shale
- ○ Gas
- ◉ Cycle skipping
- ○ all of them

Clear selection

Arrange the following element in the increasing order of their ability to slow neutron: (A) Oxygen(B) Carbon (C) Hydrogen (D) Silica

- ○ C-D-A-B
- ○ D-B-A-C
- ○ D-A-B-C
- ◉ C-B-A-D
- ○ none of these
- ○ B-D-A-C
- ○ A-D-B-C

Clear selection

Which of the following may be a clue about a clean water bearing formation

- ☐ No SP deflection
- ☐ Density porosity = Neutron Porosity
- ☐ Low Resistivity
- ☐ SP deflection to right
- ☐ Density porosity < Neutron Porosity
- ☐ High Gamma Ray Reading
- ☐ SP deflection to left
- ☐ Good True Porosity
- ☐ Low Gamma ray Reading
- ☐ Density porosity > Neutron Porosity

If vug or fractures are present inside the rocks then sonic porosity will be greater than the density porosity

- False
- True

A neutron log will generally record a gas bearing formation as

- High Porosity formation
- Water bearing formation
- No effect on interpretation
- Oil bearing formation
- As coal
- Low Porosity formation
- Shale formation

The density of shale increase with depth with increase in compaction

- True
- False

Which of the following statements are true about Density Log(s) { FDC and Litho Density}

- [ ] Bulk density read by tool is independent of true fluid saturations in the formation in undisturbed zone
- [ ] Litho Density logging tool reading is dependent upon both Compton scattering and photo-electric adsorption behavior
- [ ] Porosity of the formation is depended upon the bulk density of the formation
- [ ] Sandstone porosity unit will give wrong porosity in limestone formation by density tool
- [ ] FDC logging tool reading is dependent upon photo-electric adsorption behavior
- [ ] Porosity is the primary measurement recorded by the tool
- [ ] FDC logging tool reading is dependent upon Compton scattering behavior
- [ ] Litho Density logging tool reading is dependent upon only photo-electric adsorption behavior
- [ ] Bulk density read by tool is dependent of true fluid saturations in the formation in undisturbed zone

When density logging tool indicates a lower count rate, it indicates we have higher porosity

- ( ) False
- (•) True

Clear selection

Logging tools based one neutron logs can be used in both air filled holes and cased holes

- ○ True
- ◉ False

Clear selection

Which of the following tools doesn't measure the total porosity of the formation

- ○ None of them measure total porosity
- ○ All of them measure total porosity
- ○ Density
- ○ Sonic
- ○ Neutron

High energy gamma radiation count is used to identify lithology , where as low energy Gamma radiation count are used to determine electron density

- ◉ False
- ○ True

Clear selection

Which of the following may be a clue about a clean gas bearing formation

- [ ] Density porosity = Neutron Porosity
- [ ] High Gamma Ray Reading
- [ ] High Resistivity
- [ ] Low Gamma ray Reading
- [ ] Density porosity < Neutron Porosity
- [ ] SP deflection to left
- [ ] SP deflection to right
- [ ] Density porosity > Neutron Porosity
- [ ] Good True Porosity
- [ ] No SP deflection
- [ ] Low Resistivity

Which of the following can be application of a density log(s) { FDC and Litho Density}

- ◯ Aid in lithology identification
- ◯ Determination of Porosity from the log reading
- ◯ Determination of formation resistivity from the log reading
- ◯ Aid in detection of gas bearing formation
- ◯ Aid in computation of formation water resistivity with resistivity log
- ◯ Aid in bed boundary determination
- ◯ Aid in computation of HC density

Which of the following may be a clue about a shale formation

- [ ] Good True Porosity
- [ ] Low Gamma ray Reading
- [ ] High Resistivity
- [ ] High Gamma Ray Reading
- [ ] Density porosity < Neutron Porosity
- [ ] Density porosity = Neutron Porosity
- [ ] SP deflection to right
- [ ] Low Resistivity
- [ ] No SP deflection
- [ ] Density porosity > Neutron Porosity
- [ ] SP deflection to left

Many times density log interpretation are based on taking fluid density equal to 1. This assumption is usually true when invasion is deep and the residual saturation of formation fluid is very low. If this assumption is taken then answer the following. If there is no invasion in a High API gravity oil zone having fresh water ( saturation 10%) , then apparent porosity calculated using fluid density of 1 would be?

- ○ Zero
- ○ Not enough Information
- ○ True Porosity
- ◉ Too Low
- ○ Too High

Clear selection

Which of the following interaction inside the formation leads to Gamma Ray emission

- [x] Thermal Neutron Capture
- [x] Inelastic Collision
- [ ] None of them
- [ ] All of them
- [ ] Elastic Collision

Which of the following can give you a clue about presence of shale

- [ ] Resistivity log when used Gamma Ray Log
- [ ] Density Log alone
- [ ] Resistivity log when used density & neutron log and Gamma Ray Log
- [ ] Resistivity log when used density & neutron log
- [ ] Neutron Log when used with Density Log
- [ ] Gamma Ray Log
- [ ] SP Log
- [ ] Neutron Log alone

Arrange the following element in the increasing order of their ability to capture neutron: (A) Chlorine (B) Potassium (C) Boron (D) Cadmium (E) Carbon

- ○ C-E-B-D-A
- ○ E-B-C-D-A
- ○ none of these
- ○ A-E-B-D-C
- ○ D-C-A-E-B
- ◉ E-B-A-C-D
- ○ E-A-B-C-D
- ○ A-E-B-C-D
- ○ B-E-C-D-A
- ○ D-C-A-B-E

Clear selection

Which of the following can be used to compute the effective porosity of the formation

- ☐ Resistivity derive porosity using Archie's equation
- ☑ Neutron Log
- ☑ Neutron and Density
- ☑ Acoustic Log
- ☑ Density Log
- ☐ none of these
- ☑ Sonic and Density
- ☑ Sonic and Neutron

Which of the following can give you a clue about presence of gas bearing formation

- [ ] Resistivity log when used Gamma Ray Log
- [ ] Gamma Ray Log
- [ ] SP Log
- [ ] Neutron Log when used with Density Log
- [ ] Neutron Log alone
- [ ] Density Log alone
- [ ] Resistivity log when used density & neutron log
- [ ] Resistivity log when used density & neutron log and Gamma Ray Log

Arrange the following in the order of their arrival at the detector in a sonic log (A) Shear Wave (B) Mud Wave (C) Compressional Wave (D) Stoneley Wave

- ○ B-C-A-D
- ○ D-B-A-C
- ○ D-A-B-C
- ○ none of these
- ○ A-B-C-D
- ○ A-C-B-D
- ◉ C-A-B-D
- ○ B-A-C-D

Clear selection

Two cross-bedded sandstones exhibit the same total porosity, they are both saturated with gas and produce with no water influx, but their deep electrical resistivities are not the same; which of the two rocks will you recommend for perforation?

- ○ Low electrical resistivity sandstone
- ○ High electrical resistivity sandstone

The velocity of sound wave in a unconsolidated sandstone formation is greater than in consolidated formation

- ○ False
- ○ True

Which of the following has highest Pe values

- ○ Sandstone
- ○ Limestone
- ◉ Barrite
- ○ Dolomite
- ○ Chlorite

Clear selection

Shale generally have higher transit time than porous limestones or sandstones

- ○ False
- ○ True

In a gas bearing formation which is heavily compacted, consider following statement. (A) The density porosity reads too high. (B) The neutron porosity reads too low. (C) The sonic porosity is not significantly affected

- None of them are true.
- All three A, B and C is true
- only B and C is true
- only A and C is true
- only A and B is true



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