

**\*\*\* EXAMINATION \*\*\***

**GEL TREATMENT APPLICATIONS TO REDUCE  
WATER-OIL RATIO IN PRODUCING OIL WELLS**

1. **Two types of heterogeneity in rock are**
  - a) microscale and macroscale
  - b) nanoscale and macroscale
  - c) nanoscale and microscale
  - d) None of the above
  
2. **A characteristic of microscale heterogeneity is**
  - a) complex porous feature distribution
  - b) simple porous feature distribution
  - c) variable porous feature distribution
  - d) All of the above
  
3. **A characteristic of macroscale heterogeneity is**
  - a) layering
  - b) natural fractures
  - c) high vertical permeability
  - d) All of the above
  
4. **To continue operation of production wells, water flow**
  - a) needs to be continuous
  - b) needs to be accelerated
  - c) needs to be blocked
  - d) Any of the above depending on other factors
  
5. **A mechanical method that can alter the production profile are**
  - a) selective completion configuration
  - b) squeeze cementing
  - c) both a and b
  - d) neither a nor b
  
6. **Optimal profile modification strategy relies on the inherent interaction**
  - a) between treatment fluids and reservoir fluids
  - b) between treatment fluids and reservoir rock
  - c) between reservoir fluids and reservoir rock
  - d) All of the above

7. **Any strategy by which fluids are diverted from their path of**
  - a) least resistance is classified as a profile line
  - b) least resistance is classified as a profile modifier
  - c) least resistance is classified as a profile action
  - d) least resistance is classified as a profile acceleration
  
8. **For profile modification, gel treatment would be considered**
  - a) aggressive
  - b) normal
  - c) weak
  - d) None of the above
  
9. **Fractured reservoirs can exhibit high productivity coupled**
  - a) with normal procedures
  - b) with normal technical challenges
  - c) with serious technical challenges
  - d) None of the above
  
10. **The permeability through fractures is orders of magnitude**
  - a) smaller than the permeability through the matrix
  - b) larger than the permeability through the matrix
  - c) smaller than the permeability through the formation
  - d) larger than the permeability through the formation
  
11. **A parameter of natural gel treatment**
  - a) is limited by its density
  - b) is limited by its viscosity
  - c) is limited by its pressure at the point of application
  - d) can be altered in several ways
  
12. **Most gels exhibit a**
  - a) density greater than that of water
  - b) density less than that of water
  - c) density the same as water
  - d) None of the above
  
13. **The drag associated with the injection phase is**
  - a) inversely proportional to the viscosity of the treatment
  - b) proportional to the viscosity of the treatment
  - c) not proportional to the viscosity of the treatment
  - d) None of the above
  
14. **The greater the viscosity of the treatment, the**
  - a) greater the differential pressure required for injection
  - b) smaller the differential pressure required for injection
  - c) greater the acceptable pressure required for injection
  - d) smaller the acceptable pressure required for injection

15. **A benefit of wax treatment is**
- a) relatively lower cost
  - b) difficult application
  - c) relatively high cost
  - d) None of the above
16. **The advantage of altering the density of the gel treatment is**
- a) designing the treatment to mix with the water
  - b) designing the treatment to sink under the water
  - c) designing the treatment to float on the water
  - d) None of the above
17. **The disadvantage of altering the density of the gel treatment is**
- a) the implementation is simple
  - b) the implementation is complex
  - c) the implementation is costly
  - d) None of the above
18. **A disadvantage of longer setup time for a gel treatment is**
- a) condensation
  - b) evaporation
  - c) dilution
  - d) dispersion
19. **The main parameter of gel treatment is**
- a) injection-time viscosity
  - b) density of the treatment
  - c) the setup time
  - d) All of the above
20. **To design effective get treatment, a problem to be considered is**
- a) the source of the water problem
  - b) permeability trends
  - c) pore size distribution
  - d) All of the above

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