



PETRODICE ACADEMY

Head office: Hyderabad Branch

Topic: Weekly Test-II

Time Allowed: 45 Min

Maximum Marks: 25

Read the following instructions carefully.

01. (i) Question Numbers 01 to 05 (05 questions) will carry one mark each.
(ii) Question Numbers 06 to 15 (10 questions) will carry two marks each.
02. **Wrong answers carry 33% negative marks. In Q. 01 to Q.05, 1/3 mark will be deducted for each wrong answer and in Q. 06 to Q.15, 2/3 mark will be deducted for each wrong answer. However, there is no negative marking for numerical answer Type questions.**

GROUP – I

Each question carries ONE mark

$$5 \times 1 = 5$$

1. Which one of the following parameters is measured using routine core analysis (RCA)?
- (A) Porosity
(B) Relative permeability
(C) Capillary pressure
(D) Wettability
2. For water depth less than 8 m. which one of the following drilling vessels is the most suitable and economical?
- (A) Semi –submersible rig
(B) Jack-up rig
(C) Drilling barges
(D) Drill ship
3. Which one of the following phenomena encountered during flooding is desirable for increasing oil recovery from a reservoir?
- (A) Viscous fingering
(B) Formation damage
(C) Increase in mobility ratio
(D) Decrease in capillary pressure

4. A sucker rod pump unit is designated by C-228D-200-74. Here, 'D' represents
- (A) Double reduction gear box.
(B) Diameter of sucker rod.
(C) Diameter of plunger.
(D) Stroke length.

5. For an effective hydraulically-fractured well, the skin factor would GENERALLY be
- (A) Negative.
(B) Positive.
(C) Zero.
(D) Indeterminate.

GROUP – II

Each question carries TWO mark

$$10 \times 2 = 20$$

1. Which one of the following options is **NOT** a part of the mud logs prepared by the drill-site geologist?

- (A) Rate of Penetration (ROP)
- (B) Chromatograph showing presence of C1 to C5 concentration
- (C) Lithology from drill cutting and its interpretation
- (D) Reservoir unit delineation based on volume of shale (Vsh)

2. In sonic logging, the sonic velocities in the formation and drilling mud are 50,000 ft/s and 500 ft/s, respectively.

The critical angle is ____ radians.

3. ____ is a mode of flame propagation in a per-mixed gas and drives a leading shock front into the quiescent unburnt gas at the supersonic velocity, immediately followed by a combustion zone.

- (A) Deflagration
- (B) Fire
- (C) Detonation
- (D) Ignition

4. The porosities of cubic and hexagonal packing's, respectively, are

- (A) 47.6% and 25.9%.
- (B) 39.5% and 29.5%.
- (C) 47.6% and 39.5%.
- (D) 39.5% and 25.9%.

5. Exponential decline curve is to be used to estimate the oil reserves of a well. The current oil production rate is 1000 m^3 per day and yearly decline rate is 6% per year. If the minimum oil flow rate economically sustainable for the well is 1 m^3 per day, the reserves (economically producible) associated with the well are $___ \times 10^6 \text{ m}^3$. (Rounded-off to two decimal places. Use 1 year = 365 days)

6. In an oil reservoir, the residual oil saturation in the volume flooded with polymer solution is 20%. The initial water saturation is 20%. The volumetric sweep efficiency is 50%. The maximum possible recovery factor for the reservoir is _____% (round off to 1 decimal place).

7. During a production test in an oil reservoir, the oil production rate is 200 STB/day. The producing gas oil ratio (GOR) is 800 SCF/STB and dissolved GOR is 200 SCF/STB. The formation volume factor of gas is 0.01 ft³/SCF and the formation volume factor of oil is 1.2 reservoir-bbl/STB.

The down-hole GOR is _____ ft³/reservoir-bbl.

8. Bio-Gas (BG), Coal Bed Methane (CBM) and methane Gas Hydrate, if arranged in the order of increasing methane content, the correct order is:

- (A) BG, CBM, MGH
- (B) CBM, BG, MGH
- (C) CBM, MGH, BG
- (D) BG, MGH, CBM

9. The 'Klinkenberg effect' is related to

- (A) Viscous fingering during water flooding in oil reservoirs.
- (B) Hysteresis effect in relative permeability during drainage and imbibition process.
- (C) Oil viscosity dependence on temperature.
- (D) Slippage of gas phase at the sand grain surface.

10. For a floating vessel, match the **CORRECT** pairs from Group 1 and Group 2 among the options given below. (B = Centre of buoyancy; G = Centre of gravity and M = Metacentre)

Group 1

- P. M is above G
- Q. M is below G
- R. M is coinciding with G
- S. B is below G

Group 2

- I. Stable equilibrium condition
- II. Critically stable condition
- III. Unstable condition

- (A) P-II, Q-III, R-I and S-II
- (B) P-I, Q-III, R-II and S-I
- (C) P-III, Q-I, R-II and S-III
- (D) P-I, Q-II, R-III and S-I