



C20-PET-505

7670

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER / NOVEMBER—2023

DPET – FIFTH SEMESTER EXAMINATION

OIL AND GAS PRODUCTION ENGINEERING

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Write a short note on petroleum production system.
2. Write the functions of well head.
3. What are slightly compressible fluids?
4. Write a short note on steady state flow.
5. Write a short note on LPR for two phase reservoirs.
6. What is inflow performance relationship?
7. Define choke performance.
8. Write a short note on temperature at choke.
9. Write a short note on steady flow period.
10. What is transient flow in oil production?

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain about classification of reservoirs.

(OR)

(b) What is separator? Explain the types of separators.

12. (a) Explain briefly about Darcy's law.

(OR)

(b) Explain the types of flow regimes.

13. (a) Explain TPR for single phase liquid flow.

(OR)

(b) Explain multi phase flow in reservoir deliverability.

14. (a) Explain about choke performance for single phase gas flow.

(OR)

(b) Explain about sonic and subsonic flow.

15. (a) Explain about exponential decline analysis.

(OR)

(b) Write the oil production during steady flow period.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Explain about LPR for single-phase reservoirs and calculate the productivity index for a vertical well in an oil reservoir. Consider (i) transient flow at 1 month and (ii) steady state flow. The following data is given below :

Porosity (ϕ)	=	0.19
Effective horizontal permeability (k)	=	8.2 md
Pay zone thickness (h)	=	53 ft
Reservoir Pressure (P_e or p)	=	5,651 psia
Bubble point pressure (P_b)	=	50 psia
Fluid formation volume factor (B_o)	=	1.1
Fluid viscosity (μ_o)	=	1.7 cp
Total compressibility (C_t)	=	0.0000129 psi ⁻¹
Drainage area (A)	=	640 acres
Radius (R_e)	=	2980 ft
Wellbore radius (R_w)	=	0.328 ft
Skin factor (S)	=	0

★★★