

ملاحظات:

1. يسمح باستعمال منهج المقرر (امتحان مفتوح)
2. يجب تسليم ورقة الاسئلة مع كراسة الاجابة

Question 1:**(30 points)**

A Draw down test has been applied to gas well with a constant flow rate of 3900 Mscf/D. Determine the bottom hole flowing pseudo-pressure (psia^2/cp) after 10 hrs of the test using pseudo-pressure technique.

$m(P_i) = 1.69 \times 10^9 \text{ psia}$

$r_w = 0.333 \text{ ft}$

$r_e = 550 \text{ ft}$

$k = 15 \text{ md}$

$\phi = 10\%$

$h = 30 \text{ ft}$

$T = 250 \text{ }^\circ\text{F}$

$\gamma_g = 0.76$

$S = 2 \text{ (mechanical skin)}$

$C_t = C_g$

Question 2:**(15 points)**

The following test data are available

Q_g , MMscf/D	P_{wf} , Psia
0	4900
1.38	4460
1.6	4291
2.07	3865
2.38	3530

Calculate the AOF using pressure squared method, Houpeurt analysis technique and pressure squared approach both graphically and numerically.

Question 3:**(15 points)**

Given the viscosity and gas deviation factor data of gas which has a specific gravity of 0.8, estimate the pseudo-pressure function, $m(p)$.

P (psi)	μ_g (cp)	Z
0	0.0127	1
400	0.01286	0.937
1200	0.0153	0.832

Good Luck