Variant 1

1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - $3 \cdot 10^7$ m^2, effective oil-saturated reservoir thickness - 12 m, open porosity coefficient - 0.14, oil saturation - 0.75, oil formation volume factor - 1.5, degassed oil density - 850 kg/m^3, solution gas-oil ratio - 85 m^3/m^3.
2. Determine how many liquid will be produced by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius R=3 km, if oil-saturated reservoir thickness is h=30 m, initial reservoir pressure – $P_{init.}$= 22 MPa, bubble point pressure – P_b= 17 MPa, oil dynamic viscosity coefficient – μ =2.2 mPa·s, reservoir of permeability –k= 0.2 D, piezoconductance coefficient – κ=0.3 m^2/s.

Variant 2

1. Determine the cumulative oil production from deposits for the data: oil productive area - $9 \cdot 10^7$ m^2, effective oil-saturated thickness - 13m, open porosity coefficient - 0.15, initial oil saturation - 0.76, oil formation volume factor - 1.2, degassed oil density - 840 kg / m3, oil recovery factor - 0.7.
2. Determine the cumulative oil production from deposits to be achieved by elastic forces while reducing the average reservoir pressure on 8,8 MPa for the following data: oil productive area - $7 \cdot 10^6 m^2$, the effective thickness – 28 m, porosity coefficient - 0.17, oil elasticity coefficient – $1{,}6 \cdot 10^{-9}$ Pa^{-1}, water elasticity coefficient – $3{,}06 \cdot 10^{-10}$ Pa^{-1},initial oil saturation – 0,75. Oil layer is not deformed.

Variant 3

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 6 km, effective oil-saturated thickness - 15m, open porosity coefficient - 0.16, initial oil saturation - 0.75, oil formation volume factor - 1.15, degassed oil density - 850 kg / m^3, oil density-630 kg / m^3.
2. Determine oil recovery factor to be achieved by elastic forces while reducing the average reservoir pressure on 3 MPa for the following data: the effective thickness - 18 m, porosity coefficient - 0.13, liquid elasticity

coefficient – $2{,}7 \cdot 10^{-10}$ Pa^{-1}, rock elasticity coefficient – $2 \cdot 10^{-10}$ Pa^{-1}, initial oil saturation – 0,78 the radius of the initial oil saturation -20000m.

Variant 4

1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - $2 \cdot 10^8$ m^2, effective oil-saturated reservoir thickness - 15 m, open porosity coefficient - 0.15, oil saturation - 0.75, oil formation volume factor - 1.4, degassed oil density - 875 kg/m^3, solution gas-oil ratio - 80 m^3/m^3.
2. Determine oil recovery factor which will be achieved by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius -18000 m and aquifer zone radius -47 000 m if oil-saturated reservoir thickness is 17 m, open porosity coefficient- 0.13, initial oil saturation - 0.75, oil elasticity coefficient - $2 \cdot 10^{-9}$ Pa^{-1}, rock elasticity coefficient - $2 \cdot 10^{-10}$ Pa^{-1}, water elasticity coefficient – $4{,}1 \cdot 10^{-10}$ Pa^{-1}, initial reservoir pressure - 42 MPa, bubble point pressure - 39 MPa.

Variant 5

1. Determine the cumulative oil production from deposits for the data: oil productive area – $5.6 \cdot 10^7$ m^2, effective oil-saturated thickness - 13m, open porosity coefficient - 0.12, initial oil saturation - 0.8, oil formation volume factor - 1.2, degassed oil density - 850 kg / m3, oil recovery factor - 0.6.
2. Determine oil recovery factor to be achieved by elastic forces while reducing the average reservoir pressure on 5 MPa for the following data: the effective thickness - 15 m, porosity coefficient - 0.13, liquid elasticity coefficient – $2{,}7 \cdot 10^{-10}$ Pa^{-1}, rock elasticity coefficient –

$2 \cdot 10^{-10}$ Pa^{-1}, initial oil saturation – 0,78 the radius of the initial oil saturation -20000m.

Variant 6

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 7 km, effective oil-saturated thickness - 15m, open porosity coefficient - 0.17, initial oil saturation -

0.75, oil formation volume factor - 1.16, degassed oil density - 850 kg / m^3, oil density-620 kg/m^3.

2. Determine how many liquid will be produced by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius R=3 km, if oil-saturated reservoir thickness is h=30 m, initial reservoir pressure – $P_{init.}$= 22 MPa, bubble point pressure – P_b= 17 MPa, oil dynamic viscosity coefficient – μ =2.2 mPa·s, reservoir of permeability –k= 0.2 D, piezoconductance coefficient – κ=0.3 m^2/s.

Variant 7

1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - 2·10 m^2, effective oil-saturated reservoir thickness - 14 m, open porosity coefficient - 0.14, oil saturation - 0.75, oil formation volume factor - 1.3, degassed oil density - 850 kg/m^3, solution gas-oil ratio - 90 m^3/m^3.

2. Determine how many liquid will be produced by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius R=3.2 km, if oil-saturated reservoir thickness is h=25 m, initial reservoir pressure – $P_{init.}$= 22 MPa, bubble point pressure – P_b= 17 MPa, oil dynamic viscosity coefficient – μ =2.2 mPa·s, reservoir of permeability –k= 0.2 D, piezoconductance coefficient – κ=0.3 m^2/s.

Variant 8

1. Determine the cumulative oil production from deposits for the data: oil productive area - 9·10^7 m^2, effective oil-saturated thickness - 15m, open porosity coefficient - 0.14, initial oil saturation - 0.76, oil formation volume factor - 1.3, degassed oil density - 840 kg / m3, oil recovery factor - 0.56.
2. Determine the cumulative oil production from deposits to be achieved by elastic forces while reducing the average reservoir pressure on 8,8 MPa for the following data: oil productive area - 6·$10^6$$m^2$, the effective thickness – 28 m, porosity coefficient - 0.15, oil elasticity coefficient –

$1{,}58 \cdot 10^{-9}$ Pa^{-1}, water elasticity coefficient – $3{,}06 \cdot 10^{-10}$ Pa^{-1},initial oil saturation – 0,75. Oil layer is not deformed.

Variant 9

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 8 km, effective oil-saturated thickness - 16m, open porosity coefficient - 0.16, initial oil saturation - 0.8, oil formation volume factor - 1.15, degassed oil density - 830 kg / m3, oil density-640 kg / m3.
2. Determine oil recovery factor to be achieved by elastic forces while reducing the average reservoir pressure on 5 MPa for the following data: the effective thickness - 15 m, porosity coefficient - 0.13, liquid elasticity coefficient – $2{,}7 \cdot 10^{-10}$ Pa^{-1}, rock elasticity coefficient –

$2 \cdot 10^{-10}$ Pa^{-1}, initial oil saturation – 0,78 the radius of the initial oil saturation -20000m.

Variant 10

1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - $2 \cdot 10$ m^2, effective oil-saturated reservoir thickness - 14 m, open porosity coefficient - 0.14, oil saturation - 0.75, oil formation volume factor - 1.3, degassed oil density - 850 kg/m^3, solution gas-oil ratio - 90 m^3/m^3.

2. Determine the cumulative oil production from deposits to be achieved by elastic forces while reducing the average reservoir pressure on 8,8 MPa for the following data: oil productive area – $5{,}7 \cdot 10^6 m^2$, the effective thickness – 30 m, porosity coefficient - 0.15, oil elasticity coefficient – $1{,}58 \cdot 10^{-9}$ Pa^{-1}, water elasticity coefficient – $3{,}06 \cdot 10^{-10}$ Pa^{-1},initial oil saturation – 0,75. Oil layer is not deformed.

Variant 11

1. 1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - $2{,}5 \cdot 10^7$ m^2, effective oil-saturated reservoir thickness - 15 m, open porosity coefficient - 0.12, oil saturation - 0.78, oil formation volume factor - 1.5, degassed oil density - 845 kg/m^3, solution gas-oil ratio - 87 m^3/m^3.

2. Determine oil recovery factor which will be achieved by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius -18000 m and aquifer zone radius -47 000 m if oil-saturated reservoir thickness is 17 m, open porosity coefficient- 0.13, initial oil saturation - 0.75, oil elasticity coefficient - $2 \cdot 10^{-9}$ Pa^{-1}, rock elasticity coefficient - $2 \cdot 10^{-10}$ Pa^{-1}, water elasticity coefficient – $4{,}1 \cdot 10^{-10}$ Pa^{-1}, initial reservoir pressure - 42 MPa, bubble point pressure - 39 MPa.

Variant 12

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 6.5 km, effective oil-saturated thickness - 12m, open porosity coefficient - 0.17, initial oil saturation - 0.75, oil formation volume factor - 1.16, degassed oil density - 850 kg / m^3, oil density-620 kg/m^3.
2. Determine the cumulative oil production from deposits to be achieved by elastic forces while reducing the average reservoir pressure on 8,8 MPa for the following data: oil productive area - $7 \cdot 10^6 m^2$, the effective thickness – 28 m, porosity coefficient - 0.17, oil elasticity coefficient – $1{,}6 \cdot 10^{-9}$ Pa^{-1}, water elasticity coefficient – $3{,}06 \cdot 10^{-10}$ Pa^{-1},initial oil saturation – 0,75. Oil layer is not deformed.

Variant 13

1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - $2 \cdot 10$ m^2, effective oil-saturated reservoir thickness - 15 m, open porosity coefficient - 0.15, oil saturation - 0.75, oil formation volume factor - 1.4, degassed oil density - 875 kg/m^3, solution gas-oil ratio - 80 m^3/m^3.
2. Determine the cumulative oil production from deposits to be achieved by elastic forces while reducing the average reservoir pressure on 8,8 MPa for the following data: oil productive area – $5{,}7 \cdot 10^6 m^2$, the effective thickness – 30 m, porosity coefficient - 0.15, oil elasticity coefficient – $1{,}58 \cdot 10^{-9}$ Pa^{-1}, water elasticity coefficient – $3{,}06 \cdot 10^{-10}$ Pa^{-1},initial oil saturation – 0,75. Oil layer is not deformed.

Variant 14

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 7 km, effective oil-saturated thickness - 15m, open porosity coefficient - 0.17, initial oil saturation - 0.75, oil formation volume factor - 1.16, degassed oil density - 850 kg / m^3, oil density-620 kg/m^3.
2. Determine the cumulative oil production from deposits to be achieved by elastic forces while reducing the average reservoir pressure on 8,8 MPa for the following data: oil productive area - $6 \cdot 10^6 m^2$, the effective thickness – 28 m, porosity coefficient - 0.15, oil elasticity coefficient – $1{,}58 \cdot 10^{-9}$ Pa^{-1}, water elasticity coefficient – $3{,}06 \cdot 10^{-10}$ Pa^{-1},initial oil saturation – 0,75. Oil layer is not deformed.

Variant 15

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 8 km, effective oil-saturated thickness - 16m, open porosity coefficient - 0.16, initial oil saturation - 0.8, oil formation volume factor - 1.15, degassed oil density - 830 kg / m3, oil density-640 kg / m3.
2. Determine oil recovery factor which will be achieved by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius -18000 m and aquifer zone radius -47 000 m if oil-saturated reservoir thickness is 17 m, open porosity coefficient- 0.13, initial oil saturation - 0.75, oil elasticity coefficient - $2 \cdot 10^{-9}$ Pa^{-1}, rock elasticity coefficient - $2 \cdot 10^{-10}$ Pa^{-1}, water elasticity coefficient – $4{,}1 \cdot 10^{-10}$ Pa^{-1}, initial reservoir pressure - 42 MPa, bubble point pressure - 39 MPa.

Variant 16

1. Determine initial oil reserves in the field for reservoir and surface conditions for the data: reservoir radius 8 km, effective oil-saturated thickness - 16m, open porosity coefficient - 0.16, initial oil saturation - 0.8, oil formation volume factor - 1.15, degassed oil density - 830 kg / m3, oil density-640 kg / m3.

2. Determine how many liquid will be produced by volumetric expansion drive for radial field development with initial oil-saturated reservoir radius R=3 km, if oil-saturated reservoir thickness is h=30 m, initial reservoir pressure – $P_{init.}$= 22 MPa, bubble point pressure – P_b= 17 MPa, oil dynamic viscosity coefficient – μ =2.2 mPa·s, reservoir of permeability –k= 0.2 D, piezoconductance coefficient – κ=0.3 m^2/s.

Variant 17

1. Determine the initial oil and petroleum gas reserves in the field for the following data: oil productive area - $3 \cdot 10^7$ m^2, effective oil-saturated reservoir thickness - 12 m, open porosity coefficient - 0.14, oil saturation - 0.75, oil formation volume factor - 1.5, degassed oil density - 850 kg/m^3, solution gas-oil ratio - 85 m^3/m^3.
2. Determine oil recovery factor to be achieved by elastic forces while reducing the average reservoir pressure on 5 MPa for the following data: the effective thickness - 15 m, porosity coefficient - 0.13, liquid elasticity coefficient – $2,7 \cdot 10^{-10}$ Pa^{-1}, rock elasticity coefficient –

$2 \cdot 10^{-10}$ Pa^{-1}, initial oil saturation – 0,78 the radius of the initial oil saturation -20000m.