Carbon Energy (탄소에너지)
(Course Number: 38523)

- 2023 Midterm Examination -

Student ID: **Student Name:**

Notice

- Fill your name in the following:

  "I, _____, swear I solve all problems by myself in this midterm examination.

  I will take any disadvantages if any dishonesty such as cheating is acted on my solution."

  <u>5 points will be deducted from your total score if you do not fill in your name above.</u>

<u>Problem 1.</u>

Give the full name of each acronym below [1 pt./each]:

1-1.   API

1-2.   EUR

1-3.   EOR

1-4.   SPE

1-5.   GOC

1-6.   OWC

1-7.   NPV

1-8.   IRR

1-9.   PBP

1-10. ROI

1-11. PSC

1-12. GIIP

1-13. OIIP

1-14. RF
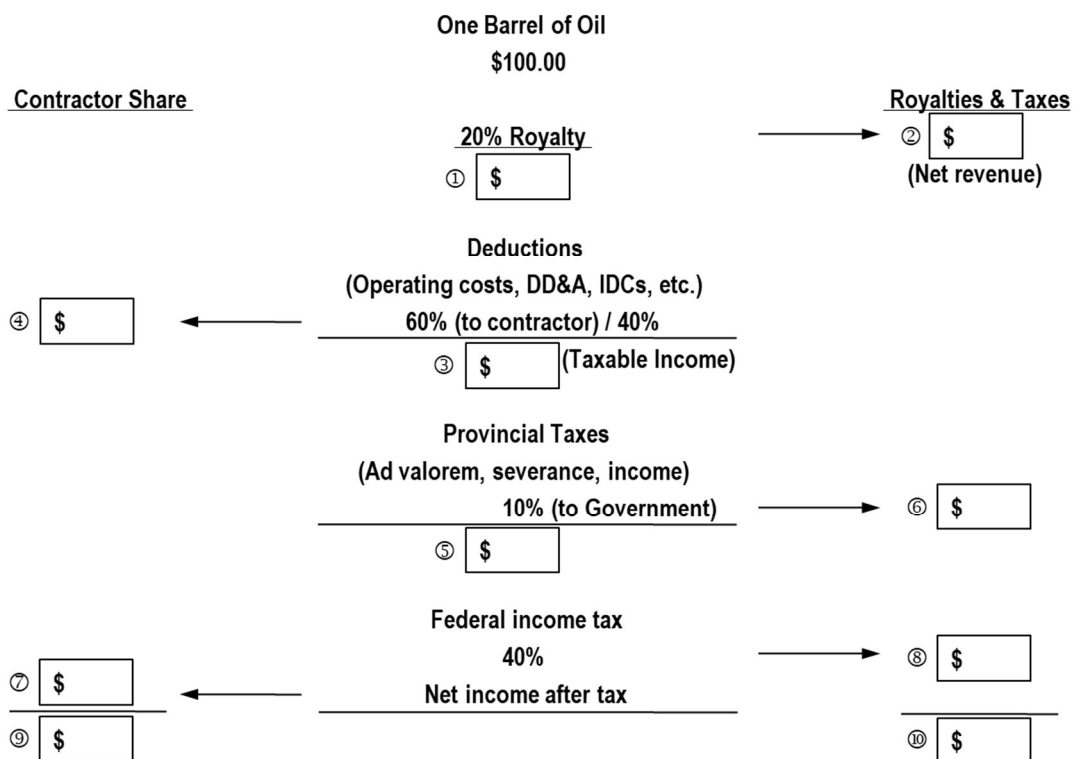
1-15. ROP

1-16. LCM

1-17. BOP

1-18. P&A

1-19. WH

1-20. BH

Problem 2.

Describe a petroleum system with seven essential components. [14 pts.]

Problem 3.

Below is a flow diagram of concessionary system (i.e., royalty-tax system). Oil price is assumed as $100/STB. Fill in the blanks from ① to ⑩ [10 pts.].

One Barrel of Oil
$100.00

Contractor Share

Royalties & Taxes

20% Royalty
① $ [   ]

② $ [   ]
(Net revenue)

Deductions
(Operating costs, DD&A, IDCs, etc.)
60% (to contractor) / 40%

④ $ [   ]

③ $ [   ] (Taxable Income)

Provincial Taxes
(Ad valorem, severance, income)
10% (to Government)

⑥ $ [   ]

⑤ $ [   ]

Federal income tax
40%
Net income after tax

⑦ $ [   ]

⑧ $ [   ]

⑨ $ [   ]

⑩ $ [   ]

Problem 4.

The figure below shows regional oil production and consumption pattern in 2022 (Source: Energy Institute, 2023, *Statistical Review of World Energy 2023*).
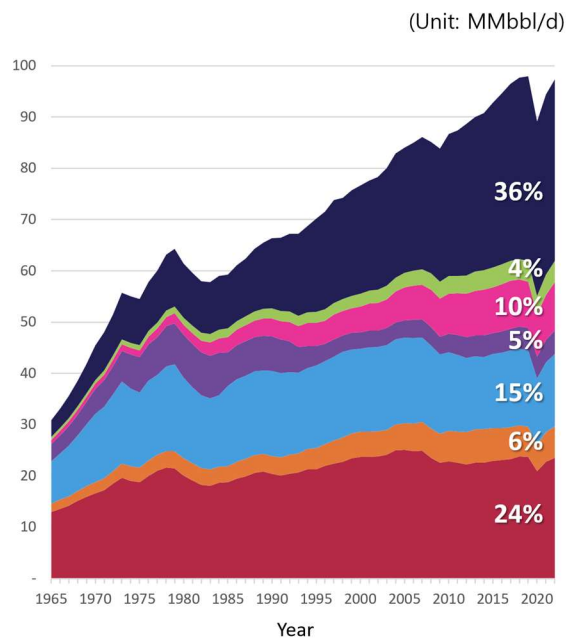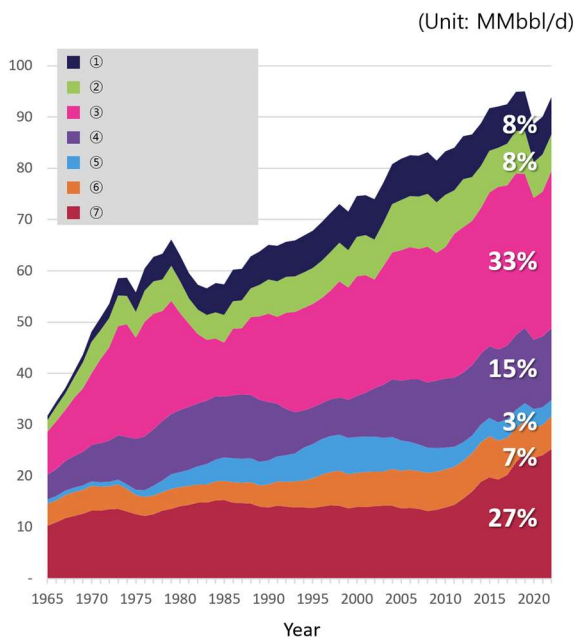
What are the names of regions from ① to ⑦?

You can select the names from the below [14 pts.].

[Africa, Asia Pacific, CIS, Europe, Middle East, North America, and South & Central America]
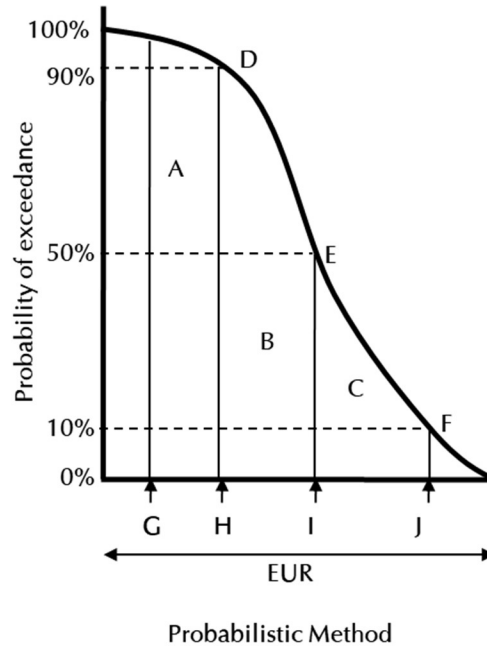
❏ **Oil production by region**

(Unit: MMbbl/d)

❏ **Oil consumption by region**

(Unit: MMbbl/d)

(Source : Energy Institute, Statistical Review of World Energy 2023)

Problem 5.

Below is a graph for reserve estimation based on a probabilistic method. Provide appropriate names from A to J. [20 pts.].

Probabilistic Method

Problem 6.

Compare primary, secondary, and tertial oil recoveries with **TECHNICAL TERMS**. You **MUST** give a number to each term. You will be given 1 point for each term, if appropriate. Therefore, 20 is the maximum point you can earn from this problem. [20 pts.].

Example) A ① production well is composed of ② casings and ③ tubing. …

Problem 7.

According to SPE, describe standard conditions for temperature and pressure in petroleum industry [2 pts.].

-------------------- This is the End of the Midterm Examination --------------------