

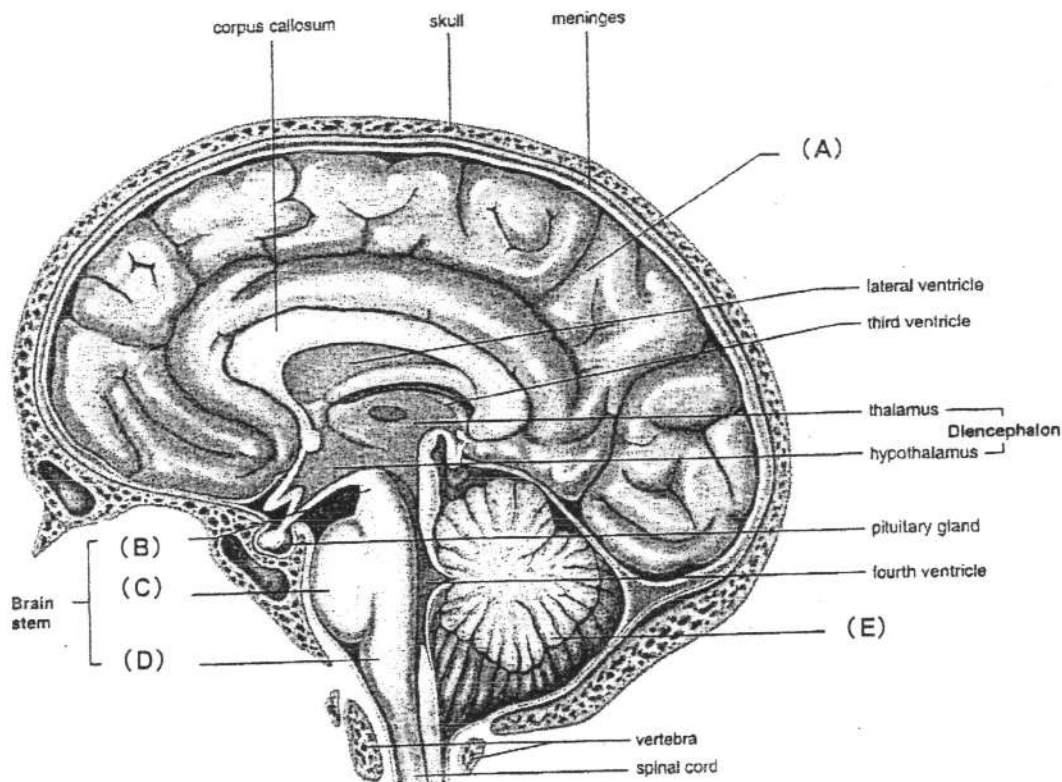
問 1: 以下の 1 から 10 の和文の英訳を A-J の中から選べ。

- | | |
|---------|-------|
| 1. 角膜 | (G) |
| 2. 虹彩 | (A) |
| 3. 瞳孔 | (C) |
| 4. 前房水 | (D) |
| 5. 視神経 | (H) |
| 6. 錐体細胞 | (E) |
| 7. 網膜 | (J) |
| 8. 乱視 | (I) |
| 9. 盲点 | (F) |
| 10. 緑内障 | (B) |

A: iris, B: glaucoma, C: pupil, D: aqueous humor, E: cone cell, F: blind spot,
G: cornea, H: optic nerve, I: astigmatism, J: retina,

問 2: A~E の空欄に当てはまる脳の解剖学的名称を日本語と英語で記載せよ。

- | | | | | | |
|----------|----|---|------|-------------------|---|
| A: 日本語 (| 大脳 |) | 英語 (| cerebrum |) |
| B: 日本語 (| 中脳 |) | 英語 (| midbrain |) |
| C: 日本語 (| 橋 |) | 英語 (| pons |) |
| D: 日本語 (| 延髄 |) | 英語 (| medulla oblongata |) |
| E: 日本語 (| 小脳 |) | 英語 (| cerebellum |) |



問 3 :

1. 中耳に存在するものをすべて選べ。

- (1) malleus ○ 錘骨
- (2) vestibule × 前庭
- (3) semicircular canals × 半規管
- (4) stapes ○ 鐸骨
- (5) incus ○ 砧骨

2. 耳の解剖について問う。外側から内側へ向かう順番が合っているものをすべて選べ。

- (1) auditory canal - tympanic membrane - cochlea ×
- (2) malleus - incus - stapes ○
- (3) malleus - auditory tube - pinna ×
- (4) cochlear nerve - round window - facial nerve ×
- (5) semicircular canal - oval window - vestibular nerve ○ ← 微妙...

3. organ of Corti を構成するものは以下のうちどれかすべて選べ

- (1) hair cell ○ 有毛細胞
- (2) stereocilia ○ 不動毛
- (3) tectorial membrane ○ 蓋膜
- (4) oval window × 卵円窓
- (5) auditory tube × 耳管

4. vestibule に存在するものをすべて選べ。

- (1) otoliths 耳石
- (2) hair cell 有毛細胞
- (3) spiral ganglion ラセン神経節
- (4) round window ○ 円窓
- (5) pinna × 耳介

問 4 : もっとも関連するホルモンを一つ選びなさい。

- 1. Pituitary gland 下垂体
 - a. prolactin b. insulin c. estrogen d. parathyroid hormone e. calcitonin
- 2. Calcium homeostasis (
 - a. prolactin b. insulin c. estrogen d. parathyroid hormone e. thyroxine
- 3. ACTH
 - a. parathyroid hormone b. ADH c. cortisol d. adrenaline e. thyroxine
- 4. Acromegaly 先端肥大症
 - a. thyroxine b. ADH c. cortisol d. adrenaline e. growth hormone
- 5. Cushing's syndrome クッシング症候群
 - a. growth hormone b. cortisol c. ADH d. adrenaline e. vthyroxine

問 5 : Choose the best term for each definition.

- 1. (h) Bacterial enzyme that stops viral reproduction by cleaving viral DNA; used to cut DNA at specific points during production of recombinant DNA.
- 2. (c) DNA that has been synthesized from mRNA by the action of reverse transcriptase.
- 3. (i) During transcription, an enzyme that joins nucleotides complementary to a DNA template.
- 4. (d) Enzyme that links DNA fragments; used during production of rDNA to join foreign DNA to vector DNA.
- 5. (c) Synthesis of a new DNA double helix prior to mitosis and meiosis in eukaryotic cells and during prokaryotic fission in prokaryotic cells.
- 6. (b) Production of identical copies; can be either the production of identical individuals or, in genetic engineering, the production of identical copies of a gene.
- 7. (g) String of ribosomes simultaneously translating regions of the same mRNA strand during protein synthesis.
- 8. (f) Type of RNA formed from a DNA template that bears coded information for the amino acid

sequence of a polypeptide.

9. (c) Three-base sequence in a tRNA molecule base that pairs with a complementary codon in mRNA.
10. (j) Process whereby a DNA strand serves as a template for the formation of mRNA.

- (a) anticodon, (b) cloning, (c) complementary DNA (cDNA),
 (d) DNA ligase, (e) DNA replication, (f) messenger RNA (mRNA),
 (g) polyribosome, (h) restriction enzyme, (i) RNA polymerase,
 (j) transcription

問 6: 説明文を表す語句を () 内に英語と日本語で書きなさい。

- 説明文: Repeating sequence of cellular events that consists of interphase, mitosis, and cytokinesis
 英語: (cell cycle) 日本語: (細胞周期)
- 説明文: Constriction where sister chromatids of a chromosome are held together
 英語: (centromere) 日本語: (動原体)
- 説明文: Cell cycle stage during which growth and DNA synthesis occur when the nucleus is not actively dividing
 英語: (interphase) 日本語: (間期)
- 説明文: Type of nuclear division that occurs as part of sexual reproduction in which the daughter cells receive the haploid number of chromosomes in varied combinations
 英語: (meiosis) 日本語: (減数分裂)
- 説明文: Movement of a chromosomal segment from one chromosome to another nonhomologous chromosome
 英語: (translocation) 日本語: (転座)
- 説明文: One more chromosome than usual
 英語: (trisomy) 日本語: (トリソミー)
- 説明文: Diploid cell formed by the union of sperm and egg; the product of fertilization
 英語: (zygote) 日本語: (接合子)
- 説明文: Failure of homologous chromosomes or daughter chromosomes to separate during meiosis I and meiosis II, respectively
 英語: (nondisjunction) 日本語: (不分離)
- 説明文: Particular site where a gene is found on a chromosome
 英語: (genetic locus) 日本語: (遺伝子座)
- 説明文: Visible expression of a genotype – for example, brown eyes or attached earlobes
 英語: (phenotype) 日本語: (表現型)
- 説明文: Possessing unlike alleles for a particular trait
 英語: (heterozygous) 日本語: (ヘテロ接合)
- 説明文: Exchange of segments between nonsister chromatids of a tetrad during meiosis
 英語: (crossing-over) 日本語: (乗換え)
- 説明文: Alternative forms of a gene that occur at the same locus on homologous chromosomes
 英語: (allele) 日本語: (対立遺伝子)
- 説明文: Haploid sex cell; the egg or a sperm, which join in fertilization to form a zygote
 英語: (gamete) 日本語: (配偶子)
- 下記の文章の [] 内に適切な数字を記入しなさい。
 間期細胞 (但し S 期と G2 期を除く) の染色体数を $2n$, DNA 量を $2C$ と記載した場合,
 染色体を観察することのできる細胞に含まれている染色体数は [2] n , DNA 量は [4]
 C である。

問 7:

- 次の () に当てはまる語句を英語で書きなさい。
 - (Carcinomas) originate in epithelial tissues.
 - (Sarcomas) originate in muscle and connective tissues.

3. (Leukemias) originate in blood.
4. (Lymphomas) originate in lymphatic tissue.
5. Cancer cells lack (differentiation) and do not contribute function.

2. 次の定義に当てはまる語句を英語で書きなさい。

6. End of chromosome that prevents it from binding to another chromosome; normally gets shorter with each cell division. (telomere)
7. Environmental agent that contributes to the development of cancer. (carcinogen)
8. Normal gene involved in cell growth and differentiation that becomes an oncogene through mutation. (proto-oncogene)
9. Formation of new blood vessels, such as a capillary network. (angiogenesis)
10. Spread of cancer from the place of origin to throughout the body; caused by the ability of cancer cells to migrate and invade tissues. (metastasis)

問 8 :

1. 以下の単語の日本語訳を記入しなさい。

- | | | | |
|---------------------|-------|-------------------------------|---------|
| (1) homeostasis | 恒常性 | (2) life span and health span | 寿命と健康寿命 |
| (3) diabetes type 2 | 2型糖尿病 | (4) andropause | 男性更年期 |
| (5) incontinence | 失禁 | (6) osteoporosis | 骨粗鬆症 |
| (7) prostate gland | 前立腺 | (8) gerontology | 老年学 |
| (9) menopause | 閉経 | (10) autoimmune disease | 自己免疫疾患 |

2. The following sentences describe the human reproduction, development, and aging.

Mark ○ (circle) in parentheses if they are correct, and X (cross) if they are wrong.

- (11) (X) Early development of a human embryo proceeds in the following order.
morula → blastula → neurula → gastrula
- (12) (X) Pregnancy tests are based on the fact that estrogen is present in the blood and urine of a pregnant woman.
- (13) (X) Endoderm becomes nervous system, the lining of the digestive and respiratory tracts and associated organs.
- (14) (○) The extraembryonic membranes include the chorion, the amnion, the yolk sac, and allantois.
- (15) (○) Blood of the mother and the fetus never mix in the placenta since exchange always takes place across plasma membranes.

問 9 : 以下の文章で正しいものに○を、正しくないものは×をつけよ。

1. 胸腔は腹腔と連続している。○
2. ギナドトロピンは視床下部で産生される。×
3. 正常な月経周期を有する女性の基礎体温の高温層は通常2週間である。○
4. エストロゲンは子宮内膜の増殖を抑制する。×
5. 排卵から着床までは通常2週間かかる。○

(排卵後約12日で着床が完了)