8. Which one is the **final product of fatty acid** biosynthesis in ***de novo*** pathway.
(A) oleic acid (B) myristic acid (C) palmitic acid
(D) stearic acid (E) linoleic acid

9. Which one of the following statements about the **Ramachandran plot** is **correct**.
(1) To describe the secondary structure of proteins.
(2) To describe the tertiary structure of proteins.
(3) To find the dihedral angles of phi, omega and psi in peptides.
(4) To find glycine residue in allowed region.
(A) 1, 2 (B) 2, 3 (C) 1, 3 (D) 1, 3, 4 (E) 2, 3, 4

10. Which of the following are **optical inactive**:
(1) Methionine; (2) Glycine; (3) Isoleucine; (4) Glyceraldehyde;
(5) Dihydroxyacetone
(A) 1, 2 (B) 2, 3 (C) 3, 4 (D) 2, 5 (E) 3, 5

11. Which the following dehydrogenase (DeH) can generate the **FADH2**:
(1) acyl-CoA DeH; (2) 3-hydroxyl-acyl-CoA DeH; (3) malate DeH;
(4) succinate DeH; (5) cytosolic glycerol 3-phosphate DeH;
(6) mitochondrial glycerol 3-phosphate DeH
(A) 1, 2, 3 (B) 1, 3, 4 (C) 1, 3, 6 (D) 1, 4, 6 (E) 2, 3, 6

12. Which of the following pathways can find the **intervention of the malate** :
(1) Gluconeogenesis; (2) Aspartate-Argininosuccinate shunt;
(3) Glyceroneogenesis; (4) Glyoxylate cycle; (5) Acetyl group shuttle
(A) 1, 2, 3 (B) 2, 3, 4 (C) 2, 4, 5 (D) 1, 2, 5,
(E) All of the above

13. Which processes are **NAD^+ -dependent reactions**:
(1) DNA ligation by eukaryotic DNA ligase;
(2) DNA ligation by DNA ligase in *E. coli*;
(3) ADP-ribosylation of eEF-2 by diphtheria toxin;
(4) ADP-ribosylation of α subunit in Gs (G-protein, stimuli form) by cholera toxin;
(5) Deacetylation of histone 4 (H4) by human sirtuin1 (Sirt1)
(A) 1, 2, 3 (B) 2, 3, 4 (C) 3, 4, 5 (D) 1, 3, 4, 5 (E) 2, 3, 4, 5

14. Which one of the followings is the **major one-carbon donor** to produce **N^5, N^{10}-methylene-tetrahydrofolate**:
(A) Alanine (B) Serine (C) Cysteine (D) Glycine (E) Choline

15. Which one of the following sequences is correct about the **electron transfer from NADH to O_2**:
(1) FMN; (2) Cu^{2+}; (3) CoQ; (4) cytochrome c; (5) cytochrome c_1;
(6) cytochrome b; (7) cytochrome a; (8) cytochrome a_3;
(A) 1, 2, 3, 4, 5, 6, 7, 8 (B) 1, 3, 4, 5, 6, 8, 7, 2
(C) 1, 3, 6, 4, 5, 7, 8, 2 (D) 1, 3, 6, 5, 4, 2, 7, 8,
(E) 1, 3, 6, 5, 4, 7, 8, 2

16. Which one of the followings can be as a **bacterial innate immune system**?
(A) CRISPR-Cas systems (B) two-component systems
(C) modification-restriction systems (D) A and B
(E) A and C