Written Q

1. Mention 4 characters of lipophilic hormones ?

2. Compare () lipophilic and hydrophilic hormones ?

3. Illustrate in diagram of CGMP as a second messenger ?

4. Mention mechanism of hormones binding to intracellular receptors ?

5. Mention mechanism of hormones binding to extracellular receptors ?

MCQ

1. Which one of the following hormones acts as a 1st messenger? *a) Catecholamine* *b) Cortisol* *c) Estrogen* *d) Thyroxin* *e) Progesterone*	***A***
2. Which one of the followings is used by Insulin as a second messenger? *a) Ca2+* *b) Cyclic adenosine monophosphate (cAMP)* *c) Cyclic guanosine monophosphate (cGMP)* *d) Phosphatidyl inositol* *e) Tyrosine kinase cascades*	***E***
3. Which one of the following hormone(s) bind(s) to cell membrane receptor? *a) catecholamines* *b) estrogen* *c) progesterone* *d) testosterone* *e) thyroxine*	***A***

4. Which one of the following hormones is Protein in nature? *a) Growth hormone* *b) Glucocorticoids* *c) Mineralocorticoids* *d) Sex hormones* *e) Melatonin*	***A***
5. Atrial natriuretic factor uses which one of the followings as a second messenger? *a) CAMP* *b) cGMP* *c) Ca2+* *d) Phosphatidyl inositol* *e) kinase cascades*	***B***
6. Which one of the followings is a water-soluble hormone? *a) Calcitriol* *b) Insulin* *c) Thyroid hormones* *d) Retinoids* ***e)** Steroids*	***B***
7. Which of these can pass easily through cell membrane of target cells and bind to internal receptors? *a) Thyroxine* *b) Adrenocorticotropic hormone* *c) Insulin* *d) Glucagon* *e) Follicle stimulating hormone*	***A***

8. A distinctive feature of the mechanism of action of thyroid hormones and steroid hormones is that: *a) These hormones affect metabolism.* *b) These hormones bind with specific receptor proteins on the plasma membrane of target cells.* *c) These hormones bind to receptors inside cells.* *d) Target cells react more rapidly to these hormones than to local regulators.* *e) These hormones are regulated by feedback loops.*	***C***
9. Thyroid hormone: *a) Contains hydrophobic 23-amino-acid leader sequence directs the molecule into the cisternae of the endoplasmic reticulum* *b) Synthesized from amino acid tyrosine* *c) Signal via activation of adenyl cyclase* *d) Signal by binding to cell membrane receptors* *e) Composed of A-B subunits*	***B***
10. Thyroid hormone is: *a) Amino acid derived hormone.* *b) Glycoprotein.* *c) Protein derived hormone.* *d) Steroid hormone.* *e) Fatty acid derived hormone.*	***A***
11. Which of the following hormones does not bind intracellular receptor: *a) Aldosterone* *b) Cortisol* *c) Estrogen* *d) Testosterone* *e) Insulin*	***E***

12. Which one of the followings is a water-soluble hormone? *a) Calcitriol* *b) Insulin* *c) Thyroid hormones* *d) Retinoids* *e) Steroids*	***B***
13. When an individual is subject to short-term starvation most available food is used to provide energy rather, than building blocks (growth and repair) using glucagon hormone, which enzyme would be particularly active in times of food shortage? *a) Adenyl cyclase* *b) Guanyl cyclase* *c) Phosphatase* *d) Protein kinase* *e) Tyrosine kinase*	***A***
14. Which one of the following is a glycoprotein hormone in nature? *a) Glucocorticoids* *b) Mineralocorticoids* *c) Progesterone* *d) Testosterone* *e) TSH*	***E***
15. Insulin receptors: *a) Present in the nucleus* *b) Present in the cytoplasm* *c) Seven helical transmembrane proteins which have extracellular and intracellular domains* *d) Has intrinsic tyrosine kinase activity* *e) When bound to insulin activates adenyl cyclase enzyme*	***D***

16. Insulin receptors *a) present in the nucleus* *b) present in the cell membrane* *c) seven helical transmembrane proteins which have extracellular and intracellular domains* *d) They are GPCR (G-protein coupled receptors).* *e) when bound to insulin activates adenyl cyclase enzyme*	***B***
17. When hormone affects its own producing cells, this effect is called: *a. Endocrine* *b. Paracrine* *c. Autocrine* *d. Non- of the above*	***C***
18. Which of the following is true about hormones? *a. All hormones are protein in nature* *b. All hormones act by binding to membrane receptors* *c. They are secreted by ductless glands (endocrine glands)* *d. They are present in large concentrations in plasma*	***C***
19. All of the following are amino acid derived hormones except: *a. Thyroxin* *b. Serotonin* *c. Adrenaline* *d. Noradrenaline* *e. FSH*	***E***

20. All Which of the following hormone Act by activation of Protein kinase C: *a. β adrenergic catecholamine* *b. α2 adrenergic catecholamine* *c. α1 adrenergic catecholamine.* *d. Insulin*	***C***
21. The following hormone that acts through second messenger: *a. Cortisol* *b. Thyroxin* *c. Adrenaline* *d. Calcitriol*	***C***
22. All the following hormones are protein in nature EXCEPT: *a. Insulin* *b. FSH* *c. TRH* *d. Oxytocin* *e. Progesterone*	***E***
23. One of the types of G regulatory protein is: *a. Gm* *b. Gc* *c. Gi* *d. Gf*	***C***
24. The G regulatory protein responsible for activation of PLC to: *a. Gs* *b. Ga* *c. Gi* *d. Gq*	***D***

25. In the STAT pathway when phosphorylation occurs: *a. Nucleus degradation* *b. Bind to specific RNA* *c. lysosomes release enzymes* *d. Activation of transcription*	***D***
26. Cytoplasmic receptors bind with: *a. glucagon* *b. Insulin* *c. glucocorticoids* *d. FSH*	***C***
27. All of the following hormones used calcium or phosphatidyl inositol as second messenger EXCEPT: *a. Adrenergic catecholamines* *b. glucagon* *c. anti diuretic hormone* *d. thyrotropin releasing hormones*	***B***
28. All the following statements about cyclic AMP are correct EXCEPT: *a. it is synthesized by adenylate cyclase* *b. it is catabolized by phosphodiesterase* *c. it acts as second messenger for glucagon* *d. it mediates its action through different types of kinases as JAK kinase*	***D***
29. Cyclic GMP acts as a second messenger to: *a. Glycoprotein hormones* *b. steroid hormones* *c. Atrial natriuretic factor (ANF)* *d. Thyroxin hormones*	***C***

30. All these hormones mediate their actions at nuclear level EXCEPT: *a. Glucagon* *b. Progesterone* *c. Triiodothyronine* *d. Glucocorticoids*	***A***
31. Which of the following acts to increase the release of Ca from the endoplasmic reticulum: *a. Diacylglycerol (DAG)* *b. Inositol triphosphate* *c. Parathyroid hormone* *d. Calcitonin*	***B***
32. Which one of the following hormones is hydrophilic and has extracellular receptors? *a. Cortisol* *b. Estradiol* *c. Glucagon* *d. Thyroxine* *e. Prostaglandin*	***C***
33. Which one of the following is NOT a general feature of hydrophilic hormones? *a. They are proteins and polypeptides* *b. They do not need a transport protein* *c. They bind to intracellular receptor* *d. Their plasma half-life is short in minutes*	***C***

34. Cyclic GMP (CGMP) is used as a second messenger by: *a. Insulin* *b. Glucagon* *c. Epinephrine* *d. Atrial natriuretic factor (peptide)* *e. Thyroxine*	***D***
35. The G protein which has intrinsic GTPase activity is a: *a. Monomer* *b. Dimer* *c. Trimer* *d. Tetramer* *e. Polymer*	***C***
36. Which of the following activate JAK kinase: *a. Insulin* *b. Growth hormone* *c. Glucagon* *d. Adrenaline* *e. Nitric oxide*	***B***

MCQ Bio Endo 2

1. Number of carbon atoms of progesterone is : *A. 18* *B. 19* *C. 20* *D. 21*	***D***
2. Which of the following has aromatic ring : *A. estradiole* *B. Testosterone* *C. Progesterone* *D. Dihydrotestosterone*	***A***
3. Which of the following has acetyle group *A. estradiole* *B. Testosterone* *C. Progesterone* *D. Dihydrotestosterone*	***C***
4. 3-β-Hydroxysteroid dehydrogenase and a5,4 isomerases catalyze the conversion of the weak androgen DHEA to: *A. Androstenedione* *B. Testosterone* *C. Progesterone* *D. Dihydrotestosterone* *E. Estrone*	***A***
5. In the biosynthesis of testosterone, the rate limiting step is conversion of: *A. Cholesterol to pregnenolone* *B. Pregnenolone to progesterone* *C. Progesterone to 17 α-hydroxyprogesterone* *D. 17 α-Hydroxy progesterone to androstenedione* *E. Androstenedione to testosterone*	***A***

6. Gonadotropin-releasing hormone (GnRH) is: *A. A pentapeptide* *B. A tripeptide* *C. A decapeptide* *D. An octapeptide* *E. A hexapeptide*	***C***
7. One of the following enzymes is not required for synthesis of Estradiol: *A. 17α-hydroxylase* *B. 3β-HSD* *C. 20, 22-desmolase* *D. 5α-reductase* *E. Aromatase*	***D***
8. What serves as a precursor of testosterone? *a) Andrenosterone* *b) Pregnenolone* *c) Estrone* *d) Methyltestosterone* *e) Aldosterone*	***B***
9. Which of the following statements best describes the mechanism of action of sex hormones? *a) They bind specific membrane receptors* *b) They interact with DNA directly* *c) They cause release of second messenger from the cell membrane* *d) They enhance transcription when bound to receptors* *e) They inhibit translation through specific cytoplasmic proteins*	***D***
10. Steroid hormones are synthesized from: *a) Cholesterol* *b) 7-Dehydrocholesterol* *c) Calcitriol* *d) 7-Hydroxycholesterol*	***A***

11. Steroid hormones are synthesised in all of the following except: *a) Testes* *b) Ovaries* *c) Adrenal medulla* *d) Adrenal cortex*	**C**
12. LH hormone is released from: *a) Hypothalamus* *b) Pituitary gland* *c) adrenal cortex* *d) testes* *e) ovary*	**B**
13. Testosterone is pro-hormone to: *a) Estrone* *b) Estriol* *c) Estradiol* *d) Dehydroepiandrosterone* *e) Progesterone*	**C**
14. What FSH and LH have in common? *a) Both are steroid hormones* *b) They are synthesized by mammary gland* *c) They are synthesized by pituitary gland* *d) They are glycoproteins* *e) C,D are correct* *f) Non of the above*	**E**
15. The principal ovarian estrogen in females during the follicular (first) phase of menstrual cycle is: *a) Estrone* *b) Estriol* *c) Progesterone* *d) Estradiol*	**D**

16. What is the dominant hormone secreted during luteal (second) phase of menstrual cycle? *a) Estradiol* *b) Estrone* *c) Estriol* *d) Progesterone* *e) Non of the above*	***D***
17. Progesterone is synthesized from pregnenolone by: *a) 17β-hydroxy steroid dehydrogenase* *b) 17 α -hydroxylase* *c) 3 β -hydroxy steroid dehydrogenase* *d) cytochrome P450 side chain cleavage complex* *e) 17,20-lyase*	***C***
18. Which of the following is the major estrogen secreted by the ovary? *a. Estrone (E1)* *c. Estradiol (E2)* *c. Estriol (E3)* *d. All are secreted equally*	***B***
19. Secretion of androgens is increased by: *a) LH* *b) FSH* *c) ACTH* *d) Growth hormone*	***A***
20. During late pregnancy, the major source of progesterone is: *a) Adrenal cortex* *c) Corpus luteum* *b) Placenta* *d) Graafian follicles*	***B***
21. Progesterone is transported in blood by: *a) Transcortin* *b) Sex hormone binding globulin* *c) Albumin* *d) Testosterone estrogen binding globulin*	***B***

22. The major metabolite of progesterone is: *a) Pregnenolone* *B) Estradiol* *C) Pregnanediol* *d) Norethindrone*	**C**
23. Secretion of progesterone: *a) Is more in first half of menstrual cycle than in second half* *b) Is more in second half of menstrual cycle than in first half* *c) Remains constant during menstrual cycle* *d) Decreases during pregnancy*	**B**
24. Androgens are synthesised in: *a) Leydig cells in testes.* *b) Sertoli cells in testes.* *c) Seminiferous tubules* *d) Prostate gland*	**A**
25. An androgen which is more powerful than testosterone is: *a) Androstenedione* *b) Dihydrotestosterone* *c) Androsterone* *d) Epiandrosterone*	**B**
26. A common intermediate in the synthesis of estrogens is: *a) Cortisol* *b) Andostenedione* *c) Corticosterone* *d) 11-Deoxycorticosterone*	**B**