XII NEET	A symbol of discipline and sincerity VADAKKANKULAM_TIRUNELVELI DISTRICT_TAMILNADU NEET-07 Dt: 02.04.2020				
Time: 3:00	IMPORTANT INSTRUCTIO	IMPORTANT INSTRUCTIONS Max Marks: 720			
EXAM SYLLABUS:					
PHYSICS:	MOVING CHARGE	S AND MA	GNETIS	М	
CHEMISTRY:	METALLURGY				
BOTANY:	S.A.V				
ZOOLOGY:	HUMAN RE	PRODUCTIO	ON		
	DREAM - BELIEVE - ACHIEVE				
Section	Question Type	+Ve Marks	- Ve Marks	No.of Qs	Total marks
(Q.N:1-180           Physics         1-4           Chemistry         46-9           Botany         91-1           Zoology         136-9	) 5 0 35 180 Questions with Single Correct multiple Choice		-1	180	720
<ul> <li>Note: Important Instructions</li> <li>Ø Duration of test is 3 hours and question paper contains 180 questions. The maximum marks are 720.</li> <li>Ø Each correct answer carries 4 marks, while 1 mark will be deducted for every wrong answer. Guessing of answer is harmful.</li> <li>Ø The candidate has to write his/her answers in the OMR sheet by darkening the appropriate bubble with the help of Blue/Black Ball Point Pen only as the correct answer(s) of the question attempted</li> </ul>					

- 1. The \_\_\_\_\_ lead to vas deferens that ascends to the \_\_\_\_\_ and loops over the \_\_\_\_\_.
  - (a) prostate, stomach, urinary bladder.
  - (b) epididymis, abdomen, urinary bladder.
  - (c) vas efferentia, abdomen, ureter.
  - (d) urinary bladder, ejaculatory duct, abdomen.
- 2. The enlarged end of penis is covered by a loose fold of skin is called.

(a) glans penis (b) foreskin (c) hymen (d) urethral meatus

- 3. Which of the following is a transporting tube leading from the bladder to which brings urine outside the body via penis?
  - (a) Ureter (b) Epididymis (c) Ejaculatory duct (d) Urethra meatus
- 4. Vasa efferentia are the ductules leading from
  - (a) epididymis to urethra. (b) vas deferens to epididymis.
  - (c) rete testis to vas deferens. (d) testicular lobules to rete testis.
- 5. A sac shaped like an upside down pear with a thick lining and muscles in the pelvic area where a fertilized egg or zygote comes to grow into a baby is called \_\_\_\_\_.
  - (a) oviduct (b) uterus (c) vagina (d) vulva
- 6. Which of the following is a finger like structure and lies at the upper junction of the two labia minora above the urethral opening?

(a) Clitoris (b) Oviduct (c) Ampulla (d) Chorionic villi

- 7. Which of the following produces sperms in spermatogenesis?
  - (a) Sertoli cells. (b) Interstitial cells.
  - (c) Primary spermatocytes. (d) Immature male germ cells.
- 8. In the process of spermatogenesis, first maturation division is called \_\_\_\_\_\_.
  - (a) mitotic division (b) reduction division
  - (c) amitotic division (d) None of the these
- 9. Spermatids are transformed into sperm by a process called\_\_\_\_\_.

(a) spermiation (b) implantation (c) insemination (d) spermiogenesis

- 10. In humans, male germs cells differentiate into \_\_\_\_\_ at the end of first meiotic division.
  - (a) spermatid (b) spermatogonium
  - (c) secondary spermatocyte (d) primary spermatocyte
- 11. Increased secretion of which hormone start the process of sperm formation at the time of puberty?(a) GH (b) TSH (c) PRL (d) GnRH
- 12. After birth, colostrum is released from mammary glands which is rich in

- (a) fat and low in proteins (b) proteins and low in fat
- (c) proteins, antibodies and low in fat (d) proteins, fat and low in antibodies
- 13. Which of the following hormone maintains the function of male sex accessory gland and ducts?(a) Estrogen (b) Androgen (c) Progesterone (d) Luteinizing hormone
- 14. Semen is a constituent of seminal plasma with \_\_\_\_\_.

(a) ovum (b) sperm (c) zygote (d) follicle

15. Ejaculation of human male contains about 200 – 300 million sperms, of which for normal fertility \_\_\_\_\_% sperms must have normal shape and size and at least \_\_\_\_% must show energetic motility.

(a) 40, 60 (b) 50, 50 (c) 60, 40 (d) 30, 70

- 16. Which of the following stage of oogenesis forms a membrane called zona pellucida surrounding it?
  - (a) Oogonia (b) Polar body (c) Corpus luteum (d) Secondary oocytes
- 17. By which process sperms released from the seminiferous tubules?

(a) Spermiation (b) Insemination (c) Spermatogenesis (d) Spermiogenesis

18. Which of the following contains a fluid filled cavity called antrum?

(a) Primary spermatocyte. (b) Primary follicle of ovary.

- (c) Tertiary follicle of ovary. (d) Secondary spermatocyte.
- 19. Menstruation is triggered by a sudden decline in the amount of hormone secreted by corpus luteum. Identify the hormone.
  - (a) Luteinizing hormone (b) Follicle stimulating hormone
  - (c) Progesterone (d) Estrogen
- 20. Level of which hormones are at their highest during the luteal phase (second half of the cycle) of the menstrual cycle?
  - (a) Estrogen (b) Progesterone
  - (c) Luteinizing hormone (d) Follicular stimulating hormone
- 21. Which phase of menstrual cycle is also called proliferative phase?
  - (a) Luteal (b) Ovulatory (c) Follicular (d) Menstruation
- 22. Which phase of menstrual cycle is also called secretory phase?

(a) Luteal (b) Ovulatory (c) Follicular (d) Menstruation

- 23. Which of the following indicates pregnancy?
  - (a) Lack of menstruation. (b) Occurrence of menstrual flow.
  - (c) When released ovum is not fertilized.
  - (d) When Graafian follicle matures and endometrium regenerates through proliferation.

- 24. When semen is released by the penis into the vagina during copulation, then it is called \_(a) ovulation (b) insemination (c) menstruation (d) gametogenesis
- 25. At the time of implantation, the human embryo is called \_\_\_\_\_\_.(a) zygote (b) blastocysts (c) embryo (d) foetus
- 27. Which of the following differentiate into embryo?
  - (a) Morula (b) Zygote (c) Trophoblast (d) Inner cell mass
- 28. Trophoblast and inner cell mass are the arrangements of blastomeres as outer and inner layers respectively in \_\_\_\_\_.
  - (a) zygote (b) morula (c) placenta (d) blastocysts
- 29. The embryo with 8 to 16 blastomeres is called \_\_\_\_\_.(a) zygote (b) morula (c) placenta (d) blastocysts
- 30. Presence of XX or XY chromosomes in zygote depends on

(a) the sperm carrying X chromosome fertilized the ovum.

- (b) the sperm carrying Y chromosome fertilized the ovum.
- (c) the sperm without any chromosome fertilized the ovum.
- (d) the sperm carrying X or Y chromosomes fertilized the ovum.
- 31. Which layer of blastocysts gets attached to the endometrium?(a) Trophoblast (b) Inner cell mass (c) Umbilical cord (d) Both (a) and (c)
- 32. Finger like projection, called chorionic villi, appear on the \_\_\_\_\_\_ after the implantation.(a) ampulla (b) trophoblast (c) infundibulum (d) inner cell mass
- 33. Which of the following hormones is produced in women only during pregnancy?(a) Relaxin (b) Estrogen(c) Oxytocin (d) Progesterone
- 34. The placenta is formed from the \_\_\_\_\_ of the embryo and the \_\_\_\_\_ of the mother.(a) uterus, trophoblast (b) chorion, endometrium
  - (c) endometrium, chorion (d) inner cell mass, endometrium
- 35. Placenta acts as an
  - (a) Embryo (b) Corpus luteum (c) Exocrine gland (d) Endocrine tissue
- 36. Which of the following hormone acts on uterine muscle and causes its stronger contraction?
  - (a) Relaxin (b) Estrogen (c) Oxytocin (d) Progesterone

### 37. Colostrum

(a) is a hormone essential for milk secretion.

- (b) can be synthesized by the newborn infant but not by a foetus.
- (c) stimulates further secretion of oxytocin for uterine contraction.
- (d) is a source of antibodies essential to develop resistance against diseases in new born babies.
- 39. Two types of cells present in the lining of seminiferous tubules are \_\_\_\_\_ and \_\_\_\_\_.
  - (a) leydig cells, sertoli cells. (b) male germ cells, sertoli cells.

(c) spermatogonium, spermatids. (d) primary oocyte, leydig cells.

- 40. The womb opens into vagina through \_\_\_\_\_.
  - (a) cervix (b) hymen (c) clitoris (d) ampulla
- 41. First polar body is formed during the formation of \_\_\_\_\_ and completion of \_\_\_\_eiotic division.
  - (a) Primary oocytes, II (b) Secondary oocytes, I
  - (c) Secondary spermatocytes, II (d) Primary spermatocytes, I
- 42. Second meiotic division in secondary oocyte results in the formation of
  - (a) first polar body and a diploid ovum.
  - (b) first polar body and a haploid ovum.
  - (c) second polar body and a diploid ovum.
  - (d) second polar body and a haploid ovum
- 43. In human female, menopause is a stage in which
  - (a) oogenesis starts at puberty. (b) menstruation starts at puberty.
  - (c) corpus luteum starts secreting progesterone for maintaining pregnancy.
  - (d) menstruation stops at the age of 50 years and reproductive capacity is arrested.
- 44. Which of the following process induces the completion of the meiotic division of secondary oocyte?
  - (a) Parturition (b) Implantation (c) Fertilization (d) Gametogenesis
- 45. \_\_\_\_\_\_ is a sticky white or yellow fluid secreted by the breasts during the second half of pregnancy and for a few days after birth, before breast milk comes in.
  - (a) Placenta (b) Colostrum (c) Egg yolk (d) Blood cells
- 46. By the end of how many weeks, major organ system are formed during the embryonic development?

- (a) 4 weeks (b) 8 weeks (c) 12 weeks (d) 24 weeks
- 47. Which of the following induces foetal ejection reflex?
  - (a) Initiation of lactation (b) Fully developed foetus and placenta
  - (c) Expulsion of the baby out of the uterus.
  - (d) Transport of embryo in the fallopian tube.
- 48. Identify the structure on the basis of the given statement which surrounds the primary sex organ of male reproductive system. "It is responsible for maintaining the low temperature by about 2 2.5° C from normal body temperature to mature sperm."
  - (a) Penis (b) Scrotum (c) Ureter (d) Urethra
- 49. Which of the following is not a paired structure in male?
  - (a) Urethra (b) Vas deferens (c) Epididymis (d) Ejaculatory duct
- 50. Blastomeres are daughter cells formed in the process of
  - (a) cleavage, when zygote undergoes mitotic division.
  - (b) fertilization, when sperm enters in the cytoplasm of ovum.
  - (c) implantation, when blastocysts attached to the uterine endometrium.
  - (d) gametogenesis, when male and female gametes are produced by testis and ovary respectively
- 51. Which of the following statements regarding sertoli cell is correct?
  - (a) It is found in seminiferous tubule and secrete testosterone hormone.
  - (b) It is a place where spermatozoa is concentrated and stored until ejaculation.
  - (c) It secretes spermatozoa activating substances like fructose, citrate, inositol, prostaglandin and protein.
  - (d) It is found in seminiferous tubule and function as nurse cells for differentiating spermatozoa.
- 52. The sperm and the egg make different contributions to zygote. Which of the following
  - statements about their contributions are true?
  - (i) Sperm contributes most of the mitochondria.
  - (ii) Egg contributes most of the cytoplasm.
  - (iii) Both sperm and egg contribute haploid nucleus.
  - (iv) Both sperm and egg contribute centrioles.
  - (a) (i) and (ii) (b) (ii) and (iii) (c) (iiii) and (iv) (d) All of these
- 53. Read the following statements (i to iv) and answer the following question.
  - (i) Each testes has highly coiled 250 compartments called seminiferous tubules.
  - (ii) Erection of the penis due to presence of special tissues facilitates insemination.

(iii) Immunologically competent cells are also present in the interstitial spaces of seminiferous tubules.

- (iv) Testes lie outside the abdominal cavity in a thin pouch like skin called scrotum.
- (v) Bulbourethral gland is a single accessory gland.

How many of the above statements are incorrect?

- (a) (i), (ii) and (iii) (b) (iii) and (v) (c) (i) and (v) (d) (ii), (iv) and (v)
- 54. Which of the following is true regarding the male reproductive system?
  - (a) Sperms are diploid.
  - (b) It includes testes, accessory ducts and glands, and oviducts.
  - (c) The scrotum keeps the testes warmer, thus helping it to promote the sperm formation.
  - (d) Sertoli cells are found in seminiferous tubules and provide nutrition to germ cells.
- 55. Read the following statements (i to v) and answer the following question.
  - (i) This structure is also called womb. (ii) Its shape is like an inverted pear.
  - (iii) The process of fertilization takes place in this structure.
  - (iv) The wall of this structure has three layers of tissue.
  - (v) It secretes several steroid hormones.

Identify the correct characteristics feature regarding uterus from the above statements.

(a) (i) and (iv) (b) (iii) and (v) (c) (i), (ii) and (iv) (d) All the five statements.

- 56. Which of the following statements regarding mammary gland is incorrect?
  - (a) They are paired glandular structure that lies over the pectoral muscles.

(b) Each gland has 100 – 500 lobulated milk glands each having a number of lobules containing number of alveoli.

- (c) The cells of alveoli secrete milk which is stored in the cavity of the alveoli.
- (d) Each milk gland or lobules has lactiferous ducts that drain into openings in the nipple.
- 57. Select the correct statements regarding oogenesis.

(i) It is initiated during the embryonic development stage when millions of oogonia are formed within each ovary.

- (ii) Graafian follicle releases primary oocyte from the ovary by ovulation.
- (iii) At puberty only 60,000 80,000 primary follicles are left in each ovary.
- (iv) Secondary oocyte within tertiary follicles grows in size and completes its second meiotic division.
- (a) (i), (ii) and (iii) (b) (i) and (iii) (c) (ii) and (iv) (d) all the four statements.

### 58. Which of the following statement is correct regarding menstruation?

(a) The menstrual fluid can easily clot.

(b) The end of the cycle of menstruation is called menarche.

(c) At menopause in the female, there is especially abrupt decrease in gonadotropic hormones.

(d) In human female, menstruation can be deferred by the administration of combination of estrogen and progesterone.

59. Which of the following is required for the increased production of estrogen, progestogens, cortisol, prolactin and thyroxine etc. in the maternal blood?

(i) Metabolic changes in the mother. (ii) Maintenance of pregnancy.

- (iii) Supporting the foetal growth (iv) Destruction of Graafian follicle
- (a) (iii) and (iv) (b) (i), (iv) and (v) (c) (i), (ii) and (iii) (d) All the four statements.
- 60. Which of the following statement regarding female reproductive system is (are) correct?

(i) Myometrium undergoes strong contraction at the time of delivery of baby.

(ii) Ovary is secondary female sex organ which produces female gamete and steroid hormones.

(iii) Ovarian stroma is divided into two zones: inner cortex and outer medulla.

(iv) Infundibulum possess finger like projections which help in collection of ovum after the release of secondary oocyte.

(v) A functional mammary gland is the characteristics of all the mammals (including male and female).

- (a) (i) and (iv) (b) (i), (ii), (iii) and (v) (c) (iii), (iv) and (v) (d) All the five statements
- 61. Read the following statements (i to v) and answer the question.
  - (i) It produces several hormones like hCG, hPL, estrogens, progestogens etc.
  - (ii) It differentiates into three embryonic membranes ectoderm, endoderm and mesoderm.
  - (iii) It undergoes mitotic division.
  - (iv) It is the organ, formed in the lining of the uterus by the union of the uterine mucous

membrane with the membranes of the foetus.

(v) It develops at a point of implantation and providing oxygen and nutrients for the foetus and transfer of waste products from the foetal to the maternal blood circulation.

Identify the correct characteristics feature regarding placenta from the above statements.

- (a) (iii) and (v) (b) (i), (iv) and (v) (c) (i), (ii) and (iv) (d) all the four statements.
- 62. Which of the following statements regarding parturition is incorrect?
  - (a) Prolactin induces uterine contraction.
  - (b) It is induced by neuroendocrine mechanism.

- (c) Uterine contraction leads to expulsion of baby through the birth canal.
- (d) Oxytocin plays an important role in the contraction of fallopian tube.
- 63. In the given columns, column I contain structures of male reproductive system and column II contains its feature. Select the correct match from the options given below.

Column I	Column II
(Structure of Male	(Features)
Reproductive System)	
A. Seminiferous tubule	I. Network of seminiferous tubule
B. Rete testis	II. Secondary sexual characters
C. Leydig cells	III. Meiosis and sperm formation occurs
D. Prepuce	IV. Place of implantation

V. Terminal skin of penis

(a) A - I; B - II; C - III; D - V (b) A - III; B - I; C - II; D - V

(c) A - III; B - I; C - IV; D - II (d) A - II; B - IV; C - III; D - V

64. Which of the following pair is incorrectly matched?

(a) Leydig cells – Testosterone (b) Spermatogenesis – Seminiferous tubules

- (c) Male reproductive system Pelvis region (d) Spermatogonia Mitotic division
- 65. In the given columns, column-I contain structures of female reproductive system and column-II contain its feature.Select the correct match from the option given below.

Column-I	Column-II
(Structures of female	(Features)
reproductive system)	
A. Ampulla I. I	t undergoes cyclical changes during menstrual
	cycle.
B. Labia majora	II. It helps in collection of ovum after ovulation.
C. Oviduct	III. Wider part of fallopian tube where fusion of
	male and female gametes takes place
D. Fimbriae	IV. Larger hairy folds which extend down from the
	mons pubis and surrounds the vaginal opening.
E. Endometrium	V. Also called fallopian tubes, which extend from
	the periphery of each ovary to the womb.

(a) A - I, B - II, C - III, D - V, E - IV $(b) A - III, B - I, C - II, D - V$	(a) A –	B - II; C - II	I; D - V; E - IV	(b) A – III; B -	– I; C – II	I; D - V; E - I	IV
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- (c) A III; B IV; C V; D II; E I (d) A II; B IV; C III; D V; E I
- 66. Match the column-I with column-II and select the correct option. Match from the options given below

Column-I	Column-II
A. Primary oocyte	I. It is formed when oogonia starts division and
	temporarily arrested at prophase of meiosis I.
B. Secondary oocyte	II. A large haploid cell which retains bulk of nutrient
	rich cytoplasm of the primary oocyte.
C. Primary follicle	III. A large number of these degenerate during the
	phase from puberty to birth.
D. Oogonia	IV. Gamete mother cell.
E. Secondary follicle	V. Surrounded by more layers of granulosa cells and a
	new theca.
F. Graafian follicle	VI. Rupture to release ovum from the ovary.
– I; B – II; C – III; D – IV	F; E - V; F - VI
– III; B – I; C – IV; D – I	I; E - V; F - VI

(c) A - VI; B - IV; C - V; D - II; E - I; F - III

(a) A

(b) A

- (d) A II; B IV; C III; D V; E I; F VI
- 67. In the given columns, column-I contain various phases of menstrual cycle and column -II contain its features. Select the correct match from the options given below.

Column-I	Column-II
(Phases of menstrual cycl	e) (Features)
A. Menstrual phase	I. Breakdown of endometrial lining of uterus along with its
	blood vessels which form liquid that comes out of vagina.
B. Luteal phase	I. A temporary endocrine gland is formed and secretes a
	hormone which maintains endometrium and implantation of fertilized ovum and other events of pregnancy.
C. Follicular phase	II. Secretion of luteinizing hormone at its maximum
	level and induces breakdown of mature follicle to release the female gamete
D Ovulatory phase	IV. Formation of mature Graafian follicle and regeneration of endometrium of uterus.

(a) A - IV; B - II; C - III; D - I (b) A - III; B - I; C - II; D - IV(c) A - III; B - I; C - IV; D - II (d) A - I; B - II; C - IV; D - III

68. The given figure shows the male reproductive system. Some structures are marked as A, B, C, and D. Identify the structure whose removal will cause the sperm to be reacted with acidic urine in the urethra.



69. Given below is the diagrammatic sectional view of seminiferous tubule with their parts marked as A, B, C, and D. Select the option which shows the correct identification of the structure with its characteristics.



(a) A: Spermatozoa, secretes testicular hormones that control spermatogenesis.

(b) B: Spermatogonium, it is also called male germ cells which undergo meiotic division to from spermatozoa.

(c) C: Interstitial cells, present in the interstitial spaces and store and transport the sperms from the testis to the outside through the urethra.

(d) D: Sertoli cells, it maintains low temperature of the testis.70. The given figure shows the diagrammatic sectional view of female reproductive system

with few structures marked as A, B, C, D, E and F.



Which of the following options shows the correct labeling of A-F?

- (a) A®Myometrium, B®Isthmus, C®Endometrium, D® Perimetrium, E®Ampulla, F® Infundibulum
- (b) A®Infundibulum, B®Perimetrium, C®Endometrium, D®Myometrium,

E®Ampulla, F®Isthmus

(c) A®Endometrium, B®Myometrium, C®Perimetrium, D®Isthmus, E®Ampulla,

F®Infundibulum

(d) A®Perimetrium, B®Endometrium, C®Isthmus, D®Infundibulum, E®Ampulla, F®Myometrium

71. Refer the figure of mammary gland with few structures marked as A, B, C and D. Which structure contains clusters of milk secreting cells?



72. The figure given below shows the sectional view of seminiferous tubule.



Which marked structure (A to D) undergoes second meiotic division to produce four equal haploid cells (called spermatids)?

(a) A (b) B (c) C (4) D

73. The figure given below shows the structure of sperm. Identify the correct feature corresponding to the marked structure A, B, C and D.



(a) A – Head: Its anterior portion is covered by a structure filled with enzymes that help in the fusion of male and female gametes.

- (b) B Middle piece: It contains a haploid nucleus.
- (c) C Neck: It possesses few ribosomes which produces energy for the process of fertilization.
- (d) D Tail: It releases energy source for swimming of sperm.
- 74. The figure given below shows the sectional view of ovary. Select the option which gives

correct identification of marked structure (A to D) and its feature.



- (a) A: Primary follicle, it is also called gamete mother cell.
- (b) B: Corpus luteum, it cannot be formed and added after birth.
- (c) C: Graafian follicle, mature follicle which ruptures to release secondary oocyte.

(d) D: Tertiary follicle, a large number of this follicle degenerates during the phase from birth to puberty.

75. In the given figure the structure of ovum is surrounded by few sperms and some art are labelled as A, B, C and D.



Which of the following options shows the correct labelling?

- (a) A®Zona pellucida, B®Ovum, C®Cells of corona radiata, D®Perivitelline space
- (b) A®Perivitelline space, B®Antrum, C®Zona pellucida D®Ovum
- (c) A®Zona pellucida, B®Ootid, C®Cells of corona radiata D®Perivitelline space
- (d) A®Cells of corona radiata, B®Morula, C® Perivitelline space D®Zona pellucida
- 76. Which of the following human developmental stage becomes embedded in the uterine endometrium by a process called implantation and leads to pregnancy?



77. The feature of some structures of male reproductive system is given below. Identify the

structure on the basis of the characteristics which surrounds the primary sex organ of male reproductive system.

- (a) Its enlarged end is called glans penis.
- (b) It travels through the penis and carry semen as well as urine.

(c) It is responsible for maintaining the low temperature by about  $2 - 2.5^{\circ}$  C from normal body temperature to mature sperm.

- (d) Stores sperms prior to ejaculation.
- 78. Read the following statement and answer the question. "The urethra originates from a

structure (called 'X') and extends through the male external genitalia (called 'Y' which helps in introducing semen into the vagina) to its external opening called urethral meatus."

- Identify X and Y.
- (a) X Urinary bladder ; Y Penis (b) X Vas efferentia ; Y Penis
- (c) X Ejaculatory duct ; Y Ureter (d) X Bulbourethral gland ; Y Ureter
- 79. Which of the following is not a uterine function?
  - (a) Waste removal for the developing embryo.
  - (b) Nutritional support of the growing embryo.
  - (c) Place of fusion of male and female gametes.
  - (d) Mechanical protection of the developing embryo.
- 80. Milk secreted from the cells of alveoli of mammary lobes reaches nipple through

lactiferous duct(L), mammary duct (M), mammary tubule (T) and mammary ampulla (A) in the following order.

(a) TMAL (b) MTLA (c) MTAL (d) ATML

81. A gonadotropin hormone, "X" acts on interstitial cells and stimulates synthesis and secretion of "Y". Identify X and Y from the given option.

(a) X - LH ; Y – Androgen (b) X - FSH ; Y - Testosterone

(c) X - TSH ; Y – Progesterone (d) X - GH ; Y - Estrogen

- 82. Secretion of which of the following are essential for maturation and motility of sperm?
  - (a) Ureter, vas deferens, urinary bladder and prostate.
  - (b) Seminal vesicle, vas deferens, ejaculatory ducts and ureter.
  - (c) Epididymis, seminal vesicle, vas deferens and prostate.
  - (d) Epididymis, ejaculatory ducts, vas efferentia and seminal vesicle.
- 83. Which of the following shows the correct sequence of events leading to the formation of

mature sperm?

(a) Spermatogonium ® Secondary spermatocyte ® Primary spermatocyte ® Spermatids ® Sperms.

(b) Spermatogonium ® Spermatids ® Secondary spermatocyte ® Primary spermatocyte ® Sperms.

(c) Spermatids <sup>®</sup> Primary spermatocyte <sup>®</sup> Secondary spermatocyte <sup>®</sup> Spermatogonium <sup>®</sup> Sperms.

(d) Spermatogonium ® Primary spermatocyte ® Secondary spermatocyte ® Spermatids ® Sperms.

84. How many ova are released during the middle of the menstrual cycle?

(a) One (b) Two (c) Three (d) Four

### 85. Study the given statement and answer the question. "During 'P' phase of the menstrual

cycle, if pregnancy doesn't happen, the 'Q' withers and dies, usually around day 22 in a 28-day cycle. The drop in 'R' levels causes the lining of the uterus to fall away. This is known as 'S'. Identify P, Q, R and S.

- (a) P ® Menstrual, Q ® Graafian follicle, R® Estrogen, S ® Menarche
- (b) P ® Luteal, Q ® Corpus luteum, R ® Progesterone S ® Menstruation
- (c) P ® Ovulatory, Q ® Endometrium, R ® Follicle stimulating hormone, S ® Menopause
- (d) P ® Follicular, Q ® Secondary oocyte, R ® Luteinizing hormone S ®Menstruation
- 86. Which of the following hormones attains a peak level in the middle of menstrual cycle?
  - (a) LH and estrogen (b) FSH and progesterone
  - (c) FSH and LH (d) Estrogen and progesterone

- 87. Select the correct sequence of menstrual cycle.
  - (a) Menstruation, Secretory, Follicular, New cycle.
  - (b) Menstruation, Follicular, Luteal, New cycle.
  - (c) Follicular, Menstruation, Luteal, New cycle.
  - (d) Luteal, Menstruation, Follicular, New cycle.
- 88. Menstrual cycle is controlled by
  - (a) LH and FSH only (b) estrogen, LH & FSH only
  - (c) estrogen & progesterone only(d) LH, FSH, estrogen & progesterone.
- 89. Which of the following group of cells involved in spermatogenesis represent haploid cells?
  - (a) Spermatogonium(b) Primary spermatocyte (c) Both (a) and (b)
  - (d) Secondary spermatocyte
- 90. What happens during fertilization in humans after many sperms reach close to the ovum?
  - (a) Cells of corona radiata trap all the sperms except one
  - (b) Only the closest sperm to the ovum penetrates the zona pellucida.
  - (c) Secretions of acrosome helps one sperm enter cytoplasm of ovum through zona pellucida and plasma membrane.
  - (d) All sperms except the one nearest to the ovum lose their tails.

- 1. A current I flows along an infinitely long straight thin walled tube. The magnetic induction at a point inside the tube at a distance r from its wall is
  - 1) Infinite 2) Zero  $3)\frac{\mu_0}{4\pi} \cdot \frac{2I}{r}$  4)  $\frac{2I}{r}$
- 2. A long straight thin conductor has a current of 'i' ampere. The magnetic induction B away from the conductor at a distance 'r' from its axis varies as shown in



- 3. A current carrying wire produces in the neighborhood
  - 1) Electric and magnetic fields 2) Electric field only
  - 3) Magnetic field only4) No field
- 4. Magnetic lines of force due to a straight conductor carrying current are

1) Straight lines 2) Elliptical 3) Circular 4) Parabolic

5. A current 'i' flows along an infinitely long straight conductor. If r is the perpendicular distance of a point, very far from the ends of the conductor then the magnetic induction B is given by

1) 
$$B = \frac{\mu_0}{4\pi} \frac{2i}{r}$$
 2)  $B = \frac{\mu_0}{4\pi} \frac{i}{r}$  3)  $B = \frac{\mu_0}{4\pi} \frac{\pi i}{r}$  4)  $B = \frac{\mu_0}{4\pi} \frac{2\pi i}{r}$ 

6. The magnetic field  $\overline{dB}$  due to a small current element  $\overline{dl}$  at a distance  $\vec{r}$  and carrying current 'i' is

1) 
$$\overline{dB} = \frac{\mu_0}{4\pi} i \left( \frac{\overline{dl} \times \overline{r}}{r} \right)$$
 2)  $\overline{dB} = \frac{\mu_0}{4\pi} i^2 \left( \frac{\overline{dl} \times \overline{r}}{r^2} \right)$   
3)  $\overline{dB} = \frac{\mu_0}{4\pi} i^2 \left( \frac{\overline{dl} \times \overline{r}}{r} \right)$  4)  $\overline{dB} = \frac{\mu_0}{4\pi} i \left( \frac{\overline{dl} \times \overline{r}}{r^3} \right)$ 

7. If we double the radius of a current carrying coil keeping the current unchanged ,the magnetic field at its centre

1) becomes four times 2) doubled 3) remains unchanged 4) halved

8. Two concentric circular loops of radii r1 and r2 carry clockwise and anticlockwise

currents  $i_1$  and  $i_2$ . If the centre is a null point,  $i_1/i_2$  must be equal to

1)  $r_2/r_1$  2)  $r_2^2/r_1^2$  3)  $r_1^2/r_2^2$  4)  $r_1/r_2$ 

9. An electron of charge e moves in a circular orbit of radius r round a nucleus the magnetic field due to orbit motion of the electron at the site of the nucleus is B. The angular velocity  $\omega$  of the electron is

1) 
$$\omega = \frac{\mu_0 eB}{4\pi r}$$
  
2)  $\omega = \frac{\mu_0 eB}{\pi r}$   
3)  $\omega = \frac{4\pi rB}{\mu_0 e}$   
4)  $\omega = \frac{2\pi rB}{\mu_0 e}$ 

10. A positively charged particle enters at the middle as shown in Fig. with speed  $10^5$  m/s will bend



1) towards 1 A wire 2) upwards the plane of wires

3) towards 3 A wire 4) down wards the plane of wires

11. A north pole of strength  $\pi$  A m, is moved around a circle of radius 10 cm which lies around a long straight conductor carrying a current of 10 A. The work done is nearly

1)4 μ J 2)40 μ J 3)400 μ J 4)0.4 μ J

12. A closed circuit is in the form of a regular hexagon of side a . If the circuit carries a

current I, what is magnetic induction at the centre of the hexagon?

1) 
$$\frac{\sqrt{3}\mu_0 I}{4\pi a}$$
 2)  $\frac{\sqrt{3}\mu_0 I}{2\pi a}$  3)  $\frac{\sqrt{3}\mu_0 I}{3\pi a}$  4)  $\frac{\sqrt{3}\mu_0 I}{\pi a}$ 

- 13. ABCD is a square of side L. A very long straight conductor carrying a current i passes
  - through the vertex A of the square and is perpendicular to its plane. The minimum magnetic induction at a vertex of the square is

1) 
$$\frac{\mu_0}{4\pi} \frac{2\sqrt{2}i}{L}$$
 2)  $\frac{\mu_0}{4\pi} \frac{\sqrt{2}i}{L}$  3)  $\frac{\mu_0}{4\pi} \frac{4\sqrt{2}i}{L}$  4)  $\frac{\mu_0}{4\pi} \frac{2i}{L}$ 

14. The magnetic field at the centre of circular loop in the circuit shown below is



1) 
$$\frac{\mu_0}{4\pi} \frac{2I}{r} (1+\pi)_2 \frac{\mu_0}{4\pi} \frac{2I}{r} (\pi-1)$$

3)  $\frac{\mu_0}{4\pi} \frac{2I}{r}$  4)  $\frac{\mu_0}{4\pi} \frac{I}{r} (\pi + 1)$ 

15. In the given figure the magnetic induction at the point O is



16. Figure shows a coil of radius 2 cm concentric with a coil of radius 7 cm Each coil has 1000 turns with a current of 5 A. In larger coil, then the current needed in the smaller coil to give the total magnetic field at the centre equal to 2 mT is



### 1) 1.49A 2) 1.84A 3) 2.88A 4) 3.4A

17. The length of a solenoid is 0.1 m and its diameter is very small. A wire is wound over in two layers. The number of turns in the inner layer is 50 and that on the outer layer is 40. The strength of current flowing in two layers in the same direction is 3 ampere. The magnetic induction in the middle of the solenoid will be

1)  $3.4 \times 10^{-3} T$  2)  $3.4 \times 10^{-3} gauss$  3)  $3.4 \times 10^{3} T$  4)  $3.4 \times 10^{3} gauss$ 

18. The magnetic induction at the centre of a solenoid is B. If the length of the solenoid is reduced to half and the same wire is wound in two layers the new magnetic induction is

```
1) B 2) 2B 3) B/2 4) 4B
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19. A solenoid of length 20 cm and radius 2 cm is closely wound with 200 turns. The

magnetic field intensity at either end of the solenoid when the current in the winding is 5 amp. is

1) 2500 Amp/m 2) 2000 Amp/m 3) 1750 Amp/m 4) 2940 Amp/m

20. A solenoid of length 0.5 m has a radius of 1 cm and is made up of 500 turns. It carries a

current of 5 A. The magnetic field inside the solenoid is 1)  $3.14 \times 10^{-3} T$  2)  $6.28 \times 10^{-3} T$  3)  $9.14 \times 10^{-3} T$  4)  $1.68 \times 10^{-3} T$ 

- 21. A long solenoid is fabricated to closely winding wire of radius 0.5 mm over a cylindrical frame so that the successive turns nearly touch each other, the magnetic field at the centre of solenoid if it carries a current of 5A is 1)  $2\pi X 10^{-2} T$  2)  $2\pi X 10^{-3} T$  3)  $2\pi X 10^{-4} T$  4)  $2\pi X 10^{-5} T$
- 22. The force acting on a charge 'q' moving with a velocity V in a magnetic field of induction B is given by

1) 
$$\frac{q}{\overline{V}x\overline{B}}$$
 2)  $\frac{VxB}{q}$  3)  $q(\overline{V}x\overline{B})$  4)  $(\overline{V},\overline{B})q$ 

23. An electron of mass 'm' is accelerated through a potential difference of V and then it enters a magnetic field of induction B. normal to the lines of force. Then the radius of the circular path is

1) 
$$\sqrt{\frac{2eV}{m}}$$
 2)  $\sqrt{\frac{2Vm}{eB^2}}$  3)  $\sqrt{\frac{2Vm}{eB}}$  4)  $\sqrt{\frac{2Vm}{e^2B}}$ 

24. If electron velocity is 2i+4j and it is subjected to magnetic field of 4k, then its

1) speed will change 2) path will change3)velocity is Constant 4) momentum is Constant

25. An electron of charge e, revolves round in an orbit of radius r with a uniform angular

velocity  $\omega$  . The magnetic dipole moment of the electron in the orbit is

1)  $e\omega r/2$  2)  $e\omega r^2/23$ )  $e\omega^2 r/24$ )  $e\omega^2 r^2/2$ 

- 26. Two particles having same charge and KE enter at right angles into the same magnetic field and travel in circular paths of radii 2 cm and 3 cm respectively. The ratio of their masses is.
  - 1) 2 : 3 2) 3 : 2 3) 4 : 9 4) 9 : 4
- 27. Two electrons move parallel to each other with equal speed 'V' the ratio of magnetic &

electric force between them is

1)V/C 2) C/V 3)  $V^2/C^2$  4)  $C^2/V^2$ 

28. A proton, a deuteron and an  $\alpha$  particle are accelerated through same potential difference and then they enter a normal uniform magnetic field, the ratio of their kinetic energies will be 1) 2:1:3 2)1:1:2 3) 1:1:1 4)1:2:4

29. A charged particle of charge 10mC enters a uniform magnetic field of induction

 $\overline{B} = 4\hat{i} + y\hat{j} + z\hat{k}$  tesla with a velocity  $\overline{V} = 2\hat{i} + 3\hat{j} - 6\hat{k} \text{ msec}^{-1}$ . If the particle continues to move undeviated then the strength of the magnetic field induction in tesla 1) 4 2) 8 3) 14 4) 30

30. A beam of mixture of protons and a particles are accelerated through same potential difference before entering into the magnetic field of strength B. If 1 r = 5 cm, then 2 r is



- 1) 5 cm 2)  $5\sqrt{2}cm$  3)  $10\sqrt{2}cm$  4) 20 cm
- 31. A conductor AB of length l carrying a current i is placed perpendicular to a long straight conductor XY carrying a current l, as shown. the force on AB will act



1) along x to y 2) along y to x 3) to the right 4) to the left

32. A current of 10 ampere is flowing in a wire of length 1.5m. A force of 15N acts on it

when it is placed in a uniform magnetic field of 2 tesla. The angle between the magnetic field and the direction of the current is

1)  $30^{\circ}$  2)  $45^{\circ}$  3)  $60^{\circ}$  4)  $90^{\circ}$ 

33. Two coplanar circular coils of equal radius carrying currents i1, i2 in opposite directions are at a large distance 'd'. The distance from the first coil where the resultant magnetic induction is zero is (numbers of turms in two coils is same)

1) 
$$\frac{d}{1+\frac{i_2}{i_1}}$$
 2)  $\frac{d}{1+\sqrt{\frac{i_2}{i_1}}}$  3)  $\frac{d}{1+\left(\frac{i_2}{i_1}\right)^{\frac{1}{3}}}$  4)  $\frac{d}{1+\left(\frac{i_2}{i_1}\right)^{\frac{2}{3}}}$ 

34. Two long straight horizontal parallel wires one above the other are separated by a

distance '2a'. If the wires carry equal currents in opposite directions, the magnitude of the magnetic induction in the plane of the wires at a distance 'a' above the upper wire is

1) 
$$\frac{\mu_o i}{2\pi a}$$
 2)  $\frac{\mu_o i}{2\pi a} + \frac{\mu_o i}{4\pi a}$   
3)  $\frac{\mu_o i}{2\pi a} - \frac{\mu_o i}{4\pi a}$  4)  $\frac{\mu_o i}{3\pi a}$ 

35. A horizontal wire of length 0.05m carries a current of 5A. If the mass of the wire is

10mg, the minimum magnetic field required to support the weight of the wire is  $(g=10m/s^2)$ 

1) 4x10 <sup>-4</sup> T	2) 25x10 <sup>4</sup> T
3) 4x10 <sup>-1</sup> T	4) 25x10 <sup>-1</sup> T

36. Currents of 10 A, 2 A are passed through two parallel wires A and B respectively in

opposite directions. If the wire A is infinitely long and the length of the wire B is 2 metre, the force on the conductor B, which is situated at 10cm distance from A will be

1)	$8 \ge 10^{-5}$ newton	2) 5 x 10 <sup>-5</sup> no	ewton
3)	$8\pi \times 10^{-7}$ newton	4) $4\pi \times 10^{-7}$	newton

37. Two long parallel conductors are placed at right angles to a metre scale at the 2cm and 6 cm marks, as shown in the figure



They carry currents of 1 A and 3 A respectively. They will produce zero magnetic

field at the (ignore the earth's magnetic field)

1) 5 cm mark 2) 3 cm mark 3) 1 cm mark 4) 8 cm mark

38. A rectangular loop of wire of size 4 cm x10 cm carries a steady current of 2A. A

straight long wire carrying 5A current is kept near the loop (as shown in fig). If the loop and the wire arecoplanar, find the net force on the loop



39. If the angular momentum of an electron revolving in a circular orbit is L, then its magnetic moment is

inagnetie moment is

1) eLm 2) eL/m 3) eL/2m 4) zero

40. A magnetic dipole placed in two perpendicular magnetic fields  $\vec{B}$  and  $\vec{B_0}$ 

is in equilibrium making an angle  $\theta$  with B then.

1)  $B = B_0 2$ )  $B \cos\theta = B_0 \sin\theta 3$ )  $B \sin\theta = B_0 \cos\theta 4$ )  $B = B_0 \tan\theta$ 

41. Magnetic induction at the centre of a circular loop of area  $\pi$  square meter is 0.1 tesla.

The magnetic moment of the loop is ( $\mu_0$  is permeability of air)

$$1)\frac{0.1\pi}{\mu_0} \quad 2)\frac{0.2\pi}{\mu_0} \quad 3)\frac{0.3\pi}{\mu_0} \quad 4)\frac{0.4\pi}{\mu_0}$$

42. A circular current loop of magnetic moment M is in an arbitrary orientation in an external magnetic field  $\vec{B}$ . The work done to rotate the loop by 30<sup>o</sup> about an axis perpendicular to its plane is :

1) MB 2) 
$$\sqrt{3} \frac{MB}{2}$$
 3)  $\frac{MB}{2}$  4) zero

- 43. The coils made of same material in two moving coil galvanometers have their areas in the ratio of 2:3 and number of turns in the ratio 4:5. These two coils carry the same current and are situated in the same field. The deflections produced by these two coils will be in the ratio of
  - 1) 8:15 2) 15:8 3) 8:1 4) 1:4
- 44. If a shunt is to be applied to a galvanometer of resistance  $50\Omega$  so that only 5% of total current passes through the galvanometer. The resistance of shunt should be

1)  $1.63\Omega$  2)  $4.2\Omega$  3)  $3.5\Omega$  4)  $2.63\Omega$ 

45. If only 2% of the main current is to be passed through a galvanometer of resistance G, then the resistance of the shunt will be

1) G/50 2) G/49 3) 50G 4) 49 G

46.	During smelting impurities to for	g an additional su rm a fusible prod	bstance is a uct which is	dded which combines with s known as
	(a) mud	(b) slag	(c) flux	(d) gangue.
47.	Roasting results	in the productio	n of metal i	n the case of
	(a) iron pyrites	(b) galena	(c) cinnaba	ar (d) bauxite.
48.	Zone refining ha	as been employed	d for prepar	ing ultra-pure samples of
	(a) Cu	(b) Na	(c) Ge	(d) Zn.
49.	Titanium can be	e obtained in a sta	ate of high p	ourity by
	(a) Van Arkel m	nethod (b) F	Poling	
	(c) Cupellation	(d) H	Electrorefini	ng.
50.	Copper pyrites a	are concentrated	by	
	(a) Electromagn	etic method	(b) F	roth flotation process
	(c) Gravity meth	nod	(d) A	ll the above.
51.	Electrolytic redu	uction method is	used in extr	action of
	(a) highly electr	onegative element	nts	(b) metalloids
50	(c) transition me	etals	(d) h	ighly electropositive elements.
52.	(a) aviding it	smelting an ore i	s to (b) <i>w</i>	duas it
	(a) obtain an all	0.1	(b) It (d)	cuuce Il
53	Which of the for	0y llowing metal ca	(u) so nnot he extr	acted by carbon reduction
55.	process?	nowing metal ca	iniot de exti	acted by carbon reduction
	(a) Pb	(b) Al	(c)Zn	(d) Hg.
54.	Van Arkel meth to a	od of purification	n of metals	involves converting the metal
	(a) volatile unsta	able compound	(b) v	olatile stable compound
	(c) non-volatile	stable compound	l (d) none of	f the above.
55.	In which of the	following, ore do	bes not matc	h with the metal?
	(a) Zinc – Calar	nine (b) I	lead – Gyps	um
	(c) Copper – Ma	alachite (d) A	Aluminium -	- Bauxite
56.	Which of the fo	llowing reaction	is used in th	ermite welding?
	(a) $TiO_2 + 4Na$	$\rightarrow$ Ti + 2Na <sub>2</sub> O	(b) C	$r_2O_3 + 2Al \rightarrow Al_2O_3 + 2Cr$
	(c) $3Mn_3O_4 + 8A_4$	$Al \rightarrow 4Al_2O_3 + 9$	Mn (d) 2	$Al + Fe_2O_3 \rightarrow Al_2O_3 + Fe$
57.	$\Delta_f G^\circ vs T plot$	in Ellingham dia	gram slopes	downward for the reaction:
	(a) $2 \text{ Ag} + 1 / 2$	$O_2 \rightarrow Ag_2O$	(b) CO + 1	$/ 2 O_2 \rightarrow CO_2$
	(c) C + $1/2$ O <sub>2</sub> -	$\rightarrow CO$	(d) Cu + 1	$/ 2 O_2 \rightarrow CuO$

- 58. Which of the following statement is not true?
  - (a) The Ellingham diagram show the plots of  $\Delta G$  vs T.

(b) In froth floatation process depressants are added to enhance the formation of froth.

- (c) Extraction of zinc oxide is done by coke.
- (d) CO is more effective reducing agent below 983K
- 59. From the Ellingham graphs on carbon, which of the following statements is false?
  - (a) CO<sub>2</sub> is more stable than CO at less than 983 K
  - (b) CO reduces  $Fe_2O_3$  to Fe at less than 983 K
  - (c) CO is less stable than  $CO_2$  at more than 983 K
  - (d) CO reduces  $Fe_2O_3$  to Fe in the reduction zone of blast furnace.
- 60. Iron obtained from reduction zone of the blast furnace is(a) Cast iron (b) Spongy iron (c) Steel (d) Wrought iron.
- 61. In blast furnace, iron oxide is reduced to iron by (a) Carbon (b) Limestone (c) CO (d) Zinc
- 62. Which of the following statements, about the advantage of roasting of sulphide ore before reduction is not true?
  - (a) The  $\Delta_f G^\circ$  of the sulphide is greater than those for CS<sub>2</sub> and H<sub>2</sub>S
  - (b) The  $\Delta_f G^\circ$  is negative for roasting of sulphide ore to oxide.
  - (c) Roasting of the sulphide to the oxide is thermodynamically feasible.
  - (d) Carbon and hydrogen are suitable reducing agents for metal sulphides
- 63. Which of the following elements is present as the impurity to the maximum extent in the pig iron?
  - (a) Manganese (b) Carbon (c) Silicon (d) Phosphorus
- 64. Identify the alloy containing a non-metal as a constituent in it.(a) Invar(b) Steel(c) Bell metal(d) Bronze
- 65. Aluminium is extracted from alumina (Al<sub>2</sub>O<sub>3</sub>) by electrolysis of a molten mixture of
  - (a)  $Al_2O_3 + HF + NaAlF_4$  (b)  $Al_2O_3 + CaF_2 + NaAlF_4$
  - (c)  $Al_2O_3 + Na_3AlF_6 + CaF_2$  (d)  $Al_2O_3 + KF + Na_3AlF_6$
- 66. Match items of Column I with the items of Column II and assign the correct code:

Column I	Column II
(i) Cyanide process	(a) Ultrapure Ge

(ii) Froth floatation process

(iii) Electrolytic reduction

(iv) Zone refining

- (b) Dressing of ZnS
- (c) Extraction of Al
- (d) Extraction of Au
- (e) Purification of Ni

	Code:	А	В	С	D
	(a)	(i)	(ii)	(iii)	(iv)
	(b)	(iii)	(iv)	(v)	(i)
	(c)	(iv)	(ii)	(iii)	(i)
	(d)	(ii)	(iii)	(i)	(v)
67.	Extraction recovered	n of go by	old an	d silve	er involves leaching with CN <sup>-</sup> ion. Silver is later
	(a) distilla	tion			(b) zone refining
	(c) displac	emen	t of Z	n	(d) liquation
68.	Considering used to real	ng Ell duce a	ingha dumir	m dia na?	gram, which of the following metals can be
	(a) Fe		(b) Z	Zn	(c) Mg (d) Cu
69.	Which one method?	e of th	e foll	owing	g ores is concentrated by chemical leaching
	(a) Galena	ı	(b) <b>(</b>	Coppe	er pyrite (c) Cinnabar (d) Argentite
70.	Sphalerite	is co	ncentr	ated b	by
	(a) gravity	v sepa	ration		(b) froth floatation
	(c) magne	tic sep	paratio	on	(d) hydraulic washing
71.	The follow	ving s	et of 1	reaction	ons are used in refining zirconium.
	Zr(impure	e) + 2I	2 + 52	23 K -	$\rightarrow$ ZrI <sub>4</sub> +1800 K $\rightarrow$ Zr(pure) + 2I <sub>2</sub> .
	This meth	od is l	know	n as	
	(a) distilla	tion			(b) liquation
	(c) Hall-H	leroul	t meth	nod	(d) Van Arkel method
72.	Heating C	u <sub>2</sub> O a	nd Cu	12S wi	ill give:
	(a) $Cu + S$	$O_2$	(b) (	Cu + S	$SO_3$ (c) CuO + CuS (d) Cu <sub>2</sub> SO <sub>3</sub>
73.	In the con the follow	text of ring st	f the I ateme	Hall-H ents is	Heroult process for the extraction of Al, which of false?
	(a) Al <sup>3+</sup> is	reduc	ed at	the ca	athode to form Al.
	(b) Na <sub>3</sub> Al	F <sub>6</sub> ser	ves as	the e	electrolyte.
	(c) CO an	d CO <sub>2</sub>	are p	roduc	ced in this process.

(d)  $Al_2O_3$  is mixed with  $CaF_2$  which lowers the melting point of the mixture and brings conductivity.

74. The statement that is not correct is

(a) a furnace lined with haematite is used to convert cast iron to wrought iron.

(b) collectors enhance the wettability of mineral particles during froth floatation.

(c) in vapour phase refining the metal should form volatile compound.

(d) copper from its low-grade ores is extracted by hydrometallurgy.

- 75. Roasted copper pyrite on smelting with sand produces
  - (a) FeSiO<sub>3</sub> as fusible slag and Cu<sub>2</sub>S as matte
  - (b) CaSiO<sub>3</sub> as infusible slag and Cu<sub>2</sub>O as matte
  - (c)  $Ca_3(PO_4)_2$  as fusible slag and  $Cu_2S$  as matte
  - (d)  $Fe_3(PO_4)_2$  as infusible slag and  $Cu_2S$  as matte
- 76. Which metal is refined by Mond Process?
  - (a) Titanium (b) Copper (c) Nickel (d) Zinc.
- 77. The composition of 'copper matte' is
  - (a)  $Cu_2S + FeS$  (b)  $Cu_2S + Cu_2O$
  - (c)  $Cu_2S + FeO$  (d)  $Cu_2O + FeS$
- 78. The complex formed when Al<sub>2</sub>O<sub>3</sub> is leached from bauxite using concentrated NaOH solution is

(a) Na[Al(OH) <sub>4</sub> ]	(b) $NaAl_2O_4$
(c) $Na_2[Al(OH)_3]$	(d) $Na_2AlO_2$

79. Match the extraction processes listed in column –I with metals listed in column – II

	Colu	ımn –	Column –II									
	A) S	elf re	ductio	on			P) Lead					
	B) C	arbor	n redu		Q) S	ilver						
	C) complex formation and displacement by metal R) Copper D) decomposition of iodide											
	D) d	ecom	positi	on of	iodide				S) B	oron		
		А	В	С	D		А	В	С	D		
	1)	R	Р	Q	S	2)	Q	S	Р	R		
	3)	Р	Q	S	R	4)	S	Р	Q	R		
80.	List	– I			List –II							
	1) L	iquati	on		a) Volatile metals with non-volatile impurity							

	2) Po	Poling			b) Metal w	b) Metal with its metal oxides as impurity							
	3) C	) Cupellation			c) Metal with easily oxidizable impurities								
	4) D	istilla	tion		d) Metal a	d) Metal and impurities differ in M.P							
		1	2	3	4		1	2	3	4			
	1)	a	b	с	d	2)	d	c	b	a			
	3)	d	b	с	а	4)	a	b	d	c			
81.		List	—I				List	-II					
	A)	Van	Arke	l meth	nod	1)	Ma	nufac	ture of	f caustic soda			
	B)	Solv	ay pro	ocess		2)	Puri	Titanium					
	C)	Cup	ellatio	on		3)			ure of	<sup>°</sup> Na <sub>2</sub> CO <sub>3</sub>			
	D)	Poli	ng			4)	Refi	ning	rer				
		А	В	С	D		А	В	С	D			
	1)	2	1	3	4	2)	4	3	2	5			
	3)	2	3	5	4	4)	5	1	3	4			
82.	Mate	ch the	follo	wing:									
		List	– I				List – II						
	A)	Cya	nide p	oroces	S	1)	Ultr	Ultrapure Ge					
	B)	Floa	tation	proce	ess	2)	Pin						
	C)	Elec	trolyt	ic red	uction	3)	Ext	Extraction of Al					
	D)	Zone	e refir	ning		4)	extra	action	u				
		А	В	С	D		А	В	С	D			
	1)	3	1	4	2	2)	4	2	3	1			
	3)	3	2	4	1	4)	4	1	3	2			
83.	Mate	ch the	follo	wing:									
		List	<u> </u>				List	-II					
	A)	Zone	e refir	ning		1)	Indi	um					
	B)	Poli	ng			2)	Titanium						
	C)	Van	-Arke	l metl	nod	3)	Nicl	kel					
	D)	Mon	id pro	cess	4)		Blister copper						
						5)	Zinc	2					
	А	В	С	D			А	В	С	D			
	1)	1	3	2	4	2)	1	4	2	3			
	3)	5	3	2	1	4)	4	2	1	3			

84. Metal commonly present in bronze, brass and German silver is

1) Cu 2) Ag 3) Zn 4) Fe

85. Match the following

## List – I (Concentration method)

- 1) Hydraulic washing
- 2) Magnetic separation
- 3) Froth flotation
- 4) Leaching

List – II (Principle)

a) Difference in solubility of gangue and ore particles in a specific substance

b) Difference in wetting property of ore and gangue particles

c) Difference in gravities of ore and gangue particles

d) Difference in magnetic property of gangue and ore particles The correct match is

	1	2	3	4		1	2	3	4
1)	b	d	c	a	2)	a	b	c	d
3)	a	d	b	с	4)	c	d	b	a
	-	-							

## 86. Cast iron is

(a) made by melting pig iron with scrap iron and coke using hot air blast(b) having slightly lower carbon content (about 3%) as compared to pig iron

(c) extremely hard and brittle

- (d) All of the above statements are true
- 87. Extraction of zinc from zinc blende is achieved by
  - (a) electrolytic reduction
    - (b) roasting followed by reduction with carbon
    - (c) roasting followed by reduction with another metal
    - (d) roasting followed by self-reduction
- 88. Method used for obtaining highly pure silicon, which is used as a semiconductor material, is
  - (a) oxidation

- (b) electrochemical
- (c) crystallization
- (d) zone refining

89. Match the columns.

Column-I

- (A) Blistered Cu
- (B) Blast furnace
- (C) Reverberatory
- (D) Hall-Heroult
- (a) A (q), B (r), C (s), D (p)(c) A - (t), B - (s), C - (r), D - (q)
- 90. Match the columns.

Column-I

- (A) Coloured bands
- (B) Impure metal to volatile
- (C) Purification of Ge and Si
- (D) Purification of mercury
- (a) A (p), B (q), C (s), D (t)(c) A - (r), B - (s), C - (p), D - (q)

Column-II (p) Aluminium (q)  $2Cu_2O + Cu_2S \rightarrow 6Cu + SO_2$ (r) Iron furnace (s) FeO + SiO<sub>2</sub>  $\rightarrow$ FeSiO<sub>3</sub> process (t)  $2Cu_2S + 3O_2 \rightarrow 2Cu_2O + 2SO_2$ (b) A - (p), B - (q), C - (r), D - (t) (d) A - (s), B - (t), C - (r), D - (q)

Column-II

- (p) Zone refining
- (q) Fractional complex distillation
- (r) Mond Process
- (s) Chromatography
- (t) Liquation
- (b) A (s), B (r), C (p), D (q)
- (d) A (t), B (s), C (r), D (q)



TEST NO: 07

# DATE :2.04.2020

	IO. (								.0-1	.2020			
	PHYSICS AND CHEM KEY												
1	2	16	1	31	1	46	2	61	3	76	3		
2	4	17	1	32	1	47	3	62	4	77	1		
3	3	18	2	33	3	48	3	63	2	78	1		
4	3	19	1	34	4	49	1	64	2	79	1		
5	1	20	2	35	1	50	2	65	3	80	3		
6	4	21	2	36	1	51	4	66	3	81	3		
7	4	22	3	37	2	52	2	67	3	82	2		
8	4	23	2	38	2	53	2	68	3	83	2		
9	3	24	2	39	3	54	2	69	4	84	1		
10	3	25	2	40	3	55	2	70	2	85	4		
11	2	26	3	41	2	56	4	71	4	86	4		
12	4	27	3	42	4	57	3	72	7 1	87	2		
13	2	28	2	43	1	58	2	73	3	88	4		
14	2	29	3	44	4	59	3	74	2	89	1		
15	3	30	2	45	2	60	2	75	1	90	2		

				BIOL	.0G	Y - KE	Y				
1	2	16	4	31	1	46	3	61	1	76	3
2	2	17	1	32	2	47	2	62	2	77	3
3	4	18	3	33	1	48	2	63	4	78	1
4	3	19	3	34	2	49	1	64	4	79	3
5	2	20	2	35	4	50	1	65	2	80	1
6	1	21	3	36	3	51	2	66	4	81	1
7	4	22	1	37	4	52	3	67	4	82	3
8	2	23	1	38	1	53	4	68	3	83	4
9	4	24	2	39	2	54	3	69	2	84	1
10	3	25	2	40	1	55	2	70	3	85	2
11	4	26	1	41	2	56	2	71	1	86	3
12	3	27	4	42	4	57	4	72	2	87	2
13	2	28	4	43	4	58	3	73	1	88	4
-14	2	29	2	44	3	59	1	74	3	89	4
15	3	30	4	45	2	60	2	75	1	90	3