Sample Paper-01

Class 12th NEET (2024)

ZOOLOGY

SECTION-A

1. The vasa efferentia leaves the testis and opens into the ___(a)___, located along the ___(b)___ surface.

(1) (a) – rete testis; (b) – epididymis
(2) (a) – epididymis; (b) – rete testis
(3) (a) – epididymis; (b) – posterior
(4) (a) – epididymis; (b) – anterior

2. The second maturation division of the mammalian ovum occurs;

(1) shortly after ovulation before the ovum makes entry into the fallopian tube.
(2) until after the ovum has been penetrated by a sperm.
(3) until the nucleus of the sperm has fused with that of the ovum.
(4) in the Graafian follicle following the first maturation division.

3. Consider the following statements each with two blanks.

(a) Seminiferous tubules produce ___(i)___ while Leydig cells produce ___(ii)___.
(b) In females, urethra is small and conducts ___(iii)___ while in males it conducts urine and ___(vi)___.
(c) The process of formation of spermatozoa from spermatogonia is called ___(v)___ and the process of maturation of spermatids into spermatozoa is called ___(vi)___.

Which one of the following options, gives the **correct** fill ups for the respective blank numbers from (i) to (vi) in the statements (a)–(c)?

(1) (v) – spermatogenesis; (vi) – spermiogenesis; (i) – spermatozoa; (ii) – testosterone
(2) (i) – testosterone; (ii) – spermatozoa; (iii) – urine; (iv) – semen
(3) (i) – estrogen; (ii) – testosterone; (v) – spermiogenesis; (vi) – spermatogenesis
(4) (iii) – urine; (iv) – semen; (v) – spermiogenesis; (vi) – Spermatogenesis

4. In the 28 days human ovarian cycle, the ovulation takes place typically on;

(1) Day 1 of the cycle
(2) Day 14 of the cycle
(3) Day 5 of the cycle
(4) Day 28 of the cycle

5. Go through the following statements.

Mitotic divisions in zygote are called _____ which results in the formation of daughter cells called _____ in the blastocyst, these cells are arranged into an outer layer called _____ and inner group of cells called _____.

(1) cleavage; trophoblast; blastomere; embryoblast
(2) cleavage; blastomere; trophoblast; embryoblast
(3) cleavage; embryoblast; trophoblast; blastomere
(4) cleavage; blastomere; embryoblast; trophoblast

6. How many of the given hormones are produced in females only during the pregnancy?

hPL, Estrogen, Progesterone, Thyroxine, Cortisol, hCG

(1) Six (2) Four
(3) Two (4) Three

7. Match **List-I** with **List-II** to find out the **correct** option.

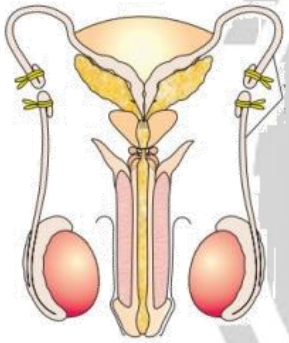
List-I		List-II	
(A)	Non-medicated IUDs	(I)	Lippes loop
(B)	Hormone releasing IUDs	(II)	Multiload 375
(C)	Copper releasing IUDs	(III)	CuT
		(IV)	Cu7
		(V)	LNG 20
		(VI)	Progestasert

(1) (A) – (I); (B) – (II, VI); (C) – (III, IV, V)
(2) (A) – (I); (B) – (V, VI); (C) – (II, III, IV)
(3) (A) – (II); (B) – (V, VI); (C) – (I, III, IV)
(4) (A) – (II); (B) – (I, VI); (C) – (III, IV, V)

8. One of the illegal methods of birth control is;
(1) By abstaining from coitus from day 10–17 of the menstrual cycle.
(2) By having coitus at the time of day break.
(3) By using barrier method as a condom.
(4) Abortion after determining the sex of the baby.

9. Choose the **correct** match.
(a) RTI – Reproductive tract infections
(b) VD – Venereal diseases
(c) STD – Sexually transmitted diseases
(d) IVF – Intra vaginal transfer
(1) All of these
(2) (a), (b) and (c)
(3) (b) and (c)
(4) (a) and (b)

10. Identify the correct option w.r.t the contraceptive method shown below:



(1) Prevention of gametogenesis
(2) Prevention of gamete transfer
(3) Prevention of ejaculation
(4) Prevention of gamete maturation

11. The spark-discharge apparatus to test chemical evolution of life was designed by:
(1) Oparin and Haldane
(2) Miller and Urey
(3) Jacob and Monad
(4) Darwin and Lamarck

12. The greatest evolutionary change enabling the land vertebrates to be completely free from water, was the development of;
(1) Four legs
(2) Operculum
(3) Hard shelled eggs and internal fertilisation
(4) Four chambered heart

13. The basic components of atmosphere of primitive earth were;
(1) Ammonia, methane and water.
(2) Methane, ozone, nitrogen and water.
(3) Hydrogen, nitrogen, methane and water.
(4) Ammonia, methane, hydrogen and water.

14. Match following evolution concepts in **List-I** with **List-II** and select the **correct** option.

List-I		**List-II**	
(A)	Mutation	(I)	changes in population's allele frequencies due to chance alone
(B)	Gene flow	(II)	differences in survival and reproduction among variant individuals
(C)	Natural selection	(III)	immigration, emigration change allele frequencies
(D)	Genetic drift	(IV)	Source of new alleles

(1) (A) – (I); (B) – (II); (C) – (III); (D) – (IV)
(2) (A) – (IV); (B) – (II); (C) – (III); (D) – (I)
(3) (A) – (III); (B) – (I); (C) – (IV); (D) – (II)
(4) (A) – (IV); (B) – (III); (C) – (II); (D) – (I)

15. Which one of the following statements is **correct**?
(1) *Australopithecines* the direct ancestor of modern man.
(2) Cromagnon man's fossil were found in Ethiopia.
(3) *Homo erectus* was the ancestor of modern man.
(4) Neanderthal man was the direct ancestor of *Homo sapiens*.

16. Match **List-I** with **List-II** to find out the **correct** option.

List-I		**List-II**	
(A)	Typhoid	(I)	Widal test
(B)	Malignant malaria	(II)	*Plasmodium falciparum*
(C)	Common cold	(III)	Rhinovirus
(D)	*Trichophyton*	(IV)	Ringworm

(1) (A) – (I); (B) – (II); (C) – (III); (D) – (IV)
(2) (A) – (II); (B) – (III); (C) – (IV); (D) – (I)
(3) (A) – (III); (B) – (IV); (C) – (I); (D) – (II)
(4) (A) – (IV); (B) – (I); (C) – (II); (D) – (III)

17. In the life cycle of *Plasmodium*, sexual stages (gametocytes) begin to develop in;
(1) Stomach of mosquito.
(2) Intestine of man.
(3) Liver of man.
(4) Red blood cells of man.

18. Every day our body is exposed to a large number of infectious agents but all are not capable of causing disease. This is due to;
(1) decreased virulence of pathogens.
(2) immunity of an individual.
(3) genotype of an individual.
(4) lifestyle of an individual

19. Ligation of foreign DNA at which of the following site will result in loss of tetracycline resistance of pBR322?
(1) Pst I (2) Pvu I
(3) EcoR I (4) BamH I

20. _____ acts as HIV factory.
(1) B lymphocytes
(2) T lymphocytes
(3) Macrophages
(4) Skin cell

21. Match **List-I** with **List-II** to find out the **correct** option.

List - I		List-II	
(A)	Ringworm	(I)	*Haemophilus influenzae*
(B)	Filariasis	(II)	*Trichophyton*
(C)	Malaria	(III)	*Wuchereria bancrofti*
(D)	Pneumonia	(IV)	*Plasmodium vivax*

(1) A-II, B-III, C-I, D-IV
(2) A-III, B-II, C-I, D-IV
(3) A-III, B-II, C-IV, D-I
(4) A-II, B-III, C-IV, D-I

22. Select the **correct** group/set of Australian marsupials exhibiting adaptive radiation.
(1) Numbat, spotted cuscus, flying phalanger
(2) Mole, Flying squirrel, Tasmanian tiger cat
(3) Lemur, anteater, wolf
(4) Tasmanian wolf, bobcat, marsupial mole

23. During the purification process for recombinant DNA technology, addition of chilled ethanol precipitates out;
(1) DNA (2) Histones
(3) tRNA (4) Glucose

24. First artificial recombinant DNA molecule was created by:
(1) Linking of gene encoding antibiotic resistance with a native plasmid of *Salmonella typhimurium*.
(2) Linking of gene encoding fertility factor with a native plasmid of *E. coli*.
(3) Linking of gene encoding beta-galactosidase with a native plasmid of *Agrobacterium tumefaciens*.
(4) Linking of gene encoding lactase with a native plasmid of *E. coli*.

25. In genetic engineering, a DNA segment (gene) of interest is transferred in the host cell through a vector.
Consider the following four agents (a) – (d) in this regard and select the **correct** option of which one or more of these can be used as vector/vectors.
(a) A bacterium (b) Plasmid
(c) *Plasmodium* (d) Bacteriophage
(1) (a) and (c) (2) (b) and (d)
(3) (a), (b), and (d) (4) Only (a)

26. The enzymes responsible for restricting the growth of bacteriophage in *Escherichia coli*;
(1) Add methyl group to DNA.
(2) Cut DNA in a particular fashion.
(3) Add formyl group to DNA.
(4) Both (1) and (2).

27. Which of the following enzymes has been **incorrectly** matched with their function?
(1) Ligase – Molecular glue
(2) Endonuclease – Chemical scalpel
(3) DNA polymerase – Joins nucleotides
(4) Plasmid : Vector

28. A bioreactor provides the optimal conditions for achieving the desired product by providing optimum growth conditions like;
(1) temperature, pH and microorganisms.
(2) salts, vitamins, CO_2 and temperature.
(3) protein, DNA, pH and temperature.
(4) oxygen, vitamins, salts, substrate temperature and pH.

29. RNA interference gene interferes with
(1) Translation in nematode
(2) Transcription in nematode
(3) Both transcription and translation innematode
(4) Synthesis of *r*RNA in nematode

30. Genetic engineering has been successfully used for producing;

(1) transgenic cow, Kadaknath, which produces high fat milk for making ghee.
(2) animals like bulls for factory work as they have super power.
(3) transgenic mice for testing safety of polio vaccine before use in humans.
(4) transgenic models for studying new treatments for only cardiac diseases.

31. Following are the steps in one type of gene therapy:

(a) Inject engineered cells into patients bone marrow.
(b) Viral DNA carrying the normal allele inserts into chromosomes.
(c) Let retrovirus infect bone marrow cells that have been extracted from patient and cultured.
(d) Insert RNA version of normal allele into retrovirus.

Which of the following is the **correct** sequence of steps?

(1) (a), (b), (c), (d) (2) (d), (c), (b), (a)
(3) (a), (b), (d), (c) (4) (d), (c), (a), (b)

32. Read the given statements.

Statement A: Periodic abstinence is the method in which the couples avoid or abstain from coitus from day 10 to 17 of the menstrual cycle.

Statement B: Day 10 – 17 have lowest chances of ovulation in the menstrual cycle.

(1) Both the statements are correct.
(2) Both the statements are incorrect.
(3) Statement B is incorrect.
(4) Statement A is incorrect.

33. Match **List-I** with **List-II** to find out the **correct** option.

List-I		**List-II**	
(A)	Golden rice	(I)	Increased shelf life
(B)	*Flavr Savr* tomato	(II)	Animal model for human disease
(C)	Mouse	(III)	Vitamin A
(D)	Transgenic pig	(IV)	Organ transplantation

(1) (A) – (III); (B) – (I); (C) – (II); (D) – (IV)
(2) (A) – (II); (B) – (I); (C) – (III); (D) – (IV)
(3) (A) – (IV); (B) – (III); (C) – (I); (D) – (IV)
(4) (A) – (IV); (B) – (I); (C) – (II); (D) – (III)

34. **Assertion (A):** Analogous structures are a result of divergent evolution.

Reason (R): Different structures evolving for the different functions and hence having similarity.

(1) Both assertion and reason are true and the reason is a correct explanation of the assertion.
(2) Both assertion and reason are true but the reason is not a correct explanation of the assertion.
(3) Assertion is true but reason is false.
(4) Both assertion and reason are false

35. **Assertion (A):** Human immuno deficiency virus known to cause AIDS.

Reason (R): It reduces the count of T- killer cells.

(1) Both assertion and reason are true and the reason is a correct explanation of the assertion.
(2) Both assertion and reason are true but the reason is not a correct explanation of the assertion.
(3) Assertion is true but reason is false.
(4) Both assertion and reason are false

SECTION-B

36. Match **List-I** with **List-II** to find out the **correct** option.

List-I		**List-II**	
(A)	Gestation	(I)	Fusion of male and female gametes
(B)	Parturition	(II)	Formation of gametes
(C)	Gametogenesis	(III)	Attachment to the uterine wall
(D)	Implantation	(IV)	Delivery of the baby
		(V)	Embryonic development

(1) (A) – (I); (B) – (III); (C) – (II); (D) – (IV)
(2) (A) – (v); (B) – (IV); (C) – (I); (D) – (III)
(3) (A) – (v); (B) – (IV); (C) – (II); (D) – (III)
(4) (A) – (III); (B) – (IV); (C) – (I); (D) – (III)

37. The sperm and the egg make different contributions to zygote. Which statements about their contributions are **true**?

(a) Sperm contribute most of the mitochondria.
(b) Egg contribute most of the cytoplasm.
(c) Both sperm and egg contribute haploid nucleus.
(d) Both sperm and egg contribute centrioles.

(1) (a) and (b)
(2) (b) and (c)
(3) (c) and (d)
(4) (a), (b), (c) and (d)

38. (a) Rapid decline in death rate.
(b) Rapid increase in MMR and IMR.
(c) Rapid decline in MMR and IMR.
(d) Increase in number of people in the reproductive age group.
(e) Rapid increase in the death rate.

Which of the above are the causes of higher population growth?

(1) (c), (d) and (e) (2) (a), (b) and (d)
(3) (a), (c) and (d) (4) All of these

39. What is **true** for natural methods of contraception?

(1) They increase phagocytosis of sperms.
(2) They employ barriers to prevent fertilisation.
(3) They are natural ways of avoiding chances of fertilisation.
(4) They are surgical and terminal methods.

40. Which of the following statements are **correct**?

(a) Amphibians evolved into reptiles.
(b) Fish with stout and strong fins could move on land and go back to water. This was about 350 mya.
(c) Giant ferns were present but they all fell to form coal deposits slowly.
(d) About 65 mya (in the cretaceous period), the dinosaurs suddenly disappeared from the earth.
(e) *Archeopteryx* is the connecting link between birds and reptiles.

(1) (a) and (b)
(2) (a), (b), (c), (d)
(3) (c) and (d)
(4) All of these

41. Mark the **incorrect** statement.

(1) Biochemical similarities point to the same shared ancestry as structural similarities among diverse organisms.
(2) Man has bred selected plants and animals for agriculture, horticulture, sport or security.
(3) Thorn of *Bougainvillea* and tendrils of *Cucurbita* represents analogy.
(4) Wings of butterfly and wings of birds are analogous organs.

42. Consider the following statements:

(a) Fitness in evolutionary theory describes the capability of an individual of certain genotype to reproduce.
(b) An individual's fitness is manifested through its phenotype.
(c) The fitness of different individuals with the same genotype are not necessarily equal.

The **correct** statements are

(1) (a), (b) and (c) (2) (a) and (b)
(3) (a) and (c) (4) (b) and (c)

43. In which disease does mosquito transmitted pathogen cause chronic inflammation of lymphatic vessels?

(1) Elephantiasis
(2) Ascariasis
(3) Ringworm disease
(4) Amoebiasis

44. Passive immunity is defined as immunity,

(1) inherited from the parents.
(2) achieved through vaccination.
(3) acquired through first exposure to the disease.
(4) achieved through the sera of other animals enriched in antibodies.

45. Choose the **incorrect** statement with respect to AIDS.

(1) Viral RNA genome is converted into copy DNA by reverse transcriptase.
(2) It is caused by an enveloped retrovirus HIV.
(3) It is an immunodeficiency disease.
(4) HIV selectively infects and kills B lymphocytes

46. Select the option including all sexually transmitted diseases.

(1) Cancer, AIDS, Syphilis
(2) Gonorrhoea, Malaria, Genital herpes
(3) Gonorrhoea, Syphilis, Genital herpes
(4) AIDS, Malaria, Filariasis

47. Which steps are involved in genetically modifying an organism?

(a) Identification of desirable DNA
(b) Insertion of DNA into the host
(c) Maintenance of introduced DNA in the host
(d) Isolation of recombinant protein
(1) (a) and (b)
(2) (b) and (c)
(3) (a), (b) and (c)
(4) (a), (b), (c) and (d)

48. Stirrer in stirred tank type bioreactor facilitates;

(1) Oxygen delivery from outside to inside
(2) Mixing and aeration
(3) Temperature control
(4) Foam control

49. Read the given statements.

Statement A: Mutations are large, random and directionless while Variations are small, gradual and directional.

Statement B: Darwin believed mutations caused speciation and hence called it saltation.

(1) Both the statements are correct.
(2) Both the statements are incorrect.
(3) Statement B is incorrect.
(4) Statement A is incorrect.

50. **Assertion (A):** From day 21 to 28 of the menstrual cycle is called fertile period.

Reason (R): As chances of fertilisation are very high during this period.

(1) Both assertion and reason are true and the reason is a correct explanation of the assertion.
(2) Both assertion and reason are true but the reason is not a correct explanation of the assertion.
(3) Assertion is true but reason is false.
(4) Both assertion and reason are false.