



RJ VISION PVT. LTD.
(MOST STABLE & INNOVATIVE INSTITUTE)

GSEB
BPT – 3B

BIOLOGY
TEST

COURSE NAME: 12TH

Marks : 100 marks

Topic : FULL SYLLABUS

DATE :

PART – A

Instructions:

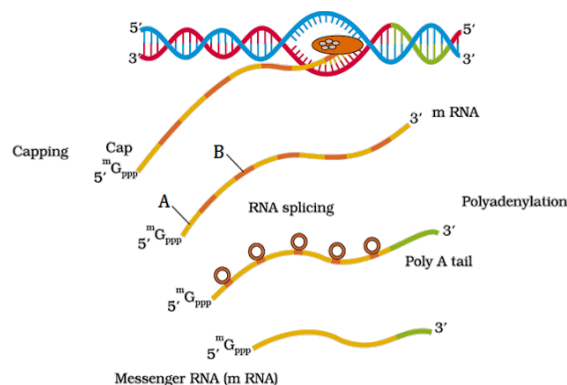
- (1) *There are 50 objective type (M.C.Q) questions in part-A and all questions are compulsory.*
- (2) *The questions are serially numbered from 1 to 50 and each carries 1 mark.*
- (3) *Read each question carefully, select proper alternative and answer in the O.M.R. sheet.*
- (4) *The OMR sheet is given for answering the questions. The answer of each question is represented by (1) O, (2) O, (3) O, (4)O. Darken the circle of the correct answer with ball-pen.*
- (5) *Rough work is to be done in the space provided for this purpose in the test booklet only.*
- (6) *Set No. of question paper printed on the upper-most right side of the Question paper is to be written in the column provided in the OMR sheet.*

PART- A

1. _____ hormone released from pituitary regulates the sertoli cells.
(1) FSH (2) GH (3) Prolactin (4) LH
2. Antiparallel strands of a DNA molecule means that
(1) One strand turns anti-clockwise
(2) The phosphate groups of two DNA strands, at their ends, share the same position
(3) The phosphate groups at the start of two DNA strands are in opposite position (pole)
(4) One strand turns clockwise
3. If a colourblind woman marries a normal visioned man, their sons will be
(1) All normal visioned
(2) One-half colourblind and one-half normal
(3) Three-fourths colourblind and one-fourth normal
(4) All colourblind
4. _____ is the secretion of mast cells.
(1) Hippurin (2) Myoglobin (3) Histamine (4) Haemoglobin
5. Two plants can be said to belong to the same species if they
(1) Look similar and possess identical secondary metabolites
(2) Have same number of chromosomes
(3) Can reproduce freely with each other and form seeds
(4) Have more than 90 percent similar genes
6. The formation of gametes is termed as:
(1) Gametogamy (2) Syngamy (3) Gametogenesis (4) Gestation

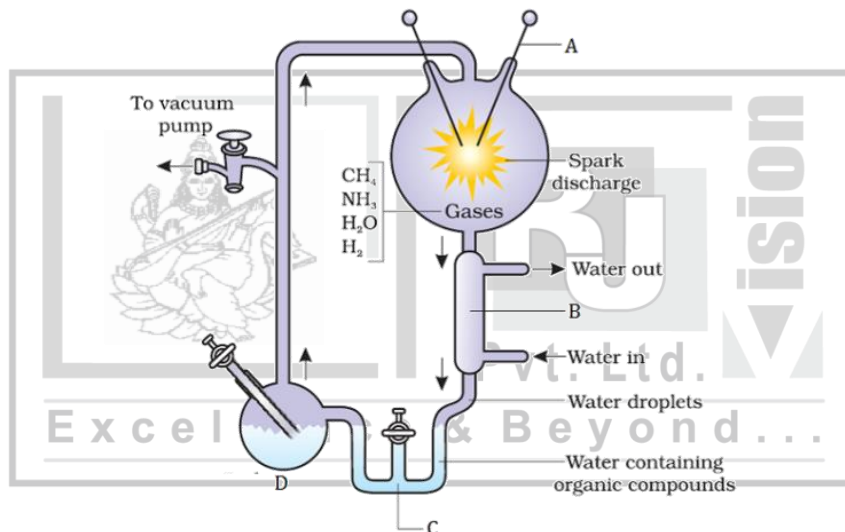
7. The correct chronological order of the following events is:
- (1) Gametogenesis → Fertilization → Insemination → Gestation → Implantation → Parturition
 - (2) Gametogenesis → Insemination → Fertilization → Implantation → Parturition → Gestation
 - (3) Gametogenesis → Insemination → Fertilization → Implantation → Gestation → Parturition
 - (4) None of these
8. Parthenocarpic fruits are found in:
- (1) Apple
 - (2) Castor
 - (3) Wheat
 - (4*) Banana
9. CDRI, Lucknow developed which new female contraceptive?
- (1) 'Sakni'
 - (2) 'Saheli'
 - (3) 'Saloni'
 - (4) 'Smiti'
10. When a true breeding pea plant that has yellow seeds is pollinated by a plant that has green seeds, all the F₁ plants have yellow seeds. This means that the allele for yellow is
- (1) Heterozygous
 - (2) Dominant
 - (3) Recessive
 - (4) Lethal
11. MTPs are considered relatively safe during the _____ trimester; _____ trimester abortions are much riskier.
- (1) First, second
 - (2) Second, first
 - (3) Third, first
 - (4) Third, second
12. DNA as an acidic substance present in the nucleus was first identified by:
- (1) Crick
 - (2*) Friedrich Miescher
 - (3) Watson
 - (4) Both (1) and (3)
13. Which of the following is/are correct?
- (1) Pill prevents ovulation
 - (2) Vasectomy causes semen having no sperms
 - (3) Copper-T prevents implantation
 - (4) All of the above
14. RCH stands for
- (1) Routine check-up of health
 - (2) Reproduction cum hygiene
 - (3) Reversible contraceptive hazards
 - (4) Reproduction and child health care
15. Polygenes are
- (1) Genes which control continuously variable characters like height, weight, etc.
 - (2) Multiple copies of a single gene
 - (3) Always linked genes
 - (4) Pseudogenes
16. ABO blood groups is determined by
- (1) Three recessive alleles
 - (2) Three codominant alleles
 - (3) Three alleles, two dominant and one recessive
 - (4) Three alleles, two recessive and one dominant
17. Which one of the following is the genotypic ratio in monohybrid cross?
- (1) 9:3:3:1
 - (2) 1:2:1
 - (3) 9:7
 - (4) 3:1
18. Double helix model-of DNA proposed by Watson and crick was based on
- (1) X-ray diffraction data of Meischer
 - (2) X-ray crystallography data of Wilkins and Franklin
 - (3) X-ray diffraction data of Wilkins and Franklin
 - (4) X-ray diffraction data of Chargaff

19. Which of the following occupy top vertical strata of forest ecosystem?
 (1) Shrubs (2) Herbs and grasses
 (3) Tree (4) Phytoplankton
20. Which of the following is actual sequence of packaging of DNA in eukaryotic cells
 (1) DNA → Chromatin → Nucleosome → Chromosome
 (2) DNA → Nucleosome → Chromosome → Chromatin
 (3) DNA → Nucleosome → Chromatin → Chromosome
 (4) DNA → Chromosome → Chromatin → Nucleosome
21. What gases are produced in anaerobic sludge digesters?
 (1) Methane and CO₂ only
 (2) Methane, Hydrogen Sulphide and CO₂
 (3) Methane, Hydrogen Sulphide and O₂
 (4) Hydrogen Sulphide and CO₂
22. Which one of the following is not used in organic farming?
 (1) Earthworm (2) Oscillatoria (3) Snail (4) Glomus
23. Reverse transcriptase is used for synthesizing:
 (1) m-RNA (2) r-DNA (3) c-DNA (4) Chimeric DNA
24. pBR-322 is most extensively studied:
 (1) Plasmid DNA of E. Coli (2) Foreign gene
 (3) r-DNA (4) Clone
25. How many different varieties of mango found in India?
 (1) 50,000 (2) 5,000 (3) 2,000 (4) 1,000
26. Which of the following enzyme is used in case of fungus to cause release of DNA along with other macromolecules?
 (1) Lysozyme (2) Cellulase (3) Chitinase (4) Amylase
27. 'Golden Rice' carries genes for synthesizing:
 (1) Proteins (2) Lipids and fats
 (3) Vitamins and carotenes (4) Oils and proteins
28. Hepatitis-B vaccine is a:
 (1) First generation vaccine (2) Second generation vaccine
 (3) Product of biotechnology (4) Both (2) and (3)
29. All of the following deadly diseases are treated by antibiotics, except:
 (1) Diphtheria (2) Leprosy (3*) Plague (4) Cancer
30. Bt gene produces protein from another organisms is-
 (1) Cry (2) cry (3) Typ (4) trp
- 31.



- What is indicated by 'A' in the figure?
- (1) Extron (2) Intron (3) Intron (4) Exon
32. In a nucleosome, histones are organized in which structure?
- (1) Octamer (2) Hexamer (3) Decamer (4) Septamer
33. Griffith carried out his experiments in mice using which pathogenic bacterium?
- (1) Haemophilus influenza (2) Corynebacterium diphtheria
(3) Streptococcus pneumonia (4) Yersinia pestis
34. If inheritable mutation is observed in a population at high frequency it is termed as:
- (1) DNA mutation (2) DNA isomerism
(3) DNA polymorphism (4) None
35. Pneumonia is spread by:
- (1) Inhaling droplets/aerosols (2) Mosquito
(3) Reusing syringes (4) Genetic disease
36. The plasmodium parasite reproduces in liver by _____ and in blood by _____.
- (1) Sexual reproduction, Asexual reproduction
(2) Asexual reproduction, Sexual reproduction
(3) Spore formation, Sexual reproduction
(4) Sexual reproduction, Spore formation
37. W. bancrofti infects which part of the human body?
- (1) Blood vessels of upper limbs (2) Lymph vessels of lower limb
(3) Blood vessels of lower limb (4) Lymph vessels of upper limb
38. When a person is bitten by snake, we inject antitoxin in the patient this type of immunity is known as
- (1) Active immunisation (2) Passive immunisation
(3) Innate immunisation (4) Humoral immunity
39. The puffed-up dough of dosa and idli is due to _____.
- (1) Fermentation by bacteria and production of O₂
(2) Hydrolysis by bacteria and production of CO₂
(3) Fermentation by bacteria and production of CO₂
(4) Hydrolysis by bacteria and production of O₂
40. Just as, Swiss cheese is due to bacteria, Roquefort cheese is due to _____.
- (1) Algae (2) Yeast
(3) Bacteria (4) Fungi
41. When the plant sporophyte develops to undergo maturation, it produces:
- (1) Gemmae (2) Protonema
(3) Sporophyll (4) Egg
42. Multiplication of alien DNA in organism requires:
- (1) ROP (2) ORI (3) Stop codon (4) TATA box
43. A single strand of nucleic acid tagged with radioactive molecule is called
- (1) Vector (2) Selectable marker
(3) Plasmid (4) Probe
44. Plasmids are:
- (1) ss-DNA (2) ds-DNA (linear)
(3) ds-DNA (circular) (4) denatured-DNA

45. In plant biotechnology, root tumours are induced in plant using bacterium
 (1) Agrobacterium rhizogenes (2) Agrobacterium
 (3) Rhizobium (4) None of these
46. DNA element with ability to change its position is called as
 (1) Transposons (2) Cistron
 (3) Recon (4) Intron
47. Industrial mechanism is an example of
 (1) Neo Darwinism (2) Natural selection
 (3) Mutation (4) Neolamarckism
48. Genetic drift operates in
 (1) Small isolated population (2) Large isolated population
 (3) Non reproductive population (4) Slow reproduce population
49. In which disease, lips and fingernails turn gray and in severe cases bluish?
 (1) Jaundice (2) Pneumonia
 (3) Typhoid (4) Malaria
50. Identify the part A, B, C and D of the figure?



- (1) A: Liquid water in trap, B: Electrode, C: Boiling water, D: Condenser
 (2) A: Boiling water, B: Condenser, C: Electrode, D: Liquid water in trap
 (3) A: Electrode, B: Condenser, C: Liquid water in trap, D: Boiling water
 (4) A: Condenser, B: Liquid water in trap, C: Boiling water, D: Electrode

PART- B

Instructions:

- (1) Write in a clear legible handwriting.
 (2) There are three sections in part- B of the question paper and total 1 to 27 questions are there.
 (3) All the questions are compulsory. Internal options are given.
 (4) The numbers at right side represent the marks of the question.
 (5) Start new section on new page.
 (6) Maintain sequence.

SECTION – A [2 M]

- ❖ Answer question No. 1 to 12 as directed. Each question carry 2 marks. (Attempt any 8 out of 12) [16]
1. Differentiate between perisperm and endosperm giving one example of each.
 2. Write the function of each of the following:
 - (1) Middle piece in human sperm.
 - (2) Luteinising hormone in human males.
 3. How do copper and hormone releasing IUDs act as contraceptives? Explain.
 4. Explain the process of sex determination in humans.
 5. Arrange the following terms in the correct developmental sequence: pollen grain, sporogenous tissue, microspore tetrad, pollen mother cell, male gametes.
 6. Define Immigration, Natality, Mortality and Emigration.
 7. Draw a neat and labelled diagram of structure of an antibody molecule.
 8. What are the two approaches for conserving biodiversity? Name them with one example each.
 9. Why does 'Swiss cheese' develops large holes? Give the name of bacteria responsible for that.
 10. Write down any three control measures to check population explosion.
 11. Discuss the role of enzyme DNA ligase plays during DNA replication.
 12. Describe briefly the following:
 - (a) Origin of replication

SECTION – B [3 M]

- Answer question No.13 to 21 as directed. Each question carry 3 marks. (Attempt any 6 out of 9) [18]
13. Differentiate between microsporogenesis and megasporogenesis. Which type of cell division occurs during these events? Name the structures formed at the end of these two events.
 14. Suggest some methods to assist infertile couples to have children.
 15. Mention the advantages of selecting pea plant for experiment by Mendel.
 16. Describe one example of adaptive radiation.
 17. (a) Draw a sectional view of Human ovary. Label the following parts.
 - (i) Primary Follicle
 - (ii) Tertiary Follicle
 - (iii) Graffian Follicle
 - (iv) Corpus Luteum(b) Name the hormones influencing follicular development of corpus luteum.
 18. Compare and contrast the advantages and disadvantages of production of Genetically modified crops.
 19. (a) Name the infective stage of plasmodium which Anopheles mosquito takes in along with the blood meal from an infected person.
 - (b) Why does the infection cause fever in humans?
 - (c) Give a flow chart of the part of the life cycle of this parasite which is passed inside the insect.
 20. Parthenocary and apomixis have been observed in some plants. Give an example of each. State a similarity and a difference observed between the two processes.
 21. Mention the advantages of selecting pea plant for experiment by Mendel.

SECTION – C [4 M]

Answer question No. 22 to 27 as directed. Each question carry 4 marks. **(Attempt any 4 out of 6)**

[16]

22. Explain how does oogenesis differ from spermatogenesis.
23. Give reason why:
- (i) Most zygotes in angiosperms divide only after certain amount of endosperm is formed.
 - (ii) Groundnut seeds are exalbuminous and castor seeds are albuminous.
 - (iii) Micropyle remains as a small pore in the seed coat of a seed.
 - (iv) Integuments of an ovule harden and the water content is highly reduced, as the seed matures.
 - (v) Apple and cashew are not called true fruits.
24. (I) Why is predation required in a community of different organisms?
(II) Name the type of interaction seen in each of the following examples:
- a. Ascaris worms living in the intestine of humans
 - b. Wasp pollinating fig inflorescence.
 - c. Clown fish living among the tentacles of sea-anemone
 - d. Mycorrhizae living on the roots of higher plants
 - e. Orchid growing on a branch of a mango tree
 - f. Disappearance of smaller barnacles when Balanus dominated in the coast of Scotland.
25. Two blood samples A and B picked up from the crime scene were handed over to the forensic department for genetic fingerprinting. Describe how the technique of genetic fingerprinting is carried out. How will it be confirmed whether the samples belonged to the same individual or to two different individuals?
26. Distinguish between:
Grazing food chain and detritus food chain.
27. (i) A sperm has just fertilised a human egg in the Fallopian tube. Trace the events that the fertilised egg will undergo up to the implantation of the blastocyst in the uterus.
(ii) In court, a woman of AB blood group claims that a man of O blood group is the father of her son having O blood group. The judge orders to take the help of a geneticist to solve the problem. Finally, it was concluded that man of O blood group was not the father of woman's son.
Is it a correct judgement regarding the biological father of the child? Justify with your knowledge of genetics. Also, define the phenomenon of codominance.