PROJECT RAIL

मॉडल प्रश्न पत्र 2023

संकायः- विज्ञान

विषय : (BIOLOGY)

कक्षा : 12th

कक्षा – 12 की बोर्ड परीक्षा 2022–23 हेतु झारखण्ड अधिविद्य परिषद, राँची के पाठ्यक्रम पर पूर्णतः आधारित

जिला प्रशासन, कोडरमा

संदेश !

उपायुक्त
आदित्य रंजन

प्यारे इन्टरमीडिएट के परीक्षार्थियों,

परीक्षा में बेहतर प्रदर्शन एवं परीक्षा का भय पूरी तरह से समाप्त करने के लिए जिला प्रशासन ने प्रोजेक्ट **RAIL** और स्वस्थ शैक्षणिक माहौल के लिए प्रोजेक्ट **IMPACT** के माध्यम से तनावमुक्त एवं प्रेरणादायक गतिविधियों से पूरे वर्ष आपके विद्यालय में पठन–पाठन का कार्य पूरा करवाया है।

वार्षिक माध्यमिक परीक्षा 2023 के मद्देनजर जैक बोर्ड के पैटर्न पर आधारित कक्षा 10 के लिए जिला प्रशासन, कोडरमा द्वारा विगत दिनों जारी किया गये मॉडल सेट; बोर्ड में सम्मिलित होने वाले परिक्षार्थियों के लिए काफी उत्साहवर्द्धक एवं लाभदायक सिद्ध हो रहे हैं।

हम सभी अवगत है कि इन्टरमीडिएट परीक्षा–2023 दिनांक 14–3–2023 से आयोजित होगी। ऐसे समय में अभ्यर्थी जितने अधिक प्रश्नों का अभ्यास करेंगे उनके लिए उतना ही लाभप्रद होगा। इस निमित आयोजित होने वाले इन्टरमीडिएट परीक्षा में अभ्यर्थियों का अपेक्षाओं के अनुरूप बेहतर परिणाम के उद्देश्य से कक्षा 12 हेतु (सभी संकायों के महत्वपूर्ण विषय) जैक बोर्ड के पैटर्न पर आधारित अत्यंत महत्वपूर्ण प्रश्नों के तीन–तीन मॉडल सेट; जिला प्रशासन एवं शिक्षकों के सहयोग से उपलब्ध कराए जा रहे हैं।

आशा है कि इस मॉडल सेट के प्रश्नों पर पूरी ईमानदारी से अभ्यास करेंगे, ताकि आगामी 12वीं कक्षा के वार्षिक इन्टरमीडिएट परीक्षा–2023 में कोडरमा जिला पूर्व वर्ष की भाँति पूरे झारखण्ड में अव्वल स्थान प्राप्त कर सके।

जिला प्रशासन के सभी सदस्यों एवं सभी शिक्षकों के प्रति आभार व्यक्त करते हुए जिला के सभी इन्टरमीडिएट परीक्षार्थियों के उज्ज्वल भविष्य की कामना करता हूँ।

उपायुक्त,
कोडरमा।

प्रश्न पत्र डाउनलोड करने का लिंक:

https://koderma.nic.in/education/

https://youtube.com/@degstrainingcentre2255

PROJECT RAIL 2.O
MODEL QUESTION PAPER-2023
SET – 1

SUB- BIOLOGY CLASS - 12

Time- 90 mins Section – A
Total marks - 35

1. The two nuclei at the end of the pollen tube are called

1. Tube nucleus and a generative nucleus
2. Sperm and ovum
3. Generative nucleus and stigma
4. Tube nucleus and sperm

2. Functional megaspore in an angiosperm develops into

1. Endosperm
2. Embryo
3. Embryo-sac
4. Nucellus

3.The hormone that is released from the testes is _____.

5. Progesterone
6. Vasopressin
7. Testosterone
8. None of the above

4.The _____ is a temporary organ that connects a mammalian mother to its foetus.

1. Placenta
2. Chorion
3. Endometrium
4. None of the above

5. Amniocentesis is a process used to

1.Grow cells on culture media

2.Know about brain disease

3.Determine mutations

4.Determine a disease of the embryo

6. Colour blindness is an _____ linked recessive trait

1. Z chromosome
2. Y chromosome
3. X chromosome
4. None of the above

7. A man marries a woman and both do not show any apparent traits of inherited disease. Five sons and two daughters are born, and three of their sons suffer from a disease. However, none of the daughters is affected. The following mode of inheritance for the disease is

1. Sex-linked recessive
2. Sex-linked dominant
3. Autosomal dominant
4. None of the above

8. The nucleic acid synthesis takes place in

1. 3'-5' direction
2. 5'-3' direction
3. Both ways
4. Any direction

9. What is the nature of the strands of the DNA duplex?

1. Anti-parallel and complementary
2. Identical and complementary
3. Anti=parallel and non-complementary
4. Dissimilar and non-complementary

10. Hershey and Chase's experiment was based on the principle

1. Transformation
2. Translation
3. Transduction
4. Transcription

11. The anticodon of initiation codon for protein synthesis is

1. UUU

2. AUG
3. UAC
4. CAU

12. The eukaryotic replication of DNA is

1. Bidirectional with many origins
2. Unidirectional with many origins
3. Bidirectional with a single origin
4. Unidirectional with a single origin

13. The gene sequence that codes for proteins are

1. Exons
2. Introns
3. Intervening sequences
4. Control regions

14. Histones are

1. Positively charged and basic amino acids
2. Positively charged and acidic proteins
3. Negatively charged and basic proteins
4. Absent in bacteria

15.Example of a homologous organ

1The arm of a human, wing of a bird

2Wing of an insect, wing of a bird

3Leg of a dog, leg of a spider

4.None of the above

16. the Origin of Species was written by _____

1Charles Darwin

2.Ludmila Kuprianova

3.Mikhail A. Fedonkin

4.None of the above

17. Both B & T lymphocytes are produced in the bone marrow; however, only the T lymphocytes travel to the _____ and mature there.

1. Spleen
2. Thymus
3. Pituitary gland
4. Adrenal gland

18. Elephantiasis is caused by _____.

1. Filarial worms
2. Flatworms
3. Tapeworms
4. None of the above

19.Gobar gas plants use _____ bacteria

1. Methanogenic
2. Cyanogenic
3. Oncogenic
4. Pyogenic bacteria

20.High biological oxygen demand in a water body means _____

1.Water is not polluted

2.Water is polluted

3.Waterbody contains lots of lifeforms

4.None of the above

21.The guts of various ruminants contain _____

1.Acidophiles

2.Halophiles

3.Methanogens

4.All of the above

22.Saccharomyces cerevisiae is used primarily for

1.Baking

2.Bleaching

3.Biofuel

4.None of the above

23.The Golden Rice variety is rich in

1.Vitamin C

2.B-carotene and ferritin

3.Biotin

4.Lysine

28. Plasmids are used as cloning vectors for which of the following reasons?

1.Can be multiplied in culture

2.Self-replication in bacterial cells

3.Can be multiplied in laboratories with the help of enzymes

4.Replicate freely outside bacterial cells

29. Which is a genetically modified crop?

1.Bt-cotton

2.Bt-brinjal

3.Golden rice

4.All

30.A group of populations of two or more species occupying the same geographical area at the same time is called

1.Ecosystem

2.Commensalism

3.Interaction

4.Community

31.An organism that lives in or on another organism and derives nutrients for itself at the expense of the host organism is called _____

1.Scavenger

2.Prey

3.Predator

4.Parasite

32.___ is one of the most prevalent hotspots of biodiversity in India.

1. Himalayas
2. Western Ghats
3. Ganges
4. None of the above

33._____ is an example of an ex-situ conservation.

1. Sacred groves
2. Wildlife sanctuary
3. Seed bank
4. National park

34. is the basic unit of classification and a taxonomic rank.

1. Species
2. Genus
3. Class
4. Order

35. Carbon dioxide is primarily called a greenhouse gas because

1. Traps heat
2. Traps light
3. Traps warm currents
4. None of the above

Time- 90 mins Section –B total marks – 35

Q1. Answer any five of the following questions in a sentence. (5 X 1 = 5)

a. Define ecological succession.
b. Write name of two nucleic acid.
c. Define test cross and draw diagram.
d. What is exon?
e. What is gene gun?
f. What is single cell protein? Name any two.

g. .....bacteria converts ammonia in nitrite and bacteria.....converts nitite int nitatre.

. Q2. Answer any five in brief. (5 X 3 =15)

a. What is greenhouse effect ? write the names two green house gases.
b. What is restriction enzyme? Name any two.
c. Why the process of fertilization in angiosperms referred as double fertilization?
d. Give the difference between analogous and homologous organs with example. Which type evolution shown by these organs?
e. What is linkage? Write any two significance of linkage.
f. What is emasculation? Write down its importance.

Q3. Answer any three questions in detail (3 X 5= 15)

a. Describe mendal laws if inheritance with the help of punett square. Also write mendal monohybrid and dihybrid phenotypic and genotypic ratios.
b. Define biodiversity. What are the major causes of loss of biodiversity?
c. Describe the process of spermatogenesis with the help of suitable diagrams.
d. What is population? Describe the S shaped and J shaped population growth curve.
e. Match the following.

Column A	Column B
1.Spermatogensis	a. Microorganism
2.Histone	b. DNA
3.Transcription	c. Protein
4.Decomposer	d. mRNA
5.Replication	e. Sperm

SUB- Biology SET -2 class- 12th

Section A full marks- 35 Time 90m

Multiple choice questions

Question1.
After ovulation, the ruptured Graafian follicle changes into
(a) Corpus striatum
(b) Corpus iuteum
(c) Corpus albicans
(d) Corpus callosum

Question 2.
Pollen grains are able to withstand extremes of temperature and dissication because their exine is composed of
(a) Cutin
(b) Suberin
(c) Sporopollenin
(d) Callose

Question 3.
Cancer cells are more easily damaged by radiations than normal cells because they are
(a) undergoing rapid division
(b) different in structure
(c) non-dividing
(d) starved of mutation

Question 4.
which plant is called Terror of Bengal
(a) water Hyacinth
(b) lotus
(c) hydrilla
(d) vallisnaria

Question 5.
The interaction where one species is benefitted and the other is neither benefitted nor harmed is called
(a) Commensalism
(b) Amensalism

(c) Mutualism
(d) None of the above

Question 6.
Important objective of biotechnology in agriculture section is
(a) To produce pest resistant varieties of plants
(b) To increase the nitrogen content
(c) To decrease the seed number
(d) To increase the plant weight

Question 7.
Capacity of a cell to grow into a full individual plant is known as
(a) Tissue culture
(b) Clone
(c) Vegetative reproduction
(d) Totipotency

Question 8.
In DNa replication, the primer is
(a) A small deoxyribonucleotide polymer
(b) Small ribonucleotide polymer
(c) Helix destabilising protein
(d) Enzyme taking part in joining nucleotides to their complementary template bases.

Question 9.
The prenatal technique to determine the genetic disorders in a foetus is called
(a) Laproscopy
(b) Amniocentesis
(c) Abstinence
(d) Coitus interrupts

Question10.
The natural aging of the lake is called
(a) Biomagnification
(b) Eutrophication
(c) BOD
(d) None of the above

Question 11.
Which of the following is called as a detrivores?

(a) An animal feeding on decaying organic matter
(b) An animal feeding on a plant
(c) A plant feeding on an animal
(d) An animal feeding on another animal

Question12.
Wild life is destroyed most by
(a) Lack of proper care
(b) Mass scale hunting
(c) Destruction of natural habitats
(d) Natural calamity

Question 13.
Presence of large amount of nutrients in water cause excessive growth of
(a) Lotus
(b) Fungal bloom
(c) Bacterial bloom
(d) Algal bloom

Question 14.
Copper-T prevents
(a) Ovulation
(b) Fertilization of egg
(c) Implantation of embryo
(d) Both (b) and (c)

Question 15.
Which of the following organelles is associated with genetic , engineering?
(a) Plasmids
(b) Plastids
(c) Chloroplast
(d) Mitochondria

Question16.
The pollen tube usually enters the embryosac
(a) Through one of the synergid
(b) By directly penetrating the egg
(c) Between one synergid and central cell
(d) By knocking off the antipodal cells

Question 17.
Winter sleep is also called as
(a) Hibernation
(b) Suspend
(c) Migrate
(d) Aestivation

Question 18.
Haemophilia is a
(a) X- linked recessive
(b) X- linked dominant
(c) Can be (a) or (b)
(d) None of the above

Question 19.
For development of 100 seeds,how many meiosis are required?
(a) 100
(b) 125
(c) 50
(d) 200

Question 20
Transcription is controlled by
(a) DNA polymerase
(b) RNA polymerase
(c) Can be (a) or (b)
(d) None

Question 21.
After ovulation, the ruptured Graafian follicle changes in to
(a) Corpus striatum
(b) Corpus iuteum
(c) Corpus albicans
(d) Corpus callosum

Question 22.
According to Human genome project, which sentence is correct?
(a) started in 1980 in USA
(b) It is called miniproject

(c) Its completed in 2010
(d) methodology based on BAC and YAC

Question 23.
DNA is semi conservative and it is experimentally proved by
(a)Meselson and stahl
(b) Griffith
(c) Sutton and boveri
(d) Watson and cric

Question 24.
Which is most primitive ancestor of man
(a) *Ramapithecus*
(b) *Homo habilis*
(c) *Australopithecus*
(d) *Homo sapiens*

Question 25.
Antibodies present in Mothers milk colostrums is
(a) Ig G
(b) Ig A
(c) Ig D
(d) Ig E

Question 26.
Phenotypic ratio of test cross in Dihybrid plant is
(a) 1:1:1:1
(b) 2:2:2:2
(c) 9:3:3:1
(d) 2:4:2:2

Question 27.
Acrosome is formed by
(a) Mitochondria
(b) Nucleus
(c) Cytoplasm
(d) Golgi bodies

Question 28.
The technique of obtaining large number of plantlets by tissue culture method is called :

(a) Organ culture
(b) Micropropagation
(c) Macropropagation
(d) Plantlet culture

Question 29.
The shifting of an organism temporarily from the stressful habitat to a more hospitable area and return when stressful period is over is called
(a) Suspend
(b) Migrate
(c) Hibernation
(d) Aestivation

Question 30.
First biochemical to be produced commercially by microbial cloning and genetic engineering.
(a) Human insulin
(b) Penicillin
(c) Pollen culture
(d) Fertility factor

Question 31.
Crop rotation is used by farmers to increase
(a) Soil fertility
(b) Nitrogenous content of soil
(c) Organic content of soil
(d) All of these

Question 32.
Which of the following organelles is associated with genetic engineering?
(a) Plasmids
(b) Plastids
(c) Chloroplast
(d) Mitochondria

Question 33.
Which of the following is not associated with the human male?
(a) Prostrate gland
(b) Perineal gland

(c) Cowper's glands
(d) Seminal vesicles

Question 34.
Homology indicates
(a) Common structure
(b) Common organs
(c) Common brain
(d) Common ancestry

Question 35.
Sanitary landfill were adopted as the substitute for
(a) Sewage
(b) Biomagnification
(c) Eutrophication
(d) Open-burning dumps

Section B

Very short Question and Answer 5*1 =5 marks

Attempt any five

1.Write the name of nutritive tissue of Anther

2. Who propose chromosomal theory of inheritance?

3.PCR is controlled by enzyme……

4. Vector of malarial parasite is ……

5.Write equation of logistic growth

6.Crossing over takes place in which stage of Meiosis?

7. In Bt Cotton Bt stand for?

Section C 5*3=15 marks

Short Question Answer Type

Attempt any five

1.Draw a well diagram of ovule.

2.Write the role of bacteria in Agriculture.

3 Difference between Incomplete and Co-Dominance.

4 What is Biomagnification?

5.Describe Electrostatic precipitator.

6. How primary Sewage treatment is done?

7.Describe Watson and crick model of DNA.

Section D 3*5= 15 marks

Long Question Answer Type

Attempt any THREE

1.Describe DNA Replication with diagram and suitable Enzymes.

2.How biodiversity is conserved. Write In-situ and Ex-situ conservation.

3.What is Pollination. Write its type and Agent of Pollinators

4.What is Recombinant DNA Technology? Describe is in details.

BIOLOGY (MODEL SET3)

(CLASS – XII)

OBJECTIVE TYPE

1.In plant, outer wall/ Engine of pollen grain is formed of:

a) Cellulose b) Pectocellulosic c) Lignin d) Sporopollenin

2.A typical angiosperm embryo sac is:

a) T-nucleate, 8- celled b) 8- nucleate, 7- celled

b) T- nucleate, 8- celled d) 8- nucleate, 8- celled

3.Corpus luteum secrete:

a) LH b) Estrogen c) Progesterone d) FSH

4.Testosterone is produced by:

a) Acinar cells b) Graafian Follicles c) Leydig Cells d) Hepatic cells

5.Which is a contraceptive pill:

a) Saheli b) Condom c) Copper -T d) All of these

6.ABO blood group system is due to:

a) Multifactor inheritance b) Incomplete dominance c) Multiple allelisan d) Epistasis

7.Phenotypic dihybrid ration is :

a) 9:3:3:1 b) 15:1 c) 9:6:1 d) 2:8:6

8.Chromosomal theory of inheritance was proposed by:

a) Sutton b) Boveri c) Sutton and Boveri d) Correns

9.DNA and RNA differ by :

a) Nitrogen bases and sugar b) Nitrogen bases and Phosphate

b) Sugar and Phosphate d) None of these

10.In formation flow or central dogma of modern biology is:

a) RNA- Proteins- DNA b) Proteins- RNA- DNA

b) RNA- DNA – Proteins d) DNA – RNA- Proteins

11.Okazaki fragments are:

a) RNA Primers b) Short DNA fragments on leading strand c) Short DNA fragments on lagging strand d) DNA fragments from dimerization.

12.VNTR is employed for:

a) Protoplasmic culture b) DNA finger Printing c) Regulation of Plant growth hormone d) All of these

13.Causative agents of tuberculosis (T.B) is :

a) Salmonella b) Mycobacterium c) Streptococcus d) Pneumococcus

14.Widal Test is done to confirm :

a) Malaria b) Typhoid c) AIDS d) Cancer

15.Restriction Enzymes are also called :

a) Molecular Marker b) Vector c) Carriers d) Molecular Scissors

16.Vitamin -A Rich transgenic plant is :

a) Flavr Savr Tomato b) Golden rice c) Bt- Cotton d) Vaccinated Potato

17.CRY-IAC produce toxins that control :

a) Cotton bollworms b) Cafn borer c) Tobacco budworms d) Nematodes.

18.Which of following scientist developed the process of DNA fingerprinting:

a) Kary B. Mulis b) Alec Jeffreys c) T.H Morgan d) H.O Smith

19.Sigmoid carve is :

a) Rate of Respiration b) Rate of transpiration c) Rate of Photosynthesis d) Growth of population.

20.Minimata disease is due to pollution of water by :

a) Oil b) Fluoride c) Mercury d) Arsenic

21.Archaeopteryx is connecting link between :

a) Fishes and amphibians b) Amphibians and birds c) Amphibians and reptiles d) Reptiles and birds.

22.Two species of different geneology show resemblance due to similar adaption. The phenomenon is :

a) Convergent evolution b) Divergent evolution c) Micro-evolution d) co-evolution.

23.Morphine is got from :

a) Cajanus cajan b) Cannabis sativa c) Papaver somniferous d) Rauwolfia serpentine

24.Ratna and Jaya are varieties of :

a) Maize b) Wheat c) Rice d) barley.

25.Which bioactive molecule used as an immune- suppressive agent in organ – transplant patients :

a) Cyclosporin-A b) Cyclosporin- B c) Cyclosporin – C d) Cyclosporin -D

26.Mycorrhiza are association between :

a) Fungi and algae b) Fungi and roots of higher plant c) Algae and bacteria d) None of these

27.Pyramid of Energy is :

a) Always Upright b) Always inverted c) Upright and inverted d) All of these

28.Which one of the following has the largest population in a food chain?

a) Producers b) Primary consumers c) Secondary Consumers d) Decomposers

29.Developing pollen obtains its nutrition from :

a) Endothecium b) Tapetum c) Epidermis d) Middle layers

30.Temperature in scrotum necessary for sperms formation should be:

a) 2^0 C above body temperature b) 2^0 C below body temperature c) 4^0 C above body temperature d) 4^0 C below body temperature

31.A sex-linked trait disease is:

a) Hemophilia b) night blindness c) Myxedema d) albinism

32.Stop Condon or Terminator codon is/are:

a) UAA b) UAG c) UGA d) All of these

33.Lac operon theory proposed by:

a) Jacob and Monad b) Jeffreys and Monad c) Jeffreys and Jacob d) Sutton and Bovary

34.DNA-dependent RNA polymerase is enzymes used for:

a) DNA replication b) Transcription c) Translation d) All of these

35.Allergy is due to the release of chemical:

a) Histamine b) Serotonin c) Histamine and serotonin d) Name of these

SECTION- B

SUBJECTIVE TYPE

ANSWER ANY FIVE OF THE FOLLOWING QUESTIONS IN A SENTENCE OR ONE WORD : (5X1-5)

1.Define filiform apparatus.

2.What is seminiferous tubules?

3.Write the one function of acrosome of sperm.

4.Ovulation is induced by a hormone called.

5.Write the full form of ZIFT

6.What is cancer?

7.What is Homozygous trait and Heterozygous trait?

Answer any five in brief: (5x3=15)

8.Write short notes an “Down’s Syndrome “ and “ Klinefelter’s syndrome”.

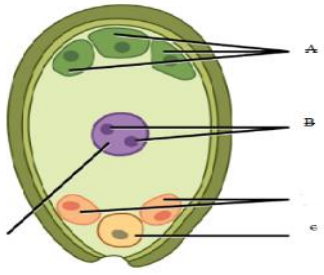
9.If the sequence of the coding strand in a transcription unit is written as follows:

5- ATGCATGCAT-3

Write down the sequence of m RNA

10.Write short notes on Active immunity and passive immunity with examples.

11.Labelling the diagram of the following figure: -



12.What is evolution? Define “divergent” and Convergent evolution.

13.Write short notes an recombinant DNA technology (rDNA)

14.What is PCR? Describe the process of PCR Technology.

Answer any three question in details (3x5=15)

15.What is menstrual cycle? Describe the different phases of menstrual cycle.

16.Describe the process of transcription with diagram in eukaryotes cell.

17.What is AIDS? Writ ethe cause and prevention of AIDS.

18.Differentiate between DNA and RNA in details.

19.Match the following:

a) Autogamy	i) HCG
b) Placenta	ii) exons
c) IUD	iii) Malaria
d) Processed RNA	iv) cleistogamous
e) Plasmodium	v) Copper -T