



Previous Year Solved Question Papers of

CBSE Class 12 Exams

BIOLOGY – 2014

Compt. Delhi: Set-1

Original Question Paper + Answer Key

**CBSE: CENTRAL BOARD OF
SECONDARY EDUCATION**



For more question papers, please visit: www.easybiologyclass.com

रोल नं.

--	--	--	--	--	--	--

Roll No.

परीक्षार्थी कोड को उत्तर-पुस्तिका के मुख-पृष्ठ पर अवश्य लिखें ।

Candidates must write the Code on the title page of the answer-book.

- कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पृष्ठ 8 हैं ।
- प्रश्न-पत्र में दाहिने हाथ की ओर दिए गए कोड नम्बर को छात्र उत्तर-पुस्तिका के मुख-पृष्ठ पर लिखें ।
- कृपया जाँच कर लें कि इस प्रश्न-पत्र में 30 प्रश्न हैं ।
- कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें ।
- इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है । प्रश्न-पत्र का वितरण पूर्वाह्न में 10.15 बजे किया जाएगा । 10.15 बजे से 10.30 बजे तक छात्र केवल प्रश्न-पत्र को पढ़ेंगे और इस अवधि के दौरान वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे ।
- Please check that this question paper contains 8 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 30 questions.
- **Please write down the Serial Number of the question before attempting it.**
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

जीव विज्ञान (सैद्धान्तिक)

BIOLOGY (Theory)

निर्धारित समय : 3 घण्टे

Time allowed : 3 hours

अधिकतम अंक : 70

Maximum Marks : 70

सामान्य निर्देश :

- (i) सभी प्रश्न अनिवार्य हैं ।
- (ii) इस प्रश्न-पत्र में चार खण्ड **A, B, C** और **D** हैं । खण्ड **A** में **8** प्रश्न हैं जिनमें प्रत्येक का एक अंक है, खण्ड **B** में **10** प्रश्न हैं जिनमें प्रत्येक के दो अंक हैं, खण्ड **C** में **9** प्रश्न हैं जिनमें प्रत्येक के तीन अंक हैं तथा खण्ड **D** में **3** प्रश्न हैं जिनमें प्रत्येक के पाँच अंक हैं ।
- (iii) कोई समग्र चयन-विकल्प (ओवरऑल चॉइस) उपलब्ध नहीं है । फिर भी, **2** अंकों वाले एक प्रश्न में, **3** अंकों वाले एक प्रश्न में और **5** अंकों वाले सभी तीनों प्रश्नों में भीतरी चयन-विकल्प दिए गए हैं । ऐसे प्रश्नों में विद्यार्थी को केवल एक ही विकल्प का उत्तर देना है ।
- (iv) जहाँ भी आवश्यक हो, बनाए जाने वाले आरेख साफ़-सुथरे तथा समुचित रूप में नामांकित हों ।

General Instructions :

- (i) *All questions are compulsory.*
- (ii) *This question paper consists of four Sections **A, B, C** and **D**. Section **A** contains **8** questions of **one** mark each, Section **B** is of **10** questions of **two** marks each, Section **C** is of **9** questions of **three** marks each and Section **D** is of **3** questions of **five** marks each.*
- (iii) *There is no overall choice. However, an internal choice has been provided in one question of **2** marks, one question of **3** marks and all the three questions of **5** marks weightage. A student has to attempt only one of the alternatives in such questions.*
- (iv) *Wherever necessary, the diagrams drawn should be neat and properly labelled.*

खण्ड A

SECTION A

1. नीचे दी गई घटनाओं में से, जो दो निषेचन-पूर्व की घटनाएँ हैं, लिखिए : 1

युग्मकसंलयन, युग्मकजनन, भ्रूणजनन, परागण

Write the two pre-fertilization events from the list given below :

Syngamy, Gametogenesis, Embryogenesis, Pollination

2. एक ऐसी आंतरगर्भाशयी युक्ति (IUD) का नाम लिखिए जिसका सुझाव आप इसलिए दे सकते हैं कि गर्भाशय ग्रीवा शुक्राणुओं के लिए प्रतिकूल हो जाए । 1

Name an IUD that you would recommend to promote the cervix hostility to the sperms.

3. डी ब्रीज के अनुसार 'महा-उत्परिवर्तन (सॉल्टेशन)' क्या होता है ? 1

What is 'saltation' according to de Vries ?

4. निम्नलिखित में से **दो** सही कथन चुनिए : 1

- (i) अंग्रेज़ी के शब्द "एपिकल्चर" का अर्थ है एपिकल (शीर्षस्थ) विभज्योतक संवर्धन ।
(ii) पालक लौह-भरपूर होता है ।
(iii) हरित क्रांति के द्वारा दालों का उत्पादन अधिक होने लगा है ।
(iv) तौरिया सरसों में एफ़िडों का आग्रसन नहीं हो सकता ।

Identify the **two** correct statements from the following :

- (i) Apiculture means apical meristem culture.
(ii) Spinach is iron-enriched.
(iii) Green revolution has resulted in improved pulse-yields.
(iv) Aphids cannot infest rapeseed mustard.

5. किसी एक लड़के में ADA-अभाव की पहचान हुई है । इसका कोई एक संभव उपचार सुझाइए । 1

A boy has been diagnosed with ADA-deficiency. Suggest any one possible treatment.

6. किसी पारितंत्र में उत्पादकता के लिए नीचे दिए जा रहे समीकरण में 'R' क्या प्रतिदर्शित करता है ? 1

$$GPP - R = NPP$$

What does 'R' represent in the given equation for productivity in an ecosystem ?

$$GPP - R = NPP$$

7. अच्छी ओज़ोन कहाँ होती पाई जाती है ? इसे यह नाम क्यों दिया गया ? 1
Where is good ozone present ? Why is it called so ?
8. सहप्रभाविता दर्शाने वाले किसी एकसंकर संकरण में F_2 पीढ़ी में कितने प्रकार के लक्षणप्ररूपों की आशा की जाएगी ? 1
How many kinds of phenotypes would you expect in F_2 generation in a monohybrid cross exhibiting co-dominance ?

खण्ड B

SECTION B

9. किसान लोग केले की फ़सल को बिना बीज बोए उगाते हैं । समझाइए कि पौधे का संचरण किस प्रकार किया जाता है । 2
Banana crop is cultivated by farmers without sowing of seeds. Explain how the plant is propagated.
10. मानव अंडवाहिनी के उन भिन्न भागों के नाम लिखिए जिनमें से होता हुआ अण्डा तब तक चलता जाता है जब तक निषेचन हेतु उसकी भेंट शुक्राणु से नहीं हो जाती । 2
List the different parts of the human oviduct through which the ovum travels till it meets the sperm for fertilisation.
11. *t*-RNA का ऐमीनोऐसिलेशन क्या होता है, समझाइए । 2
Explain aminoacylation of *t*-RNA.
12. किसी एक प्रत्यूर्जक का नाम लिखिए और उससे उद्भासित होने पर मानव शरीर में क्या अनुक्रिया होती है, लिखिए । 2
Name an allergen and write the response of the human body when exposed to it.
13. मॉर्फ़ीन तथा हीरोइन का आपस में क्या सम्बन्ध है ? मानव शरीर पर इनमें से प्रत्येक का क्या प्रभाव होता है, लिखिए । 2
How are morphine and heroin related ? Mention the effect each one of them has on the human body.
14. मवेशियों में अंतःप्रजनन का महत्त्व समझाइए । 2
Explain the importance of inbreeding in cattle.
15. दूध से दही बनाने के लिए उसमें 'जामन' क्यों मिलाया जाता है ? समझाइए । 2
Why is 'starter' added to set the milk into curd ? Explain.

16. एक उदाहरण की सहायता से सहोपकारिता क्या होती है, समझाइए । 2
Explain mutualism with the help of an example.

17. जैवविविधता हानि के चार कारणों की सूची दीजिए । 2

अथवा

उत्प्रेरक परिवर्तक में इस्तेमाल किए जाने वाले दो धातुओं के नाम लिखिए । पर्यावरण को स्वच्छ रखने में ये किस प्रकार सहायता करते हैं ? 2

List four causes of biodiversity loss.

OR

Name two metals used in a catalytic converter. How do they help in keeping the environment clean ?

18. आलू के एक पौधे में एक वायरस (विषाणु) का संक्रमण हो गया है । इससे वायरस-मुक्त आलू पौधों को प्राप्त करने की एक विधि का नाम लिखिए और उसके विषय में समझाइए । 2

A potato plant is infected with a virus. Name and explain a method to obtain virus-free potato plants from it.

खण्ड C

SECTION C

19. आपकी बस्ती के कुछ निवासियों ने व्यवसाय लाभ के लिए कुछ छोटे पैमाने वाले औद्योगिक/व्यापारिक क्रियाकलाप स्थापित किए हैं जैसे कि विकृतिविज्ञान प्रयोगशालाएँ तथा वस्त्र रंगने के केंद्र जिसके लिए उन्होंने नगरपालिका अधिकारियों से “कोई आपत्ति नहीं” सर्टिफिकेट नहीं ले रखे थे । 3
क्या आप ऐसे क्रियाकलापों का समर्थन करेंगे ? अपने उत्तर के पक्ष में कोई तीन कारण बताइए ।

A few residents in your locality, for business gains, have established small-scale industrial / commercial activities such as pathological labs and fabric dyeing centres without obtaining ‘No objection certificates’ from municipal authorities.

Would you support these activities ? Give any three reasons in support of your answer.

20. आवृतबीजियों में दोहरे निषेचन के दो अन्त्य उत्पादों के नाम लिखिए । ये किस प्रकार बनते हैं ? यह भी लिखिए कि बीज के परिवर्धन के दौरान इनकी क्या नियति होती है । 3

Name the two end products of double fertilisation in angiosperms. How are they formed ? Write their fate during the development of seed.

21. मॉर्गन ने *ड्रोसोफ़िला* पर कई द्विसंकर संकरण किए और पाया कि F_2 -अनुपात प्रत्याशित मेंडलीय अनुपात से बहुत भिन्न-भिन्न आए। एक उदाहरण की सहायता से उसकी इन खोजों के विषय में समझाइए। 3

Morgan carried out several dihybrid crosses in *Drosophila* and found F_2 -ratios deviated very significantly from the expected Mendelian ratio. Explain his findings with the help of an example.

22. किसी ट्रॉंसक्रिप्शन (अनुलेखन) इकाई में निम्नलिखित के पाए जाने का स्थान और उनकी भूमिका के विषय में एक योजना आरेख की सहायता से समझाइए : 3

प्रोमोटर (उत्प्रेरक), संरचनात्मक जीन, अंतकारी।

With the help of a schematic diagram, explain the location and the role of the following in a transcription unit :

Promoter, Structural gene, Terminator.

23. डार्विन के मत के अनुसार नए स्वरूपों के प्रकट होने की दर उनके जीवन-चक्रों के साथ जुड़ी होती है। समझाइए। 3

According the Darwinian theory, the rate of appearance of new forms is linked to their life cycles. Explain.

24. एक प्ररूपी बायोगैस संयंत्र का नामांकित आरेख बनाइए। 3

अथवा

- (a) निम्नलिखित रोगों के उत्पन्नकर्ता जीवों के नाम लिखिए :
(i) श्लीपद
(ii) दद्रु (दाद)
(iii) अमीबिएसिस
- (b) इस प्रकार के रोगों के नियंत्रण में सार्वजनिक स्वास्थ्य रक्षा किस प्रकार सहायक हो सकती है ? 3

Draw a labelled sketch of a typical biogas plant.

OR

- (a) Name the causative organisms for the following diseases :
(i) Elephantiasis
(ii) Ringworm
(iii) Amoebiasis
- (b) How can public hygiene help control such diseases ?

25. एक भयंकर दुर्घटना में घटना स्थल से, झुलसे और बदशक्ल हुए अनेक मृत शरीर पाए गए जिनको पहचाना जाना अत्यंत कठिन था। उस तकनीक का नाम लिखिए एवं उसके विषय में समझाइए जिसकी सहायता से अधिकारीगण मृत जनों की पहचान कर सकें और उन्हें उनके अपने-अपने रिश्तेदारों को सौंप सकें।

3

Following a severe accident, many charred-disfigured bodies are recovered from the site making the identification of the dead very difficult. Name and explain the technique that would help the authorities to establish the identity of the dead to be able to hand over the dead to their respective relatives.

26. बायोरिएक्टर किस उपयोग में लाया जाता है ? सामान्यतया उपयोग में लाए जाने वाले बायोरिएक्टर तथा उसके किन्हीं दो घटकों के नाम लिखिए।

3

What is a bioreactor used for ? Name a commonly used bioreactor and any two of its components.

27. पोषी पादप तथा उसके उस भाग का नाम लिखिए जिसको *मेलॉइडोगाइन इन्कोग्निटा* संक्रमित करता है। पोषी पादप में *ds*-RNA के उत्पादन में *ऐग्रोबैक्टीरियम* की भूमिका समझाइए।

3

Name the host plant and its part that *Meloidogyne incognita* infects. Explain the role of *Agrobacterium* in the production of *ds*-RNA in the host plant.

खण्ड D

SECTION D

28. मानवों में शुक्राणुजनन घटनाओं को योजना रूप में दर्शाइए तथा उनके विषय में समझाइए।

5

अथवा

आवृतबीजी फूल उभयलिंगाश्रयी हो सकते हैं, अनुन्मील्य-परागणी हो सकते हैं या उनमें स्व-निषेच्यता (आत्म-असंगतता) हो सकती है। इनमें से प्रत्येक के विशिष्ट लक्षणों का वर्णन कीजिए और बताइए कि इनमें से कौन-से एक प्रकार के फूल क्रमशः अंतःप्रजनन तथा बाह्यप्रजनन को बढ़ावा देते हैं।

5

Schematically represent and explain the events of spermatogenesis in humans.

OR

Angiosperm flowers may be monoecious, cleistogamous or show self-incompatibility. Describe the characteristic features of each one of them and state which one of these flowers promotes inbreeding and outbreeding respectively.

29. (a) किसी थलीय पारितंत्र में फॉस्फोरस चक्रण के एक सरलीकृत मॉडल का आरेख बनाइए ।
- (b) पारितंत्रों में इस प्रकार के चक्रों का महत्त्व लिखिए । 5

अथवा

- (a) जैवविविधता के संरक्षण के पक्ष में अल्पतः उपयोगी, व्यापकतः उपयोगी तथा नैतिक तर्क क्या हैं, समझाइए ।
- (b) कुछ निश्चित क्षेत्रों को “अधिस्थलों” की संज्ञा देना जैवविविधता संरक्षण की ओर एक कदम क्यों कहा जाता है ? भारत के किन्हीं दो अधिस्थलों के नाम लिखिए । 5
- (a) Draw a simplified model of phosphorus cycling in a terrestrial ecosystem.
- (b) Write the importance of such cycles in ecosystems.

OR

- (a) Explain the narrowly utilitarian, broadly utilitarian and ethical arguments in favour of conservation of biodiversity.
- (b) How is designation of certain areas as hotspots a step towards biodiversity conservation ? Name any two hotspots in India.

30. (a) मानवों में लिंग निर्धारण किस प्रकार होता है ?
- (b) पक्षियों में तथा मधुमक्खियों में होने वाले लिंग निर्धारण से यह किस प्रकार भिन्न होता है ? 5

अथवा

- (a) आनुवंशिक कूट क्या होता है ?
- (b) निम्नलिखित को समझाइए :
अपहासित कूट; असंदिग्ध कूट; सार्वत्रिक कूट; प्रारम्भक कूट । 5
- (a) How is sex determined in humans ?
- (b) How does it differ from sex determination in birds and honey bees ?

OR

- (a) What is a genetic code ?
- (b) Explain the following :
Degenerate code; Unambiguous code; Universal code; Initiator code.

Please visit: www.easybiologyclass.com for:

- Lecture Notes
- Biology PPTs
- Biology MCQs
- Online Mock Tests (MCQ)
- Video Tutorials
- Practical Aids
- Model Question Papers of NET, GATE, DBT, ICMR Exams
- CSIR NET Life Sciences Previous Year Question Papers
- GATE Previous Year Question Papers
- DBT BET JRF Previous Year Question Papers
- ICMR JRF Entrance Exam Resources
- Jobs Notifications
- Higher Studies in Biology / Life Sciences
- Seminar / Workshop/ Conference Notifications
- And many more....



Please subscribe our **youtube** channel: **easybiologyclass**
<https://www.youtube.com/user/easybiologyclass/videos>



You can access more PDFs & PPTs from our **Slideshare** account
<http://www.slideshare.net/EasyBiologyClassEBC/>



Our sister concern: www.angiospermtaxonomy.com

SECTION A

1. Write the two pre- fertilization events from the list given below:

Syngamy, Gametogenesis, Embryogenesis, Pollination

Ans. Gametogenesis , Pollination (½ x 2=1)

2. Name an IUD that you would recommend to promote the cervix hostility to the sperms.

Ans. LNG-20 /progestasert (Any one) 1

3. What is “saltation” according to de Vries?

Ans. Single- step large mutation 1

4. Identify the two correct statements from the following:

- i. Apiculture means apical meristem culture.
- ii. Spinach is iron –enriched.
- iii. Green revolution has resulted in improved pulse-yields.
- iv. Aphids cannot infest rapeseed mustard.

Ans. ii, iv (½ x2=1)

5. A boy has been diagnosed with ADA deficiency. Suggest any one possible treatment.

Ans. Bone marrow transplant / enzyme replacement therapy/gene therapy (any two) (½ x2=1)

6. What does ‘R’ represent in the given equation for productivity in an ecosystem?

GPP-R=NPP

Ans. Respiratory losses 1

7. Where is good ozone present? Why is it called so?

Ans. Stratosphere; shield against UV radiation of sun (½ x2=1)

8. How many kinds of phenotypes would you expect in F₂ generation in a monohybrid cross exhibiting co-dominance?

Ans. Three 1

SECTION B

9. Banana crop is cultivated by farmers without sowing of seeds. Explain how the plant is propagated.

Ans. Vegetative propagation, rhizome (½ x2=1)

10. List the different parts of the human oviduct through which the ovum travels till it meets the sperm for fertilisation.

Ans. Fimbriae, infundibulum, ampulla, isthmus (½ x 4=2)

11. Explain amino-acylation of t-RNA.

Ans. Amino acid activated ,by ATP, linked to another cognate t RNA, charging of tRNA (½ x4=2)

12. Name an allergen and write the response of the human body when exposed to it.

Ans. Pollen, dander , dust(any two)

Release of serotonin and histamine, from mast cells (½ x 4=2)

13. How are morphine and heroin related? Mention the effect each one of them has on the human body.

Ans. Opium from latex of *Papaver somniferum*(opium);acetylation of morphine results in heroin;

Depression, slows down body functions (½ x 4=2)

14. Explain the importance of inbreeding in cattle.

Ans. maintaining purelines , inbreeding exposes harmful recessive genes that are eliminated by selection, helps in accumulation of superior genes, and elimination of less desirable genes.(any two)

(1x2=2)

15. Why is ‘starter’ added to set the milk into curd? Explain.

Ans. Acts as an inoculum; contains LAB, at suitable temperature, coagulates milk to curd (½ x4=2)

16. Explain mutualism with the help of an example.

Ans. Both species benefitted ; example-lichens(algae –fungi association) pollinator – flower

(any other suitable example) (1x2=2)

17. List four causes of biodiversity loss.

OR

Name two metals used in a catalytic converter. How do they help in keeping the environment clean?

Ans. Habitat loss , fragmentation, overexploitation, alien species invasion ,co-extinction (any four) (½ x4=2)

OR

Platinum- Palladium ,Rhodium,

The catalyst converter changes unburnt hydrocarbons \rightarrow CO₂+H₂O/ CO \rightarrow CO₂/ nitric oxide \rightarrow N₂
(any two) (½ x 4=2)

18. A potato plant is infected with a virus .Name and explain a method to obtain virus-free potato plants form it.

Ans. Apical meristem culture, (1)

Micropropagation /producing thousands of plants, through tissue culture/*in vitro* (½ x 2=1)

SECTION C

19. A few residents in your locality, for business gains, have established small-scale industrial/commercial activities such as pathological labs and fabric dyeing centers without obtaining 'No objection certificates' from municipal authorities. Would you support these activities? Give any three reasons in support of your answer.

Ans. No (Any 3 appropriate reasons)

Yes (Any 3 appropriate reasons)

(1 x 3=3)

20. Name the two end products of double fertilization in angiosperms. How are they formed? Write their fate during the development of seed.

Ans. Syngamy- male gamete+ female gamete = zygote

triple fusion- male gamete + polar nuclei=Primary Endosperm Nucleus;

zygote give rise to embryo, PEN forms endosperm

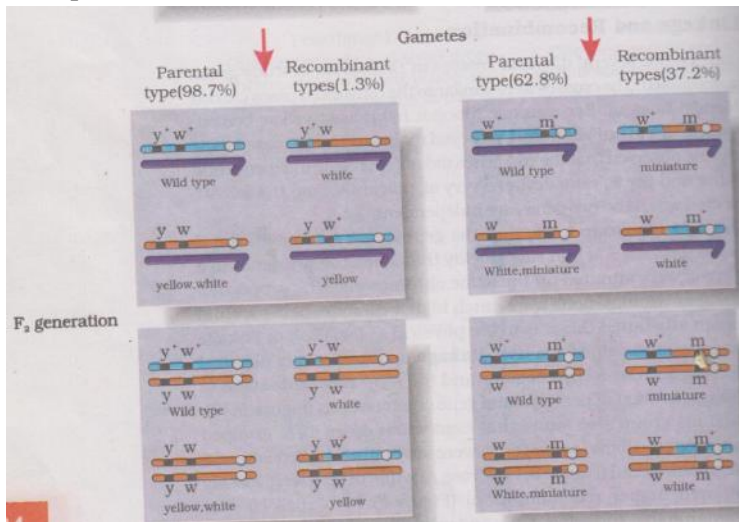
($\frac{1}{2} \times 6=3$)

21. Morgan carried out several crosses in *Drosophila* and found F₂-ratios deviated very significantly from the expected Mendelian ratio. Explain his findings with the help of an example.

Ans. Morgan's findings differ from Mendel's because of the phenomena of

Linkage (genes present on the same chromosome) and Recombination; ($\frac{1}{2} \times 2=1$)

Example : Cross A Cross B



F₂ generation (any one cross) ;

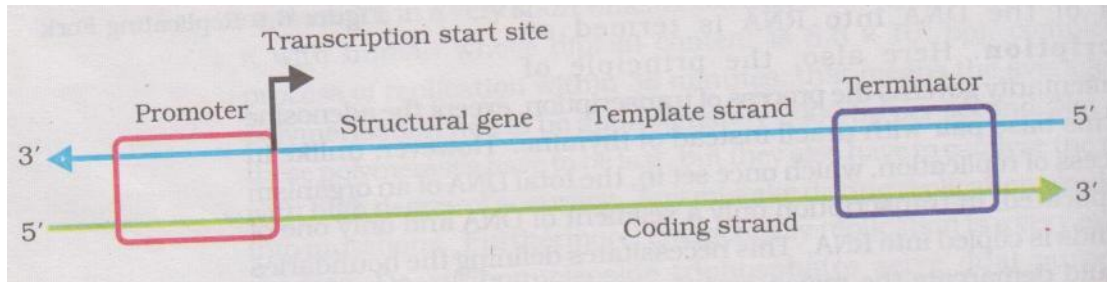
($\frac{1}{2} \times 2=1$)

Genes are closely linked- less recombinants, genes are far apart- more recombinants ($\frac{1}{2} \times 2=1$)

22. With the help of a schematic diagram, explain the location and the role of the following in a transcription unit:

Promoter, Structural gene, Terminator.

Ans. Structure (three labels as asked)



Function-

Promotor- RNA polymerase binds to it starter

Structural gene- functional genes

Terminator- transcription ends here

($\frac{1}{2} \times 6 = 3$)

23. According to the Darwinian theory, the rate of appearance of new forms is linked to their life cycles. Explain.

Ans. Microbes divide fast/ they produce million within hours.

Easy to see variant population in less span of time

But in higher organism life span is long so variations are not visible fast (1X3=3)

24. Draw a labeled sketch of a typical biogas plant.

OR

(a) Name the causative organisms for the following diseases:

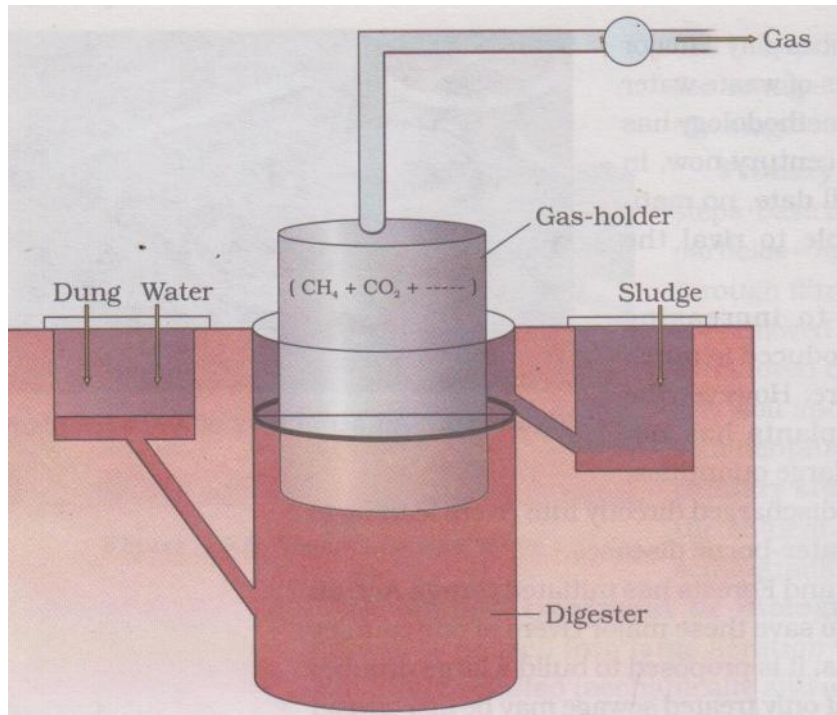
(i) Elephantiasis

(ii) Ringworm

(iii) Amoebiasis

(b) How can public hygiene help control such diseases?

Ans. Biogas plant



Proper diagram and labeling

($\frac{1}{2} \times 6=3$)

OR

(a) (i) *Wuchereria*,

(ii) *Microsporium* / *Epidermophyton* / *Trichophyton*

(iii) *Entamoeba*

(b) Proper disposal of waste/periodic cleaning/disinfection of water reservoirs, etc/standard practices of hygiene in public catering/eliminate vectors and their breeding places (any three) ($\frac{1}{2} \times 6=3$)

25. Following a severe accident, many charred –disfigured bodies are recovered from the site making the

identification of the dead very difficult. Name and explain the technique that would help the authorities to establish the identity of the dead to be able to hand over the dead to their respective relatives.

Ans. DNA fingerprinting -

Isolation of DNA and digestion of DNA by restriction endonucleases, separation of DNA fragments by electrophoresis, transferring (blotting) of separated DNA fragments to synthetic membranes, such as nitrocellulose or nylon, hybridization using labeled VNTR probe and, detection of hybridized DNA fragments by autoradiography. ($\frac{1}{2} \times 6=3$)

26. What is a bioreactor used for? Name a commonly used bioreactor and any two of its components.

Ans. Making recombinant protein on a large scale

Simple – stirred tank bioreactor

Foam braker/impeller/stirrer/pH control/motor/agitator system/O₂ delivery system/temperature control system/sampling ports(any two) (1+1+1/2+1/2=3)

27. Name the host plant and that *Meloidogyne incognita* infects. Explain the role of *Agrobacterium* in the production of ds-RNA in the host plant.

Ans. Tobacco, Roots of tobacco plant

Using *Agrobacterium* vectors, nematode specific genes were introduced into the host plant ,

because of introduction of DNA both sense & antisense RNA are produced in host cell, the 2 RNAs being complimentary form a ds RNA (that initiated RNAi) ($\frac{1}{2} \times 6 = 3$)

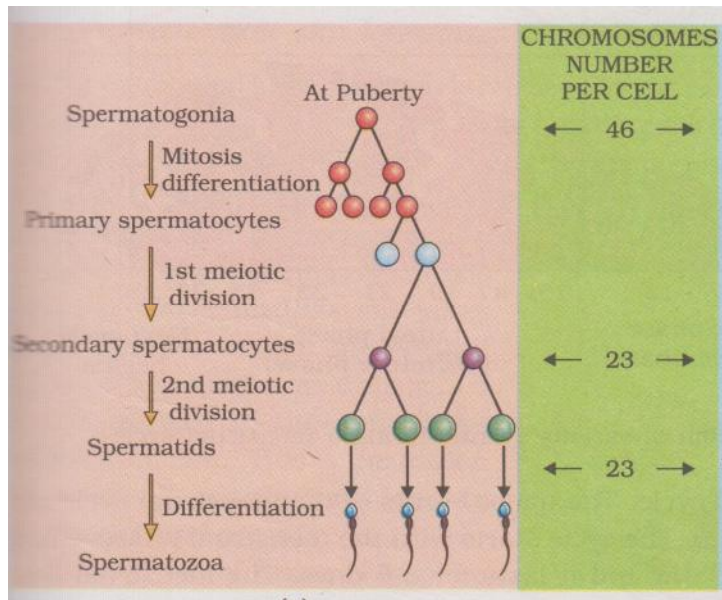
SECTION D

28. Schematically represent and explain the events of spermatogenesis in humans.

OR

Angiosperm flowers may be monoecious, cleistogamous or show self-incompatibility. Describe the characteristic features of each one of them and state which one of these flowers promotes inbreeding and out-breeding respectively.

Ans.



($\frac{1}{2} \times 10 = 5$)

OR

Monoecious-male and female flowers are present on the same plant,

Cleistogamous-flowers do not open

Self-incompatibility-genetic mechanism by which self- pollination does not take place (1x3=3)

Inbreeding is promoted by monoecious and cleistogamous flowers ($\frac{1}{2} + 1/2 = 1$)

Outbreeding is promoted by flower showing self-incompatibility

(1)

29. (a) Draw a simplified model of phosphorus cycling in a terrestrial ecosystem.

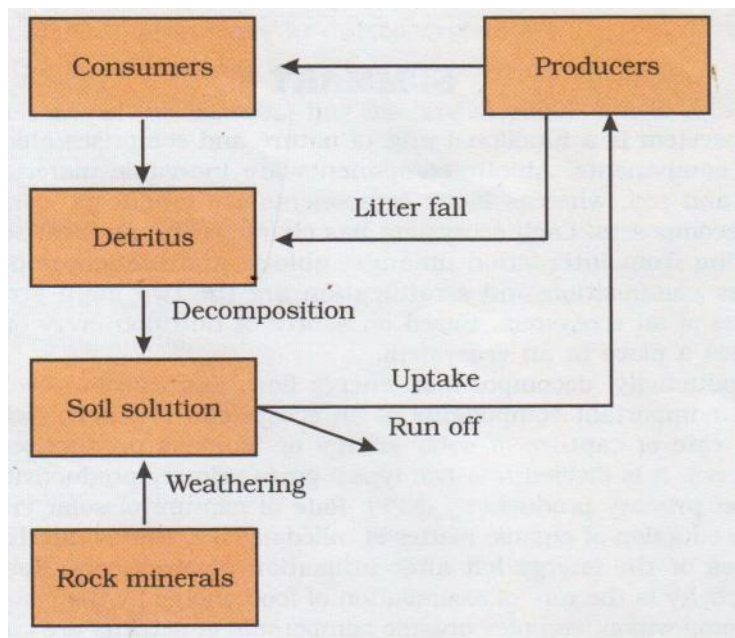
(b) Write the importance of such cycles in ecosystems.

OR

(a) Explain the narrowly utilitarian, broadly utilitarian and ethical arguments in favors of conservation of biodiversity.

(b) How is designation of certain areas as hotspots a step towards biodiversity conservation? Name any two hotspots in India.

Ans. (a)



(any 8 labels)

($\frac{1}{2} \times 8 = 4$)

(b) Recycling of nutrients time & again

[1]

OR

(a) Narrowly utilitarian – Humans derive countless economic benefits from nature- food, firewood, fibre, construction material, industrial products (tannins, lubricants, dyes, rennin, perfumes) medicines

Broadly utilitarian – Role in many ecosystem services that nature provides eg – 20% O₂ from Amazon forest, pollination (any other ecosystem service)

Ethical argument – what humans owe to the millions of organisms with whom we share this planet

eg philosophically/spiritually – every species has an intrinsic value

[$\frac{1}{2} \times 6 = 3$]

(b) As these regions have very high levels of species richness & high degree of endemism, they need to be identified for maximum protection.

[$\frac{1}{2} \times 2 = 1$]

Hotspots – Western Ghats & Sri Lanka, Indo- Burma, Himalayas (Any two)

[$\frac{1}{2} \times 2 = 1$]

30. (a) How is sex determined in humans?

(b) How does it differ from sex determination in birds and honey bees?

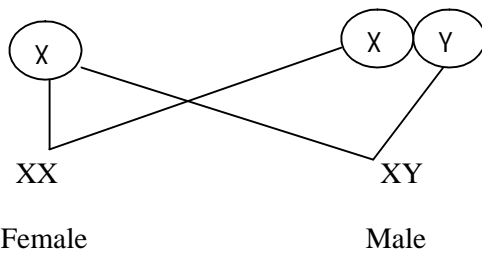
OR

(a) What is a genetic code?

(b) Explain the following:

Degenerate code; Unambiguous code; Universal code; Initiator code.

Ans. 30. (a) XX x XY [1]



[1]

[1]

(b) In Birds:

Female is Heterogametic / ZW

Male is Homogametic / ZZ

[$\frac{1}{2} \times 2 = 1$]

In honey bees:

Females – Diploid (2n)

Males – haploid (n) //

Females- X^aX^m / X^zX^m

Male - X^mX^m

($\frac{1}{2} \times 2 = 1$)

OR

(a) A triplet on mRNA that codes for a particular amino acid , 61 codons + 3 stop codons (1/2+1/2)

(b) Degenerate code- Some amino acids are coded by more than one codon

,Unambiguous code- One codon codes for a specific amino acid

Universal code- From bacteria to human UUU codes for phenylalanine

Initiator code- AUG – codes for methionine(also)

(1x4=4)

Please visit: www.easybiologyclass.com for:

- Lecture Notes
- Biology PPTs
- Biology MCQs
- Online Mock Tests (MCQ)
- Video Tutorials
- Practical Aids
- Model Question Papers of NET, GATE, DBT, ICMR Exams
- CSIR NET Life Sciences Previous Year Question Papers
- GATE Previous Year Question Papers
- DBT BET JRF Previous Year Question Papers
- ICMR JRF Entrance Exam Resources
- Jobs Notifications
- Higher Studies in Biology / Life Sciences
- Seminar / Workshop/ Conference Notifications
- *And many more....*



Please subscribe our **youtube** channel: **easybiologyclass**
<https://www.youtube.com/user/easybiologyclass/videos>



You can access more PDFs & PPTs from our **Slideshare** account
<http://www.slideshare.net/EasyBiologyClassEBC/>



Our sister concern: www.angiospermtaxonomy.com