BIOLOGY

NEET & AIIMS

MOCK TEST 40

Example

1. select the correct representation of density of population (N) which can be expressed after a period of time $t + 1$.

A. $N_{t+1} = N_t + [(B + I) - (D + E)]$

B. $N_{t+1} = N_t[(B + I) + (D + E)]$

C. $N_t = N_{t+1} + [(B + I) - (D + E)]$

D. $N_{t+1} = N_t[(B + I) + (D - E)]$

Answer: A

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2. which of the following option is true for verhulst Pearl logistic growth?

(A)population growth is decreased by the

equation $d\frac{N}{dt} = rN\left[\frac{K}{K-N}\right]$.

(B) r' represents biotic potential.

(C) applicable to a population growing in habitat with limited resources.

(D)K represents carrying capacity

A. Only (A)

B. only (B)

C. A, B and D

D. B, C and D

Answer: D

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3. which of the following age pyramid best depicts the mature human population with growth rate almost equal to zero?

A. 

B. 

C. 

D. 

Answer: B

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4. select the appropriate growth curve of E.coli bacterium depicting exponential growth in culture media in lab conditions

A. 

B. 

C. 

D. 

Answer: B

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5. select the incorrect statement for exponential growth model.

A. this pattern of growth occurs if resources are unlimited

B. integral form of this growth is is represented as $N_1 = N_0 e^n$

C. when resources are unlimited in this habitat each species has the ability to

realise fully its innate potential to grow in number

D. population showing exponential growth is represented by a sigmoid curve.

Answer: D

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6. in a forest there are 40 tigers last year. increase of 8 tigers was observed because of reproduction making the current population

to 48. calculate the birth rate for tiger population.

A. 0.833

B. 0.2

C. 0.166

D. 6

Answer: B

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7. which one is mismatched w.r.t. population interactions.

A. +(species A), +(species B), Mutualism(name of interaction)

B. -(species A), -(species B), competition (name of interaction)

C. 0(species A), +(species B), Amensalism(name of interaction)

D. +(species A), 0(species B), Commensalism(name of interaction)

Answer: C

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8. nearly _____ percent of all insects are phytophagous.

A. 0.1

B. 0.25

C. 0.4

D. 0.65

Answer: B

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9. which of the following states that too closely related species competing for the same resources cannot coexist indefinitely and the competitively inferior one will be eventually eliminated?

A. Mac Arthur principle

B. Gause's principle

C. Tilman's principle

D. Allen's rule

Answer: B

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10. Barnacles growing on the back of whale is an example for :

A. protocoorporation

B. commensalism

C. competition

D. predation

Answer: B

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11. cryptic appearance of an organism that appears similar to objects found in the

surrounding environment to protect itself from predators is called

A. chemical cefence

B. Camouflage

C. antibiosis

D. Both (1) & (2)

Answer: B

12. anthropogenic ecosystem is characterized by all of the followings, except

A. little cycling of nutrients

B. have little diversity

C. low productivity

D. simple food chain

Answer: C

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13. select the correct set of steps involved in the process of decomposition. (a) stratification, (b) catabolism, (c) fragmentation, (d) mineralization, (e) leaching

A. (a), (b) and (d)

B. (a), (c) and (e)

C. all except (e)

D. all except (a)

Answer: D

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14. select the correct option w.r.t. producers

A. herbivorous

B. transducer

C. secondary carnivorous

D. all except (2)

Answer: B

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15. Primary productivity does not depend upon

A. plant species inhabiting a particular area

B. photosynthetic capacity of plants

C. biomass of parasites

D. availability of nutrients

Answer: C

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16. all of the following are highly productive ecosystems except

A. coral reefs

B. sugarcan fields

C. tropical rainforest

D. Deserts

Answer: D

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17. select the incorrect option

A. sea anemone hand clown fish : Mutualism

B. cuckoo and crow: Brood parasitism

C. Ophyrus and bee : Commensalism

D. Sea anemone hermit crab : Parasitism

Answer: B

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18. the rate of decomposition increases if detritus is rich in

A. Lignin and chitin

B. nitrogen compounds like protein and nucleic acid

C. tennis and cellulose

D. chitin and phenotics

Answer: B

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19. annual NPP of whole biosphere is approximately _____ tons (dry weight) of organic matter

A. 170 millions

B. 115 billion

C. 55 billion

D. 265 billion

Answer: A

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20. select incorrect statement w.r.t. Mac Arthur experiment on five closely related species of warblers.

A. they were living together on the same tree

B. they were able to avoid competition

C. David unable to promote coexistence

D. they enhance their rate of Survival by changing foraging patterns

Answer: C

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21. which of the following factor inhibit decomposition?

A. low temperature and anaerobiosis

B. warm and moist environment

C. aeration

D. both (2) & (3)

Answer: A

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22. What percentages of PAR can be captured by plants ?

A. more than 50%

B. 0.5

C. 20 to 40%

D. 2 to 10%

Answer: D

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23. read the following statements and choose the option which is the set of correct statements.

(a) sun is the source of energy for grazing food chains.

(b) in aquatic ecosystem, DFC is the major conduit of energy flow

(c) some organism of DFC prey to GFC animals.

(d) ecosystem can support unlimited number of trophic levels.

(e) waves provide stability to the ecosystem

A. b,c and e

B. a, b, c and d

C. a, c and e

D. all except b and c

Answer: C

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24. successional community which is relatively stable and is in equilibrium with the environment referred as

A. seral community

B. Pioneer community

C. climax community

D. transitional community

Answer: C

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25. which one of the following pyramid is generally inverted?

A. pyramid of number in grassland ecosystem

B. pyramid of biomass in a grassland ecosystem

C. pyramid of number in sea

D. pyramid of biomass in sea

Answer: D

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26. choose the correct set of statements (A) successful germination of propagules and its establishment in a bare area is called nudation. (B) succession and evolution would have been parallel processes to have occurred over millions of years scenes life started on earth (C) the flow of energy is uni directional from producer to consumer level.

A. A and B

B. only A

C. B and C

D. A and C

Answer: C

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27. ecological pyramid does not accommodate all, except

A. food web

B. insectivorous plants

C. saprophytes

D. herbivores

Answer: D

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28. select the pyramid which correctly depicts A tree supporting on number of herbivorous birds which are eaten by 1 or 2 hawks of the area (A-tree, B-herbivorous birds, C-Haws)

A. 

B. 

C. 

D. 

Answer: B

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29. which of the following ecological characteristics undergo change during

succession? (a) Humus content of soil (b) total biomass (c) number of species (d) temperature

A. all except (a)

B. all except (b)

C. all except (c)

D. all except (d)

Answer: D

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30. select the correct sequence of stages in xerarch succession.

A. lichens rarr bryophytes rarr shrubs rarr herbs rarr forest

B. lichensrarr bryophytes rarr herbs rarr shrubs rarr forest

C. grass rarr bryophytes rarr shrubs rarr herbs rarr forest

D. mossrarr grassrarr shrubs rarr herbs rarr forest

Answer: B

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31. standing crop is expressed as

A. the number for biomass of organism part unit area

B. total amount of nutrients present in soil at any time

C. total number of primary producer at any time in an area

D. total amount of energy at any tophic level at any time

Answer: A

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32. which of following environmental factors control the rate of release of nutrients from reservoir to atmosphere? A. soil, B. moisture, C. pH, D. temperature

A. A and D only

B. A, B, C and D

C. B and C only

D. A and B only

Answer: B

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33. mark the correct statement regarding services

A. the products of ecosystem processes are named as ecosystem services

B. the value of ecosystem services can be easily determined on the basis of function performed

C. out of total cost of various ecosystem services, the nutrient cycling accounts for 50%

D. a healthy forest ecosystem cannot purify air and water

Answer: A

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34. statement A: same organisms always occupy only one specific tophic level in a food web. statement B: a species may occupy more than one trophic level in the same ecosystem at the same time

A. only statement A is correct

B. only statement B is correct

C. Both statements A and B are correct

D. both statements A and B are incorrect

Answer: B

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35. earth is an open ecosystem w.r.t. __(a)__ and is a closed ecosystem w.r.t. __(b)__

A. Energy(a) and heat(b)

B. Food web(a) and energy(b)

C. Energy(a) and nutrient cycle(b)

D. nutrient cycle(a) and energy(b)

Answer: C

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36. match the following columns and choose the correct option w.r.t. hydrarch succession. a. submerged plant stage (column I) and (i) hydrilla (column II), b. scrub stage (column I), (ii) phytoplanktons (column II), c. Pioneer community (column I), (iii) juncas(column II), d. Marsh meadow stage (column I), (iv) Salix (column II)

A. a(i), b(iv), c(ii), d(iii)

B. a(i), b(ii), c(iv), d(iii)

C. a(i), b(iii), c(iv), d(ii)

D. a(ii), b(iv), c(i), d(iii)

Answer: A

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37. A piece of DNA is subjected to restriction enzyme digestion and the digested sample is electrophoresed. Which statement is correct in the above context?

A. Smallest fragment is present near cathode

B. Largest fragment is present near anode

C. Largest fragment is present in the middle of the gel

D. Smallest fragment is present near anode

Answer: D

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38. Which of the following is incorrect regarding gel electrophoresis?

A. Agarose gel is used for separation of DNA fragments while polyacrylamide gels ate used for protein separation

B. Separated DNA fragments can be visualised with or without staining with ethidium bromide

C. The desired band of DNA containing gene of interest are extracted from gel by a process known as elution

D. DNA fragments separate according to their size through sieving effect of agarose gel

Answer: B

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39. Read the given four statements and choose the correct option. a. An alien DNA is linked with the "ori" for multiplication b. Normal E.coli cells do not carry antibiotic resistant genes for tetracycline and ampicilin c. Salmonella typhimurium carry gene for resistance against antibiotic d. An antibiotic resistance gene can be used as a selectable marker or cloning site

A. a, b correct but d incorrect

B. a, b and d correct but c incorrect

C. c and d correct but a and b incorrect

D. a, b, c and d are correct

Answer: D

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40. Which of the following enzymes cannot be used for isolation of DNA from Lactobacillus?

A. Lysozyme

B. Protease

C. Cellulase

D. Ribonuclease

Answer: C

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41. Given below are different steps of transformation in a bacterial cell. Arrange them in correct sequence. (i) Heat shock (at 42°C) (ii) Treatment of bacterial cell with divalent cations at 4°C (iii) Bacterial cells are

incubated with recombinant DNA on ice (iv) Recombinant/Transformed bacteria are plated and kept at 37°C

A. (i), (ii), (iii), (iv)

B. (ii), (i), (iii), (iv)

C. (ii), (iv), (i), (iii)

D. (iv), (ii), (iii), (i)

Answer: B

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42. Which of the following restriction enzyme site is present in nucleotide sequence of ampicillin resistance gene in pBR322?

A. Pvu I

B. Pvu II

C. Hind III

D. Sal I

Answer: A

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43. Which given statements are incorrect for bioreactors?

A. Larger biomass is produced in a batch culture system w.r.l continous culture in a bioreator

B. The most commonly used bioreactors are stirred type

C. Stirrer facilitates even mixing of oxygen and nutrients

D. Bioreactor is a type of fermenter in which raw materials are biologically converted into specific products

Answer: A

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44. From given statements select the incorrect statement. (a) Proteins which are obtained by recombinant DNA technology are called recombinant proteins (b) Downstream

processing include separation and purification of the desired product (c) After purification the product has to be formulated with suitable preservatives (d) Downstream processing and quality control testing do not vary from product to product

A. (a)

B. (b)

C. (c)

D. (d)

Answer: D

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45. Farmer may obtain cost effective maximum yield from their fields without polluting environment by

A. Argo-chemical based agriculture

B. Organic agriculture

C. Genetically engineered crop-based agriculture

D. Green revolution

Answer: C

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46. Read the given statements about properties of genetically modified plants. They exhibit (a) Enhanced nutritional value of food (b) Decreased efficiency of mineral usage by plants. (c) Increased reliance on chemical pesticides (d) Reduced post harvest losses. Which statement is/are correct?

A. a, b and d

B. Only a

C. a and d

D. a, b, c, and d

Answer: C

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47. Select the mismatch

A. cry I Ac – Helicoverpa

B. cry I Ab – Com borer

C. cry II Ab – Corn borer

D. cry I Ab – Ostrinia

Answer: C

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48. What is the reason for death of bollworms due to Bt toxin protein?

A. Inhibition of nerve impluse

B. Disturbed digestion of food in foregut

C. Creation of pores that cause cell swelling and lysis in midgut

D. Lysis of cells of hindgut

Answer: C

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49. RNAi technology was discovered in

A. Nicotiana tobaccum

B. Caenorhabditis elegans

C. Meloidogyne incognita

D. Bacillus thuringiensis

Answer: B

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50. Which of the following nematode infects the roots of tobacco plant and causes a great reduction in yield.

A. Bacillus thuringiensis

B. Ascaris lumbricoides

C. Wuchereria malayi

D. Meloidogyne incognita

Answer: D

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