

This Question Paper contains 32 printed pages.

Sl.No. 800128

056(E)  
(Oct./Nov. - 2015)  
(SEMESTER - III)

પ્રશ્ન પેપરનો સેટ નંબર

Set No. of  
Question Paper:

08

Time : 2½ Hours]

[Maximum Marks : 100

Instructions :

- 1) There are 100 questions in this question paper. All questions are compulsory.
- 2) Select proper option to make the statement correct.
- 3) The OMR sheet is given for answering the questions. The answer of each question is represented by (A) O, (B) O, (C) O, (D) O. Darken the circle ● of the correct answer with ball-pen.
- 4) Each question carry 1 mark.
- 5) Read the questions carefully before your answer.
- 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.

1) Through which of the following plants get oxygen for respiration?

- (A) Through stomata  
(B) Through lenticel  
(C) Through Hydathodes

T (D) A & B both

2) Which enzyme in plants involved in prior to and after glycolysis?

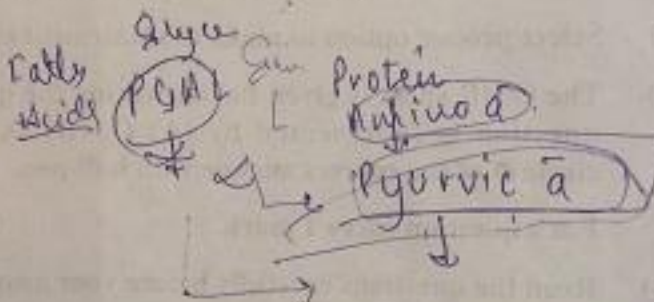
- T (A) Invertase, Acetyl Co-A. Synthetase  
(B) Sucrase, Cytochrome oxidase  
(C) Fructose isomerase, Succinic dehydrogenase  
(D) Invertase, Hexokinase

3) How many times decarboxylation and dehydrogenation take place in the main stage of citric acid cycle?

- (A) Four times Decarboxylation two times Dehydrogenation  
 (B) Two times Decarboxylation, two times Dehydrogenation  
 T (C) Two times Decarboxylation four times Dehydrogenation  
 (D) One time Decarboxylation one time Dehydrogenation

4) At which stage of respiration Carbohydrates are used?

- (A) Cellular  
 (B) Extracellular  
 (C) Matrix  
 → T (D) A and C both



5) In metabolic pathway of respiration pyruvic acid molecules are directly synthesized from

- (A) Glycerol, Vitamins, Amino acid  
 T (B) Glycerol, Glucose, Amino acid  
 (C) Fatty acid, Starch, Glycerol  
 (D) Fatty acid, Glucose, Amino acid

6) Which of the following factor is not required to be activated in blood clotting?

- (A) Proconvertin  
 (B) Fibrinogen  
 T (C) Accelerin  
 (D) Prothrombin

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7) How much time is required for emptying bath atrium during one cardiac cycle?

- (A) 0.20 second  
(B) 0.30 second  
(C) 0.40 second  
T (D) 0.10 second

0.80  
0.10  
0.30  
0.40

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

8) In which of the following units ECG is measured?

- (A) Milli second  
(B) Milli volt  
(C) Milli metre  
T (D) A & B both

9) To which artery blood supplied from Aorta during blood circulation.

- (A) Anterior artery  
T (B) Pulmonary artery  
(C) Dorsal aorta  
(D) Posterior artery

10) Name the nerve fibre which accelerate the rate of heart beat.

- (A) Non medullated nerve fibre  
(B) Parasympathetic nerve fibre  
(C) Medullated nerve fibre  
T (D) Sympathetic nerve fibre

11) Which of the following factor responsible for hardening of arteries?

- (A) Calcium salts
- (B) Cholesterol
- (C) Phosphate salts

☒ (D) A & B both

12) The blood group of Bharatbhai is "A" His wife Bhartiben blood group is "B" and their son Bhavya's blood group is "O". Bharatbhai is met with an accident. Who can give blood to Bharatbhai?

(A) AB blood group person

☒ (B) O blood group person

(C) B blood group person

(D) None of the above

13) Give name, percentage and importance of blood cell in diagram.



(A) Lymphocyte, 20 to 45%, Immunity ✓

(B) Acidophill, 1 to 4%, Burning Sensation

☒ (C) Basophill, 0.1%, Allergic process

(D) Neutrophill, 40 to 70%, Active Phagocyte

Neutro 5  
Eosino  
Basophils

14) In removal of which excretory substance least energy is required, name the substance and the organ in which synthesized and by which process.

- (A) Ammonia, Kidney, Deamination
- (B) Urea, Kidney, Deamination
- (C) Uric acid, Liver, Deamination

✓ (D) Ammonia, Liver, Deamination

15) Which component is responsible for the control of Kidney Function?

- (A) Hypothalamus
- (B) Adrenal
- (C) Pituitary

✓ (D) A and C both

16) How much water potential of complete turgid cell?

- (A) less than zero

✓ (B) 0

- (C) more than one
- (D) 1

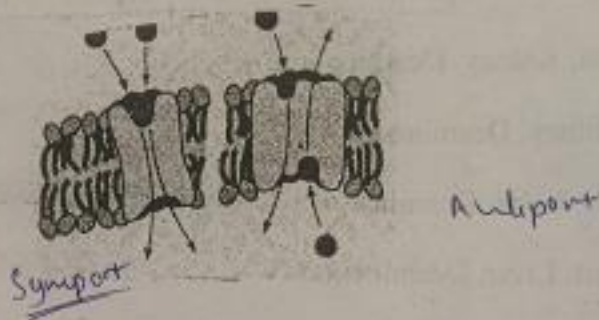
17) Which type of water is lost during transpiration by sunflower leaf?

- (A) More concentrate solution
- (B) In form of dissolved excretory substances

✓ (C) Pure water

- (D) Salt containing water

18) The given diagrams  $\phi$  shows what type of Transport?



- (A) Trans membrane Transport ✓  
 T (B) Symport ✓  
 (C) Active transport ✓  
 (D) Passive transport

19) By which process and pressure the water moves from nearby Xylem to Phloem.

mass flow

- (A) Exosmosis, Root pressure  
 (B) Imbibition, Root pressure  
 (C) Plasmolysis, Osmotic pressure  
 T (D) Osmosis, Turgor pressure

20) Which plant factors affect transpiration?

- (A) Number of stomata  
 (B) Distribution of stomata  
 (C) Canopy structure  
 T (D) All of the above

21) Which of the following statement is wrong?

- (A) Plants at a time absorb either water or mineral ions.  
(B) In leaves, the mineral ions are assimilated into organic compound  
(C) The root absorb water through passive transport.  
(D) Transport of water and dissolved mineral salts can take place against gravitational force.

22) Which of the following pathway takes place minimum during transport of water through root.

- (A) Apoplast pathway ✓  
(B) Symplast pathway ✓  
(C) Vacuolar pathway  
(D) Transmembrane transport

23) When the tradescantia leaf is kept in hypertonic solution the process of plasmolysis start and it progresses. The protoplasm shrink as remain contract in one region. What is the name of this process?

- (A) Imbibition  
(B) Exosmosis  
(C) Diffusion  
(D) Endosmosis

24) The experiment of potato explain the process of osmosis, The process of osmosis suggest which kind of phenomenon?

- (A) Biochemical  
(B) Physical  
(C) Chemical  
(D) Physiological

Potato osmoscope

25) Which of the following organism is different in reference to function.

(A) Clostridium (fixative)

(B) Rhizobium (fixing)

(C) Azotobacter

T (D) Pseudomonas (denitrifying)

26) Which elements are essential as a structural component of plasma membrane, middle lamella, and cellwall respectively?

(A) Sulphur, Phosphorus, Silicon

T (B) Phosphorus, Calcium, Silicon

(C) Potassium, Manganese, Magnesium

(D) Nitrogen, Silicon, Calcium

27) Which of the following is not a type of hydroponics solution culture?

(A) Aeroponics

(B) Continuous flow solution culture

T (C) Medium culture

(D) Static Solution Culture

28) Passive absorption = Diffusion.

Active absorption = \_\_\_\_\_

T (A) Coupled transport

(B) Donnan equilibrium

(C) Water absorption

(D) Exchange of ions

29) Study of mineral nutrition is concerned with \_\_\_\_\_.

- (A) Effects of their imbalanced availability
- (B) Absorption of essential mineral elements
- (C) Importance of minerals in plants.

T ☒ (D) All of the above

30) Write the form of element which is absorbed and its percentage which is required in the composition of cell wall.

(A)  $\text{Ca}^{+2}$ , 0.01%

(B)  $\text{H}_4\text{P}_2\text{O}_7$ , 0.2%

(C)  $\text{H}_2\text{BO}_3^-$ , 0.2%

T ☒ (D)  $\text{H}_2\text{BO}_3^-$ , 0.03%

31) Which statement is correct related with photorespiration?

C P m T ☒ (A) In mitochondria 2C glycine two molecules unite and produce 3C containing serine molecule

(B) In mitochondria glycocholate is oxidised and form glycoxylate

(C) In peroxisome produce 3C containing glycoxylate

(D) Reduction of RuBP in chloroplast

32) What does  $P_{700}$  indicate [when the molecule of chlorophyll is oxidised?]

(A) Electrons obtained from  $\text{O}_2$

(B) Releases electron from  $\text{H}_2\text{O}$  due to this process

T ☒ (C) Direct reduction of  $\text{NADP}^+$

(D) Generate the molecule of  $\text{H}_2\text{O}$

33) Write the first and second  $\text{CO}_2$  acceptor respectively in  $\text{C}_4$  pathway.

- (A) PEP, OAA
- T (B) PEP, RuBP
- (C) OAA, PEP
- (D) RuBP, PEP

phosp wo u

34) The productivity of  $\text{C}_4$  pathway is higher than  $\text{C}_3$  pathway. Why?

- (A) Thin layer of cuticle surrounding the leaf
- (B) The surface of leaf is more
- (C) The large number of chloroplast found in leaf
- T (D) The rate of photorespiration is lower

35) Which of the following is electron donor in  $\text{P}_{680}$  light reaction.

- T (A) Water
- (B) Cytochrome
- (C) Chlorophyll
- (D) NADPH

36) Which of the following statement is not related with Light phase of Photosynthesis?

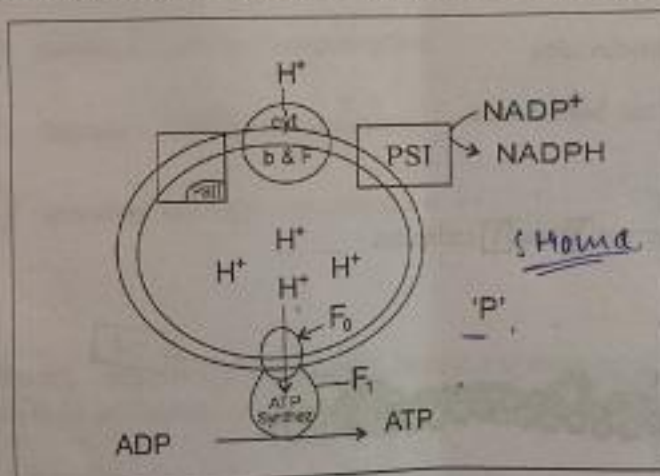
- (A) Photolysis of water ✓
- T (B) Absorption of water
- (C) Formation of ATP and  $\text{NADPH}_2$  ✓
- (D) Release of  $\text{O}_2$

37) Name the scientist who explained the fixation of  $\text{CO}_2$  by 3C containing carbonic acid.

- (A) Robert Hill
- (B) Julius Von Sach
- (C) Priestley

☒ (D) Melvin Calvin

38) Which process takes place at P region in the given diagram?



(A) Formation of hydrogen ions ✓

☒ (B) Reduction of NADP

(C) Photolysis of water ✓

(D) Diffusion of protons ✓

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39) How much energy is transformed during complete oxidation of one glucose molecule in cellular respiration? *(Not specify for*

(A) 34 ADP molecules transform into 34 ATP

(B) 30 ADP molecules transform into 30 ATP

(C) 36 ADP molecules transform into 34 ATP

☒ (D) 38 ADP molecules, transform into 38 ATP

*eukaryotes  
or prokaryotes*

40) By oxidation of which of the following substances the organisms get energy?

(A) Water

(B) Vitamins

☒ (C) Macromolecules

(D) Inorganic Substances

41) In given diagram [X] and [Y] indicates \_\_\_\_\_.



(A) ☒ [X] = Tropomyosin [Y] = Troponin - I

(B) [X] = Troponin - T [Y] = Troponin - C

☒ (C) [X] = Tropomyosin [Y] = Troponin - T

(D) [X] = Troponin - T [Y] = Tropomyosin

42) In muscle contraction which process occurs during bond formation?

(A) Myosin filament stretching Troponin

~~(B) Actin filament stretching Myosin~~

T ☒ (C) <sup>binding</sup> Myosin filament stretching Actin

(D) Actin filament stretching Troponin

43) Which process occurs in Sarcoplasm during muscle relaxation?

(A) increases  $K^+$  ion concentration

(B) increases  $Ca^{++}$  ion concentration

(C) decreases  $K^+$  ion concentration

T ☒ (D) decreases  $Ca^{++}$  ion concentration

44) Through which nerve the Central Nervous system provides message for initiation of muscle contraction?

(A) Reflex nerve

T ☒ (B) Motor Nerve

(C) Sensory Nerve

(D) Mixed Nerve

45) Decreased concentration of  $\text{Ca}^{++}$  in body fluid leads to

(A) Arthritis

T (B) Tetany

(C) Rheumatoid Arthritis

(D) Myasthenia gravis

46) Which joint occurs in pubic symphysis?

(A) Fibrous joint

fibrous

(B) Immovable joint

T (C) Slightly movable joint

(D) Movable joint

47) Choose the correct option for the location of Scapula.

T (A) present on 2 to 7 Ribs of posterior thoracic

(B) present on 2 to 5 Ribs of Anterior thoracic

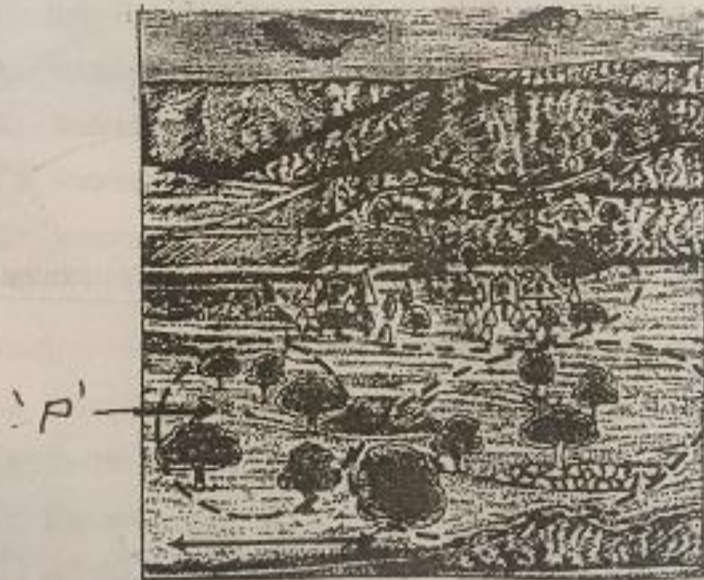
(C) present on 2 to 7 Ribs of Anterior thoracic

(D) present on 2 to 5 Ribs of posterior thoracic

48) Choose the correct option:

- (A) Lacrimal - Ethmoid
- (B) Ethmoid - Zygomatic
- ~~(C) Occipital - Sphenoid~~
- (D) Lacrimal - Temporal

49) Give the name of diversity which indicates through - "P" in given diagram.



- (A)  $\gamma$  - diversity
- ~~(B)  $\alpha$  - diversity~~
- (C)  $\beta$  - diversity
- (D) A & B both

50) Which is the largest aquatic mammal among the following?

(A) Dog

T (B) ☒ Dolphin

(C) Bat

(D) Rat

51) Which scientist stated that up to certain limit as the geographical area increases, number of species also increases

(A) Odum

(B) Van sach

(C) Arnon

T (D) ☒ Hambolt

52) Which process involved in mechanism of filtrate concentration?

(A) Diffusion, Osmosis, Facilitated transport

T (B) ☒ Diffusion, Osmosis, Active transport

(C) Diffusion, Symport, Active transport

(D) Diffusion, Plasmolysis, Passive transport

53) Which process occurs in ureter when urine is transported towards urinary bladder?

(A) Assimilation

(B) Relaxation

T (C) ☒ Peristalsis

(D) Contraction

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54) Component of sebum \_\_\_\_\_.

- (A) Steron, Glycerol, Hydrocarbon  
T (B) Wax, Fatty acid, Sterol  
(C) Sterols, Sucrose, Hydrocarbon  
(D) Steron, Fatty acid, Hydrocarbon

55) Choose the correct statement.

- (P) Interstitial Fluid of Medulla have same concentration as urine.  
(Q) Blood filtration occurs through thin membrane of Bowman's Capsule. ✓ *Double walled membrane.*  
(R) Concentration of urine is less as the length of henle's loop increases ✓  
(S) Selective reabsorption is passive transport process.  
(A) Statement P, S true but Q, R are false  
(B) Statement P, Q, R, are true but S is False  
T (C) Statement P, Q are true but S and R are False  
(D) Statement P is true but Q, R, S, are false

56) Which is known as temporary storage organ?

- (A) Urinary bladder  
(B) Stomach  
(C) Rectum  
T (D) All the above

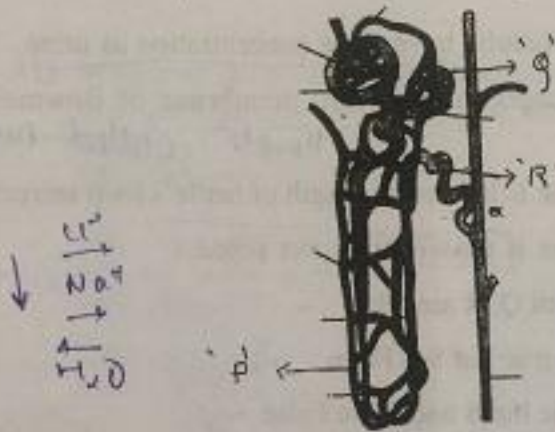
57) Which process occurs in distal convoluted tubule?

- (A) Reabsorption of water  
(B) Potasium balance in blood ✓  
(C) Secretion of Medicine, Ammonia and Poisonous substances  
T (D) A, B and C

58) Which organs enter into kidney through Hilum?

- (A) Renal artery, ureter  
 (B) Renal Vein, Nerve  
 (C) Ureter, Nerve  
 T (D) Renal artery, Nerve

59) Give the process which occur in P, Q & R part of the given diagram



(A) P = Water enter here through active transport

Q = It keeps pH constant

R = It secrete uric acid, Ammonia, Hydrogen into tubules

T (B) P = It prevent the movement of  $\text{Na}^+$  and  $\text{Cl}^-$  from Renal medulla to out side

Q = It increase the absorptive surface for Filtrate

R = It reabsorb  $\text{HCO}_3^-$

(C) P = Pressure filtration occurs here

Q = Blood plasma become isotonic here

R = Reabsorption of  $\text{Na}^+$  occurs here

(D) P = It prevent the movement of  $\text{Na}^+$  and  $\text{Cl}^-$  from Renal medulla to outside

Q = It decrease the absorptive surface for filtrate

R = It reabsorb  $\text{HCO}_3^-$

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60) Which components are present in pulp cavity

(A) Cartilage, blood vessels, nerves

T (B) Aeriolar tissue, blood vessel, nerves

(C) Bone tissue, blood vessels, nerves

(D) Connective tissue, nerves, enamel ✓

61) Give the location of fungiform papillae:

(A) Posterior side of Tongue

(B) Middle of Tongue

(C) Lateral side of Tongue

T (D) Tip of the tongue

62) Which organ also possess digestive gland in its sub mucosa layer?

(A) Gall bladder

(B) Ileum

T (C) Deodenum

(D) Stomach

63) Give the location and function of Gastric Inhibitory peptide

T (A) Inhibits Intestinal juice, in deodenum wall

(B) Inhibits, the gastric juice, in stomach wall

(C) Stimulates Intestinal juice, in deodenum wall

(D) Stimulates gastric juice, in stomach wall

64) Give the name of milk protein and the name of substance which is digested by it in Human Stomach

(A) Renin, Trypsin

(B) Pepsin, Renin

~~T~~ (C) Casin, Renin

(D) Trypsin, Casein

65) Choose the incorrect option

~~T~~ (A) Hyoid bone

(B) Thecodont

(C) Heterodont

(D) Diphyodont

66) Which physical process occurs during digestion?

(A) Filamentous movement

~~T~~ (B) Gastric movement

(C) Amaeboid movement

(D) Cytoplasmic movement

67) Digestion process is controlled by \_\_\_\_\_.

- (A) Peripheral nervous system
- (B) Voluntary nervous system
- ✓ (C) Endocrine nervous system
- (D) Sympathetic nervous system

68) Which tissue forms glottis?

- (A) Muscular tissue
- ✓ (B) Hyaline Cartilage
- (C) Aerialar tissue
- (D) Bone tissue

69) Junction of ventral and dorsal side of diaphragm \_\_\_\_\_.

- (A) Thoracic cavity - Sternum ✓
- (B) Ribs - Sternum ✓
- (C) Vertebral column - Ribs
- ✓ (D) Sternum - Vertebral column



vital capacity +

70) VC = \_\_\_\_\_

- (A) TV + RV + ERV
- (B) TV + ERV
- ✓ (C) TV + IRV + ERV
- (D) ERV + RV

71) The chemical regulation of respiration occurs through \_\_\_\_\_.

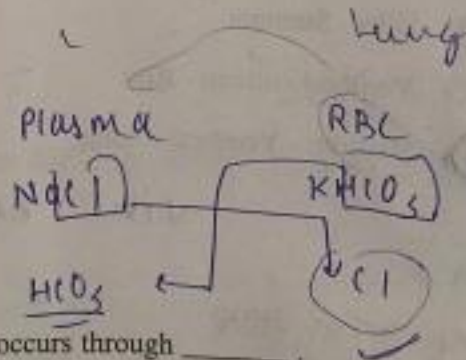
- T ☒ (A)  $\text{CO}_2$  of cerebrospinal fluid  
☒ (B)  $\text{CO}_2$  of blood plasma  
 (C)  $\text{O}_2$  of cerebrospinal fluid  
 (D)  $\text{O}_2$  of blood plasma

72) In which disease once elasticity of alvirole is lost it never curable?

- (A) Pneumonia  
 (B) Asthma  
 T ☒ (C) Emphysema  
 (D) Bronchitis

73) Give the volume of air which remains in lungs after forcible expiration.

- (A) ERV  
 (B) IRV  
 T ☒ (C) RV  
 (D) EC



74) Neutralization of  $\text{Cl}^-$  in RBC occurs through \_\_\_\_\_.

- T ☒ (A)  $\text{K}^+$   
 (B)  $\text{HCO}_3^-$   
 (C)  $\text{KHb}$   
 (D)  $\text{Na}^+$

75)  $\text{Cl}^-$  Back shift occurs from \_\_\_\_\_ to \_\_\_\_\_ during respiration

- (A) Lungs, respiratory surface
- (B) Blood plasma, Erythrocytes
- (C) Respiratory surface, Lung
- T (D) Erythrocytes, Blood plasma

76) Seed bank conserves \_\_\_\_\_.

- (A) Simple plant
- (B) Types of soil
- (C) Germplasm
- T (D) All the above

77) Which institute conserves genome of economically important fishes?

- T (A) National Bureau of Fish genetic resources
- (B) National Bureau of Plant genetic resources
- (C) National Bureau of Animal genetic resources
- (D) All the above

78) Which organism remains as a parasite throughout his life cycle?

- (A) Earthworm ✓
- T (B) Tape worm
- (C) Leech ✓
- (D) Mites ✓

79) Abingdon turtle is extinct due to:

- T (A) Competition
- (B) predation
- (C) Migration
- (D) immigration

80) Jaiminbhai died at the age of 85 years. So this type of death rule is known as \_\_\_\_\_.

- (A) Actual mortality
- (B) Secondary mortality
- T (C) Potential mortality
- (D) Primary mortality

Potential Mortality.  
Realised or  
True Mortality  
R & P

81) In  $D = \frac{n/a}{t}$  formula, what "a" indicates?

(A) Population growth

T (B) Area

(C) No. of persons

(D) Population density

82) Choose the incorrect option from the given specific character of a population.

(A) All individuals are morphologically similar ✓

(B) Individuals differ from other species by reproductive affinities ✓

(C) All the individual of a population are included in one species ✓

T (D) Individuals are not interrelated through genetic relations

83) Give true ascending order of species diversity.

(A) Sub species → Phylum → Family → Genus

(B) Kingdom → Variety → Genus → Family

T (C) Variety → Species → Genus → Family

(D) Kingdom → Family → Species → Variety

84) In which forest more than half of the known species are found?

- (A) Savana Forest
- (B) Tropical Scrubby Forest
- (C) Tropical Moist Forest
- T (D) Tropical deciduous forest

85) Which area is completely protected in biosphere reserves?

- (A) Transition Zone
- T (B) Core Zone
- (C) Buffer Zone
- (D) A & C both

86) Which plant is known as "Terror of Bengal"?

- T (A) Eichornia
- (B) Wolfia
- (C) Hydrilla
- (D) Chara

87) Which developing countries are recycling e-waste?

- (A) China, India, Srilanka
- (B) India, Pakistan, Srilanka
- (C) China, Pakistan, Bangladesh
- T (D) China, India, Pakistan

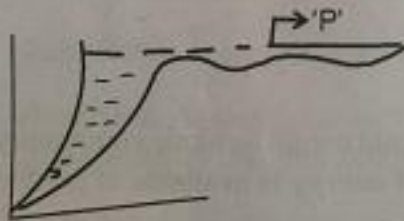
88) Joint Forest Management is originated for which purpose?

- T (A) To conserve Sorea in Bengal ✓  
(B) For green revolution in Punjab c  
(C) For Chipko movement in country  
(D) To conserve teak in Bengal

89) Ozone degradation occurs in which layer of atmosphere?

- (A) Ozonosphere  
T (B) Stratosphere ✓  
(C) Thermosphere  
(D) Troposphere

90) In given diagram "P" indicates \_\_\_\_\_ .



- (A) Maximum birth rate  
T (B) Carrying capacity ✓  
(C) Actual birth rate  
(D) Environmental resistance

91) Which of the following stage is shown in the diagram of hydrosere succession?



(A) Submerged Stage

(B) Climax Stage ✓

T (C) Emerged Stage

(D) Pioneer Stage

92) \_\_\_\_\_ is known as giant ecosystem.

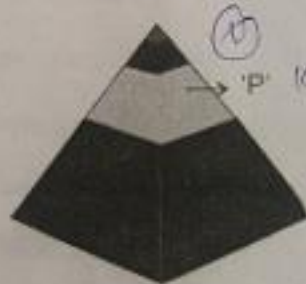
(A) Spring stream

(B) River

(C) Pond

T (D) Earth

93) Name the type of ecological pyramid name the biotic community Indicated by "P". How much percentage of energy is available at producer level.



(A) Biomass, primary carnivores 0.2%

(B) Energy, higher carnivores, 0.1%

T (C) Energy, Herbivores, 10%

(D) Number, Carnivores, 1%

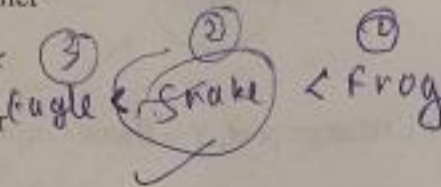
94) Snake is the predator of Frog and Eagle is the predator of Snake. What is the position of Snake in this food chain?

T. ☒ (A) Secondary consumer

(B) Primary consumer

(C) Tertiary consumer

(D) Producer



95) All the ecosystems are organised by

(A) Biotic community

(B) Environmental factor

(C) Salts in the soil

T. ☒ (D) A and B both

96) Assertion A : The nature is protected by ecosystem. ✓

Reason - R : The different ecosystems are separate from each other

(A) Assertion A is incorrect but R is correct

(B) Assertion A and Reason R both are true but R is not correct explanation of Assertion A.

T. ☒ (C) Assertion A is correct but R is incorrect.

(D) Assertion A and Reason R both are true. R is correct explanation of Assertion A.

97) When does  $\text{CO}_2$  absorption takes place in CAM plant?

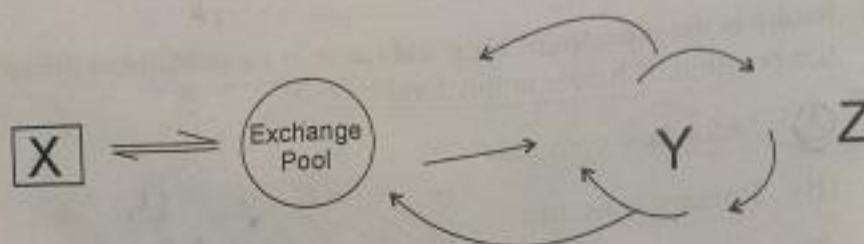
(A) In morning

(B) During day time

(C) During midnight

T. ☒ (D) During night time

98)



- (A) X = Exchange pool, Y = Biotic Community, Z = Consumer
- T (B) X = Reservoir, Y = Biotic Community, Z = Consumer
- (C) X = Reservoir, Y = Population, Z = Microorganism
- (D) X = Exchange pool Y = consumer, Z = Population

99) Which gas is removed by scrubbers?

- (A) Oxygen
- T (B) Sulphur dioxide
- (C) Carbon dioxide
- (D) Nitrous oxide

100) Which process is responsible for removal of 90% particulate matter from the smoke of thermal power plant?

- T (A) Electrostatic precipitator
- (B) Scrubber
- (C) Solvent
- (D) Chimney