TEST SERIES CSIR-NET/JRF DEC. 2018

BOOKLET SERIES E

FULL LENGTH TEST - II

Paper Code 03 **Test Type: TEST SERIES**

LIFE SCIENCES

Duration: 3:00 Hours **Date: 08-12-2018**

Maximum Marks: 200

Read the following instructions carefully:

* Single Paper Test is divided into **THREE** Parts.

Part - A: This part shall carry **15** questions. Each question shall be of **2 marks.**

Part - B: This part shall carry **35** questions. Each question shall be of **2 marks.**

Part - C: This part shall contain **25** questions. Each question shall be of **4 marks**.

* Darken the appropriate bubbles with HB pencil/Ball Pen to write your answer.

* There will be negative marking @25% for each wrong answer.

* The candidates shall be allowed to carry the Question Paper Booklet after completion of the exam.

* For rough work, blank sheet is attached at the end of test booklet.

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PART-A

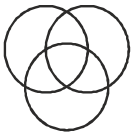
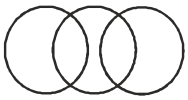
1. At what, minute between h'O clock and (h + 1)' O clock the hour and minute hands of a clock coincide?

   (a) $\frac{60h}{11}$ (b) $\frac{60h}{55}$ (c) $\frac{55h}{60}$ (d) $\frac{60(h+1)}{60}$

2. If the day of the 7th January in 1992 was tuesday and it was Rams birthday, then what will be the day of Ram's birthday in 1997.

   (a) Tuesday (b) Monday (c) Wednesday (d) Sunday

3. What should be the ideal diagram for women mothers and lawyears,

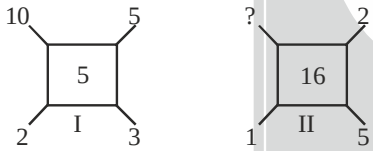
   (a)  (b)  (c)  (d) 

4. Below is given statement and based on that statement you have to find out which of the conclusions follows?
   Statement : Unless India, a country achieves total literacy, it can't reach its mission of development.
   Conclusion: (i) It is possible to reach total literacy in India
   (ii) No development is possible without a proper mission

   (a) Only I follows (b) Only II follows (c) None follows (d) both follows

5. A board of directorate meeting comprising 7 members sits in a row facing north. Amit is to the immdiate left of Barun but on the immediate right of Douglus. Qarmor is on the right side of Amit but on the left of Sushant. Tarun is on the left side of Vikram who is sitting to the left of Douglus. Who is sitting in the middle?

   (a) Vikram (b) Amit (c) Qamar (d) Douglous

6. 

   (a) 15 (b) 26 (c) 30 (d) 10

7. Mother's age is four times the age of her daughter after 10 years the age of mother will be twice the age of her daughter. Find the present age of daughter.

   (a) 5 (b) 7 (c) 14 (d) 8

8. A boy is constructing a house on a contract basis of 10 hours. He constructs 10 feet in an hour and rests for 30 minute after an hour's work is done. How much feet he constracts in 10 hours.

   (a) 60 (b) 70 (c) 75 (d) 65

9. An amount of 172,00 to be devided among 5 grandsons, 4 granddaughters and 2 nieces of a man. If each grandaughter receives 4 times the amount of each niece and each grandson receives five time the amount of each niece. How much each granddaughter receive

   (a) 1600 Rs. (b) 1200 Rs. (c) 1500 Rs. (d) 2000 Rs.

10. In the class 8th in DAV school the average score of girls and boys is 73 is 71 respectively. The average score for the whole class 71.8. The percentage of boys is

    (a) 50% (b) 40% (c) 60 % (d) 70 %

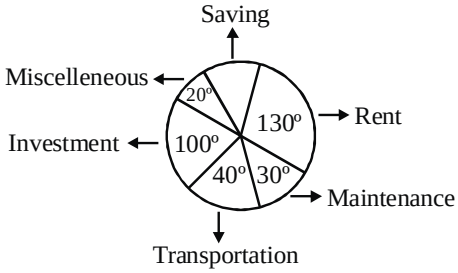
11. To gain a profit of 10% on selling the mixture of syrup and water at the cost price of syrup, the quantity of water to be mixed with 50 kg of syrup is How much Kg. (Provided water is available free of cost.)

    (a) 10 kg (b) 5 kg (c) 5.5 kg (d) 8 kg

12. The shodow of a monument becomes 120 m longer when the altitude of the Sun changes from 45º to 30º. What is the height of the monument ?

    (a) $30\left(\sqrt{3}+1\right)$ (b) $60\left(\sqrt{3}+1\right)$ (c) $120\left(\sqrt{3}-1\right)$ (d) $30\left(\sqrt{3}-1\right)$

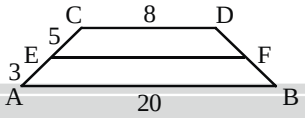
13. Given below is a pie chart based on that pie chart which provides the information of expenditure of a family in various fields, based on these information find out income of the family?



The saving of the family is ` 1200.

(a) ` 9,600 (b) ` 10,800 (c) ` 6,000 (d) 8,400

14. If in the trapezium ABCD, E and F are the points such that it divides non parallel sides in 5 : 3 ratio, then length of EF in cm is [Given : AB = 20 cm and CD = 8 cm]



(a) 15.5 cm (b) 12 cm (c) 16.5 cm (d) 14 cm

15. What is the area of the largest possible circle, which can be drawn in a square of 24 cm side.

(a) 200 π (b) 120 π (c) 144 π (d) 196 π

PART-B

16. Which of the following statements about thylakoids is not correct ?
    (a) The thylakoids membranes contain photosystems
    (b) They contain chlorophyll
    (c) The contain electron transport machinery for photosynthesis
    (d) The thylakoid membranes contain the Calvin cycle enzymes
17. Which of the following statements about chlorophyll is correct ?
    (a) They make the electron transport chains
    (b) They are found in stroma of chloroplast
    (c) They absorb green light
    (d) Chlorophyll molecules are photosynthetic pigments in the thylakoid membrane
18. Which reaction in photosynthesis is carried out by Rubisco or ribulose – 1, 5-bisphosphate carboxylase ?
    (a) Conversion of 3 phosphoglycerate into glyceraldehyde 3 phosphate
    (b) Utilisation of CO_2 to produce 3-phosphoglycerate
    (c) Conversion of glyceraldehyde 3-phosphate into RuBP
    (d) Carboxylation of phosphoenol pyruvate to oxaloacetate
19. Which of the following statements is correct regarding the mechanism of Calvin cycle ?
    (a) It is a metabolic pathway by which plants use CO_2 to make pentose sugars such as glucose
    (b) Enzymes of Calvin cycle are more reactive when there is a decrease in light intensity
    (c) In Calvin cycle, Rubisco adds CO_2 to 3-phosphoglycerate
    (d) The Calvin cycle is a metabolic pathway by which plants convert CO_2 and water into carbohydrates

20. Which is the correct sequence of transfer of electrons in Z-scheme of photosynthesis ?
(a) P680 → PC → $Cytb_6f$ → PQ → Pheo (b) P680 → PC → Pheo → $Cytb_6f$ → PQ
(c) P680 → Pheo → PQ → $Cytb_6f$ → PC (d) $Cytb_6f$ → P680 → Pheo → PQ → PC

21. The Red Data Book is the documentation of rare and endangered species of
(a) Animals (b) Plants (c) Fungi (d) All of the above

22. The Cartagena protocol is regarding the safe use, transfer and handling of
(a) Nuclear waste (b) Invasive alien species
(c) Living modified organism (d) Toxic byproducts and industrial effluents

23. Which of the following are not the name of temperate grasslands in different parts of the world ?
(a) Steppes in Central Asia (b) Prairies in North America
(c) Veld in South America (d) Pampas in South America

24. Which of the following key faunal species is being conserved and monitored in 'Dachigam National Park'?
(a) Musk Dear (b) One horned Rhino
(c) Kashmir Stag or Hangul (d) Asiatic lion

25. To show how many organisms are present at each level of a food chain, ecologists use a model called
(a) energy flow pyramid (b) pyramid of biomass (c) pyramid of numbers (d) food web

26. Adaptations that an organism acquires by its own actions are
(a) Heritable
(b) Not heritable
(c) Can be made heritable through some modifications
(d) Both heritable and not heritable

27. A large number of manatees are killed of due to a major hurricane event what type of effect may occur with this population relating to its gene pool
(a) A founder effect (b) A genetic equilibrium effect
(c) A speciation event (d) A bottleneck effect

28. Molecular evidence in support of natural selection includes
(a) The nearly universal genetic code
(b) The presence of vestigial structure
(c) A tendency toward perfect, unchanging DNA in various species
(d) The transmission of acquired characteristics by DNA

29. Which of the following is also called halophiles?
(a) Eubacteria (b) Actinomyces
(c) Cyanobacteria (d) Archaebacteria

30. A given population is in Hardy–Weinberg equilibrium. Which of the following statement is INCORRECT about the population?
(a) Individuals in the population mate randomly.
(b) The frequencies of alleles in the gene pool does not change over time.
(c) The population undergoes genetic drift.
(d) All of the above

31. When an influenza virus enters a cell, it immediately starts to do which of the following?
(a) Incorporate viral DNA into the host cell's chromosome.
(b) Replicate its genetic material and synthesize viral proteins.
(c) Use a viral copy of reverse transcriptase to manufacture viral DNA.
(d) Destabilize membrane proteins and lyse the host cell.

32. Through a microscope, you can see a cell plate beginning to develop across the middle of a cell and nuclei forming on either side of the cell plate. The cell is most likely,
(a) an animal cell in the process of cytokinesis.
(b) a plant cell in the process of cytokinesis.
(c) a bacterial cell dividing
(d) a plant cell in metaphase

33. Which one of the following amino acid substitutions is likely to cause the largest change in protein conformation?
(a) Phe $\rightarrow$ Ile (b) Ser $\rightarrow$ Thr (c) Gln $\rightarrow$ Tyr (d) Glu $\rightarrow$ Val

34. Which of the following pair of amino acids have chiral carbon in their side chain?
(a) Thr & Leu (b) Ser & Glu (c) Ile & Thr (d) Gly & Pro

35. Glycogen storage disease type O occurs due to deficiency of
(a) glycogen phosphorylase (b) phosphofructokinase
(c) glycogen synthase (d) transglucosidase

36. Which of the following is the correct order in which the extra-cellular signals are transmitted?
(a) Adenylate cyclase > Camp > Protein kinase A
(b) Protein kinase A > Adenylate cyclase > cATP > cAMP
(c) Protein kinase A > cAMP > Adenylate cyclase
(d) cAMP > Adenylate cyclase > cATP > Protein kinase A

37. Choose a correct statement about phosphorylases and kinases?
(a) Both phosphorylases and kinases require ATP as the source of energy and phosphate.
(b) Only kinases require ATP as the source of phosphate.
(c) Only phosphorylases require ATP as the source of phosphate.
(d) None of the above.

38. FOS, JUN and MYC are
(a) Proteins that are expressed on the surface of cancerous cells.
(b) Proteins that phosphorylate transcription factors in cancerous cells.
(c) Proteins involved in regulation of expression of genes involved in growth promotion.
(d) All of the above.

39. How do retroviruses are capable of causing cancer?
(a) Retroviruses produce a very high number of viruses progeny.
(b) Retroviruses often lead to point mutations in their *pol* gene.
(c) Retroviruses transduce mutant versions of cellular genes that normally regulate cell growth.
(d) Retroviruses cause more efficient infection to cells than other viruses.

40. Which one of the following statements is **CORRECT** for *Mycoplasma?*
(a) Their cells are of definite shape. (b) They are resistant to lysis by osmotic shock.
(c) Their growth is not inhibited by penicillin. (d) They are nonpathogenic to human.

41. Which of the following statements is correct ?
(a) Gram negative bacteria are colored purple after Gram staining
(b) Gram negative bacteria are commonly more resistant to antibiotics than Gram positive bacteria
(c) Gram negative bacteria cell was consists of a thick layer of peptidoglycan outside the plasma membrane
(d) Cell wall of Gram negative bacteria does not contain an outer membrane

42. Which among the following in NOT a conclusion of neutral theory of evolution ?
    (a) Organisms are not adapted to their environment
    (b) Rate of advantageous mutations is slowest
    (c) Fixation of advantageous mutations is random & governed by genetic drift
    (d) Most mutations are lost before they can be fixed
43. The topological features of circular DNA may not affect which of the following?
    (a) The electrophoretic mobility of the DNA.
    (b) The sedimentation properties of the DNA.
    (c) The affinity toward proteins that bind to the DNA.
    (d) The susceptibility of the DNA to the action of DNA ligase.
44. North-western blotting is used for identification of
    (a) RNA and protein interactions.
    (b) DNA-DNA interactions.
    (c) DNA protein interactions.
    (d) Detecting the levels of post-translationally modified proteins.
45. RNA integrity number (RIN) value of 9.8 was obtained for a purified RNA, it means
    (a) RNA is of good quality
    (b) RNA is of bad quality
    (c) RNA is contaminated with DNA
    (d) RNA is 0.2% less concentrated than cellular level
46. Which of the following is an example of exonuclease that cleaves only one strand?
    (a) BamHI (b) Bal-31 (c) ExoIII (d) DNaseI
47. Which of the following enzyme provides protection against self-ligation of vectors during gene cloning experiments?
    (a) Alkaline phosphatase (b) Polynucleotidyl kinase
    (c) Restriction endonuclease (d) Terminal deoxyribonucleotide transferase
48. Diacylglycerol activates
    (a) Protein kinase A (b) Protein kinase C
    (c) MAP kinase (d) Tyrosine kinase
49. Apoptosis involves all but which of the following?
    (a) Fragmentation of the DNA
    (b) Cell-signaling pathways
    (c) Lysis of the cell
    (d) Digestion of cellular contents by scavenger cells.
50. Cell A has half as much DNA as cells B, C and D in a mitotically active tissue. Cell A is most likely in
    (a) G_1 (b) G_2
    (c) prophase (d) metaphase

PART-C

51. Which of the following statements about the mechanism of light dependent reactions of photosynthesis is correct ?
I. Ferredoxin NADP reductase reduces $NADP^+$ to NADPH.
II. Electrons from photosystem I reduce NADPH.
III. Electrons from photosystem I reduce pheophytin.
IV. Electrons from NADPH revert photosystem II back to the ground state.
(a) I and II (b) II and III (c) I only (d) IV only

52. Which of the following statements about cyclic photophosphorylation is correct ?
(a) It reduces $NADP^+$ to NADPH
(b) It utilizes excess ATP
(c) Cyclic photophosphoryation occurs in the cytochrome b_6f complex and utilizes electrons from photosystem I
(d) It utilizes electrons from photosystem II

53. Which of the following statements about photosystem I in chloroplasts are correct ?
I. Photosystem I is activated by light independently from photosystem II.
II. Plastocyanin reduces photooxidised P700 in PSI.
III. It produces both ATP and NADPH.
IV. Electron ejected from P700 in photosystem I are replaced with electrons from water.
(a) I, II and III (b) I, II and IV (c) II, III, IV (d) I and II

54. Which of the following statements about C_4 plants is correct ?
I. C_4 plants minimise the oxygenase activity of rubisco by fixing CO_2 into PEP.
II. C_4 plants minimise the oxygenase activity of rubisco by fixing CO_2 into oxaloacetate.
III. C_3 plants are more efficient in photosynthesis than C_4 plant.
IV. C_4 plants are more efficient in photsoynthesis than C_3 plant.
(a) I and II (b) I and III (c) II and IV (d) II and III

55. Match the following

Column – I	**Column – II**
A. Behavioural isolation	(i) Populations are separated by distance or barriers.
B. Ecological isolation	(ii) Without correct signals to initiate reproductive activity, males and females of different populations may never interbreed.
C. Mechanical isolation	(iii) Populations may be reproductively active at different times; they may flower at different breeding seasons.
D. Temporal isolation	(iv) Anatomical differences can prevent fertilisation as reproductive organs need to complement each other for the exchange of gametes.

	A	B	C	D
(a)	i	iii	iv	ii
(b)	ii	i	iv	iii
(c)	iii	ii	i	iv
(d)	i	ii	iii	iv

56. Which of the following are post-zygotic barriers to reproduction between to reproduction between species of a population

I. Behavioural isolation. II. Ecological isolation.
III. Hybrid breakdown. IV. Mechanical isolation.
V. Hybrid inviability. VI. Temporal isolation.
VII. Hybrid sterility.

(a) I, III, IV, V (b) II, III, V, VII (c) III, V, VII (d) I, II, IV, VI

57. The following measurements give the niche breadth and niche overlap with neighbouring species. (1.0 indicates maximum niche breadth across the entire resource spectrum. 1.0 indicates complete niche overlap with other species).

	Niche breadth	Niche overlap
Species A	0.7	0.8
Species B	0.2	0.1
Species C	0.2	0.8
Species D	0.7	0.1

Which of the above species are specialist species likely to be suffering intense competition ?

(a) Species A (b) Species B (c) Species C (d) Species D

58. Match the following :

A.	A barnacle on the shell of a live whelk	(i)	Parasitism
B.	An otter catching and eating a fish	(ii)	Intraspecific competition
C.	Bracket fungus growing on a birch tree	(iii)	Commensalism
D.	A young stag attempting to take over an existing harem of female dear	(iv)	Mutualism
E.	A wasp lays its eggs in a fly the eggs hatch and cat the fly alive	(iv)	Predation
F.	A figure wasp laying eggs inside a developing figure		

	A	B	C	D	E	F
(a)	i	iii	iv	ii	v	vi
(b)	iii	iv	i	ii	vi	v
(c)	iv	v	iii	i	ii	vi
(d)	v	iv	iii	vi	i	ii

59. Match the following

p)	Archaea	(i)	Cell wall is made up either cellulose or fungal cellulose
q)	Bacteria	(ii)	Cell wall does not contain peptidoglycan
r)	Eukarya	(iii)	Cell wall is made up of peptidoglycan

(a) p-(iii), q-(i), r-(ii) (b) p-(i), q-(ii), r-(iii)
(c) p-(ii), q-(i), r-(iii) (d) p-(ii), q-(iii), r-(i)

60. Given below are some statements regarding B-cell development :

A. Heavy chain $V_H - D_H - J_H$ rearrangement begin in the pre-B-cell state.
B. The surrogate light chain is expressed by pre-B-cells.
C. Self-reactive B-cells can be saved from negative selection by light chain editing in peripheral blood.
D. The enzyme terminal deoxynucleotidyl transferase (TdT) is active in pre-B-cell stage.

Correct statements are :

(a) A, B (b) B, C (c) C, D (d) A, D

61. From given statements find out true statements :

A. Cytokines can regulate which branch of immune system is activated.

B. All the antibodies secreted by a single plasma cell will have same idiotype & isotype.

C. Immunization with a hapten - carrier conjugate results in production of anti-hapten antibodies only.

D. Immature B-cell express membrane IgM & IgD both.

Correct combinations are :

(a) A, C (b) A, D (c) B, C (d) A, B

62. Given below are some results for immunization & their results w.r.t Ab- classes & their affinity. The correct match is :

	Immunization	Ab-Class	Affinity
A.	A primary response to a low antigen dose	IgM	High affinity
B.	A secondary response to a low antigen dose	IgG	Low affinity
C.	A primary response to a high antigen dose	IgM	Low affinity
D.	A secondary response to a high antigen dose	IgG	Low affinity

(a) A (b) B (c) C (d) D

63. Consider following statements about cytokines:

A. The anti-TAC mab recognizes IL-1R on T-cells.

B. High affinity IL-2R consists of three transmembrane proteins.

C. All cytokine - binding receptors contain two or three subunits.

D. All members of each subfamily of the class I cytokine receptors share a common signal transduction unit.

Find False statements :

(a) A, B (b) A, C (c) C, D (d) B, D

64. In the Meselson and Stahl experiment, E. coli was grown in a medium rich in 15NH4Cl. E.colicells were transferred to medium containing 14NH4Cl. The *E.coli* cells took 24 hrs to complete one generation. After few days the DNA were isolated from the culture and subject to density gradient centrifugation. The ratio of the intermediate density (15N/14N) DNA molecules and light density (14N/14N) DNA molecules was found to be 1:3. Following are the statements about the E.coli cultures.

A. At the time of DNA isolation the E.coli cells have completed 3rd generation.

B. At the time of DNA isolation the E.coli cells have completed 4^{th} generation.

C. The E. coli culture is 72hrs old at the time of DNA isolation.

D. The E. coli culture is 96 hrs old at the time of DNA isolation.

Which of the above statements are True ?

(a) B (b) D (c) A, C (d) A, D

65. Given the section A and B.

Section-A	**Section-B**
A. DnaA	i) Mis-match repair in prokaryotes
B. dam methylase	ii) Promoter recognition
C. FEN1	iii) Prevents association of ribosome subunits
D. Initiation factor 3(IF3)	iv) Primer removal
	v) Recognition of origin of replication
	vi) Helicase enzyme

Identify the correct match

(a) A-v, B-i, C-iv, D-iii (b) A-ii, B-iv, C-vi, D-iii

(c) A-v, B-i, C-iv, D-ii (d) A-v, B-v, C-iv, D-ii

66. Chloramphenicol is a "broad-spectrum" antibiotic which inhibits protein synthesis in prokaryotes. Given below are a few statements regarding the mode of action of chloramphenicol.

A) It binds the smaller subunit 30S and inhibits the binding of aminoacyl-tRNA.

B) Chloramphenicol inhibits the peptidyl-transferase activity of ribosomes.

C) Chloramphenicol binds to one of the domains of 23S rRNA.

D) Chloramphenicol competes for binding with the E-site tRNA.

Which of the following options describes correctly the mechanism of action of chloramphenicol?

(a) A and B only (b) B and C only

(c) A, B and C (d) B, C and D

67. RNA interference a mechanism of RNA mediated gene silencing in Eukaryotes. It has two pathways miRNA and siRNA. Which of the following statements describe the miRNA mediated silencing of mRNA targets?

P. Small RNA molecule is encoded by the genome.

Q. Small RNA molecule is exogenous in origin.

R. Processing of small RNA molecule require DROSHA in the Nucleus.

S. It is cleaved by DICER to produce 24 nucleotide longsmall RNA molecule.

T. The small RNA molecule has single target mRNA.

Which of the above statements are TRUE?

(a) P, S, T (b) Q, R, S (c) P, R, S (d) only R

68. In a mapping experiment involving three genes a, b, and c mutants in *Drosophila*. A three-point test cross was performed betweenAaBbCc X aabbcc. If a-b-c is the order of the genes, which of the following is true for the f1 progenies?

(a) The progenies with the genotype aaBbcc and AabbCc have smallest number.

(b) The progenies with the genotype AaBbCc and aabbcc have smallest number.

(c) The progenies with the genotype aaBbcc and AabbCc have largest number.

(d) The progenies with the genotype aaBbCc and Aabbcc have smallest number

69. A cross was made between pure wild type males and brown eyed, curled winged females of D. melanogaster. The F1 females were test crossed. The F2 progeny obtained was as follows:

Wild type 200

Brown eyes, curled wings 170

Brown eyes, normal wings 10

Normal eyes, curled wings 20

Total 400

The genetic distance (cM) between brown eye and curled wing loci is:

(a) 7.5cM (b) 75cM (c) 150 cM (d) 25cM

70. Complete the statement: Apoptosis is

P. an energy dependent biochemical mechanism of programmed cell death.

Q. a genetically programmed process of deliberate suicide.

R. characterized by morphological changes including cell shrinkage, blebbing, chromatin condensation and nuclear fragmentation.

S. comprises only effectors phase and degradation execution phage.

(a) P and R (b) Q and S (c) P, R and S (d) P, Q and R

71. Consider following statements about geological time scale :
A. Precambrian is largest period is geological time scale
B. Evolution slowed down during Cambrian explosion
C. A large amount of biodiversity was lost at the end of Permian
D. No mass extinction in ongoing at the moment.
Chose correct statements
(a) A, C (b) A, D (c) C, D (d) B, C

72. At 25ºC value of $[Q]_{222}$, the mean residue ellipticity at 222 nm are –33000 and –3000 deg $cm^2 d\ mol^{-1}$ for a polypeptide existing in α-helix and β-sheet structure respectively. If this polypeptide undergoes a two-state heat induced $\alpha \rightarrow \beta$ transition and a value of $[Q]_{222}$ = –18000 deg $cm^2 d\ mol^{-1}$ is observed at 60ºC, then this observation leads to the conclusion that the α-helix conversion to β-sheet is
(a) 40% (b) 50% (c) 55% (d) 60%

73. Filteration of the blood in the glomeruli of the kidneys produces a nephric filterate with a conc. of glucose same as that of the blood (~ 5mM).
(i) What is the free energy required to move glucose back from the tubular fluid to the blood, when the conc. of glucose in tubular fluid has dropped to 0.005 mM.
(ii) The glucose is transported through Na^+/glucose transporter and Na^+ ions are moving along with the glucose from tubular fluid to the blood, releasing energy i.e. used in transport of glucose.
If the conc. of Na^+ in tubular fluid is 140 mM and in blood is 10 mM, then the number Na^+ ions needed to be transported to produce enough energy to transport glucose, will be given.
Temperature is 37ºC
Faraday's constant (F) = 23,062 Cal/volt gm
Gas constant (R) = 2 Cal/mole/K^{-1}
V_m (Memb. potential) = –70 m Volts
(a) (i) = 4.2 K Cal/mole, (ii) $\cong$ 1.3 Na^+ ions
(b) (i) = 3.2 K Cal/mole, (ii) $\cong$ 2 Na^+ ions
(c) (i) = 5.4 K Cal/mole, (iii) $\cong$ 4 Na^+ ions
(d) (i) = 2.4 K Cal/mole, (iii) $\cong$ 1.8 Na^+ ions

74. A DNA molecule of size 7.5 kb was cut using restriction enzyme and only one band was obtained on agarose gel corresponding to the size of 3.75 kb. Consider the following statements.
P. DNA was linear.
Q. DNA was circular.
R. There was single restriction site.
S. There was two restriction sites.
Which of the above statements are true for obtaining aforesaid results?
(a) P and Q (b) P and R
(c) P and S (d) P, Q and R

75. Consider the following recombinant crops and corresponding gene that was manipulated to create those crops:

Crops	**Genes**
P. Bt Cotton	1. Acetyl Co-A carboxylase
Q. Roundup ready Soyabean	2. Cry
R. FlavrSavr	3. Polygalactouronase
S. Endless Summer	4. Enolpyruvyl shikimate synthase

The correct match for the recombinant crops and the gene manipulated to generate them is
(a) P1, Q2, R3, S4 (b) P4, Q3, R2, S1
(c) P2, Q4, R3, S1 (d) P2, Q4, R1, S3

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CSIR-UGC-NET/JRF LIFE SCIENCES
TEST SERIES - 5
(Full Length Test - II)

Date : 08-12-2018

[ANSWER KEY]

PART-A

1. (a)	**2.** (a)	**3.** (d)	**4.** (a)	**5.** (b)
6. (b)	**7.** (a)	**8.** (b)	**9.** (a)	**10.** (c)
11. (b)	**12.** (b)	**13.** (b)	**14.** (a)	**15.** (c)

PART-B

16. (d)	**17.** (d)	**18.** (b)	**19.** (d)	**20.** (c)
21. (d)	**22.** (c)	**23.** (c)	**24.** (c)	**25.** (c)
26. (b)	**27.** (d)	**28.** (a)	**29.** (d)	**30.** (c)
31. (b)	**32.** (b)	**33.** (d)	**34.** (c)	**35.** (c)
36. (a)	**37.** (b)	**38.** (c)	**39.** (c)	**40.** (c)
41. (b)	**42.** (a)	**43.** (d)	**44.** (a)	**45.** (a)
46. (c)	**47.** (a)	**48.** (b)	**49.** (c)	**50.** (a)

PART-C

51. (c)	**52.** (c)	**53.** (b)	**54.** (c)	**55.** (b)
56. (c)	**57.** (c)	**58.** (b)	**59.** (d)	**60.** (b)
61. (d)	**62.** (c)	**63.** (b)	**64.** (c)	**65.** (a)
66. (b)	**67.** (c)	**68.** (a)	**69.** (a)	**70.** (d)
71. (a)	**72.** (b)	**73.** (a)	**74.** (b)	**75.** (c)