



Previous Year Question Paper  
of

**SET – MAHARASHTRA**  
**LIFE SCIENCES: Paper – III**  
**State Eligibility Test**

**2015, September**

*(Original Question Paper with Answer Key)*

State Eligibility Test



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Test Booklet No.

प्रश्नपत्रिका क्र.

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## Paper-III

### LIFE SCIENCE

Signature and Name of Invigilator

Seat No.

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(In figures as in Admit Card)

1. (Signature) .....

(Name) .....

Seat No. ....

(In words)

2. (Signature) .....

(Name) .....

OMR Sheet No.

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(To be filled by the Candidate)

**AUG- 34315****Time Allowed : 2½ Hours]****[Maximum Marks : 150**

Number of Pages in this Booklet : 20

Number of Questions in this Booklet : 75

**Instructions for the Candidates**

- Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
- This paper consists of 75 objective type questions. Each question will carry *two* marks. All questions of Paper-III will be compulsory, covering entire syllabus (including all electives, without options).
- At the commencement of examination, the question booklet will be given to the student. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as follows :
  - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal or open booklet.
  - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to missing pages/questions or questions repeated or not in serial order or any other discrepancy should not be accepted and correct booklet should be obtained from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given. The same may please be noted.**
  - After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
- Each question has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.  
**Example :** where (C) is the correct response.  

(A)	(B)	(C)	(D)
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- Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only**. If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done at the end of this booklet.
- If you write your Name, Seat Number, Phone Number or put any mark on any part of the OMR Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
- You have to return original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry the Test Booklet and duplicate copy of OMR Sheet on conclusion of examination.
- Use only Blue/Black Ball point pen.**
- Use of any calculator or log table, etc., is prohibited.**
- There is no negative marking for incorrect answers.**

**विद्यार्थ्यांसाठी महत्त्वाच्या सूचना**

- परिक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
- सदर प्रश्नपत्रिकेत 75 बहुपर्यायी प्रश्न आहेत. प्रत्येक प्रश्नास दोन गुण आहेत. या प्रश्नपत्रिकेतील सर्व प्रश्न सोडविणे अनिवार्य आहे. सदरचे प्रश्न हे या विषयाच्या संपूर्ण अभ्यासक्रमावर आधारित आहेत.
- परीक्षा सुरु झाल्यावर विद्यार्थ्यांला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनीटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून घ्याव्यात.
  - प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्विकारू नये.
  - पहिल्या पृष्ठावर नमूद केल्याप्रमाणे प्रश्नपत्रिकेची एकूण पृष्ठे तसेच प्रश्नपत्रिकेतील एकूण प्रश्नांची संख्या पडताळून घ्यावी. पृष्ठे कमी असलेली/कमी प्रश्न असलेली/प्रश्नांचा चुकीचा क्रम असलेली किंवा इतर त्रुटी असलेली सदोष प्रश्नपत्रिका सुरुवातीच्या 5 मिनिटातच पर्यवेक्षकाला परत देऊन दुसरी प्रश्नपत्रिका मागवून घ्यावी. त्यानंतर प्रश्नपत्रिका बदलून मिळणार नाही तसेच वेळही वाढवून मिळणार नाही याची कृपया विद्यार्थ्यांनी नोंद घ्यावी.
  - वरीलप्रमाणे सर्व पडताळून पहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर लिहावा.
- प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा/निळ्या करावा.  
**उदा. :** जर (C) हे योग्य उत्तर असेल तर.  

(A)	(B)	(C)	(D)
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- या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत. इतर ठिकाणी लिहिलेली उत्तरे तपासली जाणार नाहीत.
- आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
- प्रश्नपत्रिकेच्या शेवटी जोडलेल्या कोऱ्या पानावरच कच्चे काम करावे.
- जर आपण ओ.एम.आर. वर नमूद केलेल्या ठिकाणा व्यतिरिक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खुण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमागीचा अवलंब केल्यास विद्यार्थ्यांला परीक्षेस अपात्र ठरविण्यात येईल.
- परीक्षा संपल्यानंतर विद्यार्थ्यांने मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापी, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
- फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.**
- कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.**
- चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.**

AUG-34315/III

## LIFE SCIENCE

### Paper III

Time Allowed : 2½ Hours]

[Maximum Marks : 150

**Note** : This paper contains **Seventy Five (75)** multiple choice questions. Each question carries **Two (2)** marks. Attempt *All* questions.

<p>1. Biosystematics is concerned with information on :</p> <p>(i) evolution and classification of populations</p> <p>(ii) genetic variability of populations</p> <p>(iii) breeding behaviour of populations</p> <p>(iv) Competition and local adaptations of populations</p> <p>(A) (i) and (ii) only</p> <p>(B) (i) and (iii) only</p> <p>(C) (i)</p> <p>(D) (i), (ii), (iii) and (iv)</p>	<p>2. In which of the following Bryophytes, pseudo-elaters are formed :</p> <p>(A) <i>Marchantia</i></p> <p>(B) <i>Riccia</i></p> <p>(C) <i>Sphagnum</i></p> <p>(D) <i>Anthoceros</i></p> <p>3. The motile male gamete forms in both ..... .</p> <p>(A) <i>Cycas</i> and <i>Ginkgo</i></p> <p>(B) <i>Ginkgo</i> and <i>Pinus</i></p> <p>(C) <i>Pinus</i> and <i>Gnetum</i></p> <p>(D) <i>Gnetum</i> and <i>Juniperus</i></p>
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4. Cytoplasmic Male Sterility (CMS) is the result of ..... in the mitochondrial genome.
- (A) hybridization
- (B) mutation
- (C) selection
- (D) recombination
5. As per N.I. Vavilov's concept, primary centres of origin of crop plants have great .....
- (A) genetic diversity
- (B) phenetic diversity
- (C) ecosystem diversity
- (D) biodiversity
6. In photorespiration, the incorporation of one molecule of  $O_2$  into the 2, 3-enediol isomer of ribulose 1, 5-biphosphate generates an unstable intermediate that rapidly splits into .....
- (A) 2-phosphoglycolate and 3-phosphoglycerate
- (B) 2-phosphoenol pyruvate and 2-phosphoglycolate
- (C) 3-phosphoglycerate and 2-phosphoenol pyruvate
- (D) 2-phosphoglycolate and 2-phosphoglyoxylate
7. Which growth regulator helps to reduce the senescence of leaf ?
- (A) Auxin
- (B) Cytokinin
- (C) Gibberellin
- (D) Ethylene

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8. Which of the following crops is autotetraploid ?

- (A) Potato
- (B) Banana
- (C) Wheat
- (D) Sweet potato

9. Effective breeding for disease resistance is achieved by creating .....

- (A) artificial epidemics
- (B) greenhouses
- (C) field surveys
- (D) hybrids

10. Cybrids are obtained by the technique :

- (A) Micropropagation
- (B) Protoplast fusion
- (C) Genetic transformation
- (D) Pollen culture

11. The nematode body cavity is a pseudocoel because it :

- (A) is surrounded by a muscle layer and lined by the alimentary canal
- (B) is filled with pseudocoelomic fluid
- (C) has very little parenchyma
- (D) contains large cells called pseudo-coelomocytes

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12. In which snake the third supra-labial scale touches the eye and the nostril ?

- (A) Russell's viper
- (B) Cobra
- (C) Krait
- (D) Rat-snake

13. The structural and functional unit of muscle contraction is the :

- (A) Myofibril
- (B) Myosin
- (C) Sarcomere
- (D) A and I bands

14. Action potential of neurones does not follow :

- (A) graded potential
- (B) a threshold of stimulation
- (C) the all or none law
- (D) an influx of sodium ions

15. Vitellogenesis is facilitated by :

- (A) Corpus luteum
- (B) Granulosa
- (C) Placenta
- (D) Yolk sac

16. In mammals the circadian clock is located within the :

- (A) suprachiasmatic nucleus
- (B) cerebellar cortex
- (C) basal ganglia
- (D) frontal cortex

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17. Orienting response of organisms in which an animal turns to face an oncoming current of water is known as :
- (A) geotaxis
  - (B) hydrotaxis
  - (C) rheotaxis
  - (D) thigmotaxis
18. As compared to plain-dwellers, residents of high altitudes are likely to have :
- (A) increased haemoglobin and increased number of erythrocytes
  - (B) larger RBCs and smaller volume of blood
  - (C) elevated body temperature and high breathing rate
  - (D) reduced haemoglobin and smaller number of erythrocytes
19. The vegetative stage of the malarial parasite is known as :
- (A) trophozoite
  - (B) sporozoite
  - (C) schizontoite
  - (D) merozoite
20. The insoluble protein fraction of silk is :
- (A) elastin
  - (B) fibroin
  - (C) keratin
  - (D) sericin

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21. Which of the following substances or agent is paving the way to understanding a larger phenomenon of environmental signaling ?

- (A) Teratogens
- (B) Carcinogens
- (C) Mutagens
- (D) Estrogens

22. The initial step in adhesion between leucocytes and endothelial cells that line blood vessels is mediated by a family of transmembrane proteins is called :

- (A) Selectins
- (B) Spectrin
- (C) Ankyrin
- (D) Porins

23. As per IUCN a large area of unmodified or slightly modified land, and/or sea retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition is called as :

- (A) strict nature reserve
- (B) wilderness area
- (C) national park
- (D) natural monument

24. The “C-value paradox” of evolution of genomes states that :

- (A) increase in the number of protein coding genes is proportional to the increase in the genome size
- (B) increase in the number of protein-coding genes is not proportional to the increase in the genome size
- (C) the number of genes is greater in higher organisms than the relative increase in the genome size
- (D) all chromosomes have more or less same number of genes



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25. The rate of spontaneous depurination in DNA is about  $10^4$  purines per day in a mammalian cell. This type of spontaneous mutation is caused by :
- (A) breaking of the N-glycosidic bond
  - (B) breaking of the phosphodiester bond
  - (C) breaking of the hydrogen bond
  - (D) deamination of adenine or guanine base
26. Polytene chromosome of *Drosophila* is a good experimental system to study :
- (A) DNA replication
  - (B) DNA recombination
  - (C) Inducible gene expression
  - (D) Chromosomal translocation
27. Which of the following types of histone modifications causes epigenetic regulation of eukaryotic chromatin leading to active transcription :
- (A) H<sub>3</sub>-K<sub>9</sub>-acetylation
  - (B) H<sub>3</sub>-K<sub>9</sub>-trimethylation
  - (C) H<sub>4</sub>-K<sub>10</sub>-phosphorylation
  - (D) H<sub>1</sub>-phosphorylation
28. Water is effective in screening the electrostatic interactions between dissolved ions because it has :
- (A) a high dielectric constant
  - (B) a high fluidity property
  - (C) a high electrical conductivity
  - (D) a neutral pH value

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29. Food webs based on the concept who eats whom, emphasizing the feeding relationships are called :
- (A) Energy flow food webs
  - (B) Functional food webs
  - (C) Connectedness webs
  - (D) Source webs
30. The pyramid of productivity or energy flow is always :
- (A) in upright position
  - (B) subject to reversals
  - (C) in inverted position
  - (D) subject to no change
31. Rotavirus is a common cause of diarrhoea in children. Which of the following statements best describes rotavirus ?
- (A) It is an RNA virus
  - (B) Tests for detection of antigen are rarely useful
  - (C) Culture is the routine method of confirming infection
  - (D) It is rarely a nosocomial pathogen
32. *Pseudomonas aeruginosa* is a ubiquitous bacterium. The underlying condition of the patient is a major factor in the virulence of *P. aeruginosa*. Which of the following is a major determinant of the pathogenicity of this organism ?
- (A) Fluorescein
  - (B) Pyocyanin
  - (C) Pyoverdine
  - (D) Exotoxin A
33. Analysis of the metabolites produced by an organism fermentation of glucose reveals small amounts of 6-phosphogluconic acid. This fermentation organism is most likely to be :
- (A) Enterobacter
  - (B) Escherichia
  - (C) Leuconostoc
  - (D) Streptococcus lactis

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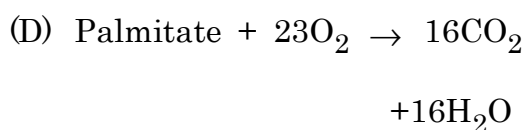
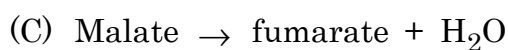
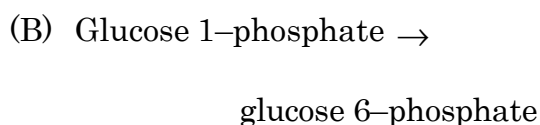
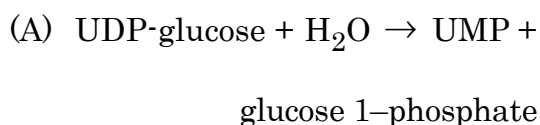
34. How many of the following bacteria are involved in asymbiotic nitrogen fixation ? *Azotobacter, Azospirillum, Rhizobium, Agrobacterium, Beijerinckia*
- (A) 1  
(B) 2  
(C) 3  
(D) 4
35. The synthesis of 5-hydroxymethyl cytosine (HMC) during replication, which substitute for cytosine (C) is characteristic features of :
- (A) Phage T<sub>4</sub>  
(B) Phage λ (lambda)  
(C) Phage φX174  
(D) Phage M<sub>13</sub>
36. Endogenous antigens are presented to T-lymphocytes via :
- (A) MHC class I molecules  
(B) MHC class II molecules  
(C) MHC class III molecules  
(D) Interleukins
37. The cells which are key cellular bridge between adaptive and innate immunity are :
- (A) T cells  
(B) B cells  
(C) Dendritic cells  
(D) Neurons
38. When two uncharged atoms are brought very close together, the two nuclei are said to be in van der Waals contact, when the net :
- (A) attraction is maximum  
(B) repulsion is maximum  
(C) attraction is equal to repulsion  
(D) attraction is minimum
39. Sugar pucker conformation of B-form of DNA is :
- (A) C-2' endo  
(B) C-3' endo  
(C) C-2' endo for pyrimidines and C-3' endo for purines  
(D) C-2' endo for purines and C-3' endo for pyrimidines

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40. Mixed reversible inhibition is due to :
- (A) binding of inhibitor to the active site of enzyme
  - (B) inhibitor binds at separate site, but may bind to either E or Es
  - (C) inhibitor binds to separate site but only to the Es complex
  - (D) inhibitor binds at separate site but only to the E
41. In an enzyme-catalyzed reaction,  $K_m$  (Michaelis-Menten constant) is a characteristic of an enzyme used for its substrate and is independent of the amount of enzyme used for its experimental determination, but  $V_{max}$  (limiting value of the initial rate when all the active sites are occupied) has no absolute value but varies with the :
- (A) Time
  - (B)  $K_m/2$
  - (C) substrate concentration beyond saturation
  - (D) amount of enzyme used
42. Which of the following pentose is not formed during pentose phosphate pathway ?
- (A) Ribulose 5-phosphate
  - (B) Ribose 5-phosphate
  - (C) Xylulose 5-phosphate
  - (D) Xylose 5-phosphate
43. No net conversion of fatty acids to glucose occurs in mammals because .....
- (A) pyruvate dehydrogenase reaction is irreversible
  - (B) of the presence of citrate synthase
  - (C) lack of glycerol kinase
  - (D) lack of acetyl CoA carboxylase

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44. Which of the following biochemical reaction shows highest standard free energy change ?



45. Which of the following enzyme reactions is termed as acyl group transfer reaction ?

(A) Chymotrypsin

(B) Lysozyme

(C) Hexokinase

(D) Isomerase

46. Which of the following becomes oncogenic when it has a truncation in the N-terminal extracellular domain ?

(A) PDGFR

(B) EGFR

(C) FGFR

(D) GMCSFR

47. Cryptic splice sites are those :

(A) Which are used in some cells but not in others

(B) Which are always used

(C) Which are involved in alternative splicing

(D) Which are within exons or introns that resemble consensus splicing signals, but are not true splice sites

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48. The proteome of a cell is defined as :
- (A) all the proteins that a cell is capable of synthesizing
  - (B) all the proteins present in a cell over the cells' life time
  - (C) all the proteins present in a cell at a given moment
  - (D) all the proteins that are post-translationally modified in a cell at a given moment
49. Which of the following statements correctly describes the recombination frequency between two genes ?
- (A) The closer two genes are to each other on a chromosome higher is the frequency of recombination between them
  - (B) The more distant two genes are to each other on a chromosome higher is the frequency of recombination between them
  - (C) If two genes are located on the same chromosome then no recombination events can occur between them
  - (D) If two genes are located on different chromosomes then the frequency of recombination is high between them
50. What is the role of the rho protein in termination of transcription ?
- (A) It is a helicase that actively breaks base pairs between the template and transcript
  - (B) It is a DNA-binding protein that blocks the movement of RNA polymerase down the template
  - (C) It is a subunit of RNA polymerase that binds to RNA hairpins and stalls transcription
  - (D) It is a nuclease that degrades the 3' ends of RNA transcripts
51. Lampbrush chromosomes represent :
- (A) DNA and multiple gene transcripts of various sizes being made
  - (B) replication of DNA
  - (C) amplification of rRNA genes
  - (D) miRNA transcripts of various lengths

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52. What is a pseudogene ?
- (A) A gene that is only expressed at certain developmental stages
- (B) A non-functional gene
- (C) A gene that contains a mutation but is still functional
- (D) A sequence of DNA that is slowly evolving to become an active gene
53. Which of the following partial diploids can make  $\beta$  galactosidase and grow in a medium with lactose as a sole carbon source ?
- (A)  $i^- z^+ y^-/i^+ z^- y^-$
- (B)  $i^+ o^c z^+ y^+/i^+ z^+ y^+$
- (C)  $i^+ p^- z^+ y^+/i^+ z^- y^-$
- (D)  $i^+ z^- y^+/i^+ z^- y^-$
54. In case of uncapped *mRNAs* like in some viruses, ribosome binds to *mRNA* during initiation of translation at the .....
- (A) initiation codon directly
- (B) IRES
- (C) Poly A tail
- (D) 3' UTR
55. The length of DNA present in the nucleosome core particle in a somatic cell is usually :
- (A) 100 bp
- (B) 146 bp
- (C) 200 bp
- (D) 250 bp
56. The phenotypic effects seen in phenylketoneuria (PKU), an inherited disorder are due to :
- (A) the accumulation of phenylketones in blood
- (B) the absence of phenylalanine hydroxylase
- (C) a deficiency of phenylketones in blood
- (D) a deficiency of phenylketones

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57. According to Knudson's two hit hypothesis which provides an explanation for predisposition to Retinoblastoma :
- (A) Mutation in Retinoblastoma gene is recessive
  - (B) Mutation in Retinoblastoma gene is silent
  - (C) Mutation is always associated with translocation
  - (D) It involves an oncogene
58. DNA ligase synthesizes :
- (A) hydrogen bonds between bases
  - (B) phosphodiester bond between nucleotides
  - (C) bond between bases and deoxyribose sugars
  - (D) Peptide bonds between amino acids
59. Genomic library is :
- (A) a collection of recombinant molecules with inserts that contain all of the genes of an organism
  - (B) a collection of recombinant molecules with inserts that contain all of an organism's genomic DNA
  - (C) a collection of recombinant molecules with inserts that contain expressed genes of an organism
  - (D) a collection of recombinant molecules with inserts that are sequenced
60. Inserting a gene encoding a pathogenic microbe's surface protein into a harmless virus produces a :
- (A) piggyback vaccines
  - (B) virulent virus
  - (C) active disease causing pathogen
  - (D) pharmaceutical human protein



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61. Which of the following is a second messenger ?
- (A) siRNA
  - (B) miRNA
  - (C) cAMP
  - (D)  $\text{Na}^+$
62. Each molecule of Na–K ATPase contains the following combination of subunits :
- (A)  $4\alpha$
  - (B)  $2\alpha$  and  $2\beta$
  - (C)  $1\alpha$  and  $3\beta$
  - (D)  $4\beta$
63. Microtubule depolymerizing drug such as colchicine, is expected to :
- (A) inhibit mitosis but allow cytokinesis
  - (B) inhibit cytokinesis
  - (C) allow mitosis beyond metaphase
  - (D) induce formation of multiple contractile rings
64. A beaker marked 'X' has 100 ml of water at  $80^\circ\text{C}$  while another beaker marked 'Y' has 200 ml water at  $20^\circ\text{C}$ . If we mix the two completely in 500 ml beaker and record the temperature immediately, the temperature will be closest to :
- (A)  $20^\circ\text{C}$
  - (B)  $40^\circ\text{C}$
  - (C)  $80^\circ\text{C}$
  - (D)  $50^\circ\text{C}$
65. Which one of the following is an expression for the X-ray diffraction technique used for determination of structures of biomolecules, according to Bragg's law :
- (A)  $2d \cdot \sin Q = n \cdot \lambda$
  - (B)  $\sin Q = 2d \cdot n\lambda$
  - (C)  $2d \cdot \lambda = n \cdot \sin Q$
  - (D)  $\frac{\sin Q}{2d} = n \cdot \lambda$

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66. Electrophoresis of a purified protein in SDS – PAGE in the presence of 2 mercaptoethanol yields two bands of 25 KDa and 35 KDa. However in a gel filtration chromatography the same protein elutes as 60 KDa protein. What conclusion can be drawn from this ?
- (A) Protein is not purified to homogeneity
- (B) Protein is a heterodimer
- (C) Protein is a multimer
- (D) Two bands observed in SDS-PAGE are due to protein degradation
67. Electroencephalogram is a record of electrical activity of the :
- (A) heart
- (B) leg muscle
- (C) liver
- (D) brain
68. An amino acid mixture consisting of phenylalanine, glycine and glutamic acid is to be separated by HPLC. The stationary phase is aqueous and the mobile phase is a solvent of less polarity than water. Choose the proper sequence of elution of amino acids :
- (A) Phe, Gly, Glut
- (B) Phe, Glut, Gly
- (C) Gly, Phe, Glut
- (D) Glut, Gly, Phe
69. Which one of the following is used as a feeder layer for cloning of mouse hybridoma ?
- (A) HeLa cells
- (B) NIH3T3 cells
- (C) MEL cells
- (D) sp20 cells

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70. One microgram of a 3kb plasmid DNA will approximately contain how many number of the DNA molecule ?
- (A)  $3 \times 10^9$   
(B)  $3 \times 10^{11}$   
(C)  $3 \times 10^6$   
(D)  $6.023 \times 10^{23}$
71. Which of the following is *not* a method for constructing the microarrays ?
- (A) Spotting of DNA fragments directly on the slide  
(B) Pizeoelectric printing  
(C) Photolithography  
(D) Crosslinking of DNA on the slides using glutaraldehyde
72. Which of the following molecules of same quantity absorb least in uv-visible spectra ?
- (A) double stranded DNA  
(B) single stranded DNA  
(C) deoxyribonucleotides  
(D) deoxyribonucleosides
73. Which of the following immunological techniques do not aggregate soluble antigens as end point ?
- (A) Double immunodiffusion  
(B) Immunoblotting  
(C) ELISA  
(D) Hemagglutination
74. In a  $z$  distribution, the  $z$  value of 1 represents :
- (A) Mean  
(B) Standard deviation  
(C) Degrees of freedom  
(D) Relative frequency
75. Chances of making a Type I error in statistical inference will be higher when :
- (A) Sample size is  $> 30$   
(B) ' $t$ ' distribution is used instead of actual distribution  
(C) level of significance ( $\alpha$ ) is lower  
(D) confidence interval is wider

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