

POST GRADUATE COMMON ENTRANCE TEST - 2015

DATE & TIME	COURSE	SUBJECT
08-08-2015 10.30 AM TO 12.30 PM	ME / M.Tech/ M.Arch / Courses Offered by VTU / UVCE / UBDTCE	BIO-TECHNOLOGY
MAXIMUM MARKS	TOTAL DURATION	MAXIMUM TIME FOR ANSWERING
100	150 MINUTES	120 MINUTES
MENTION YOUR PG CET NO.		QUESTION BOOKLET SERIAL NUMBER
		365056
		VERSION CODE
		B - 4

DOs :

1. Check whether the PG CET No. has been entered and shaded in the respective circles on the OMR answer sheet.
2. Ensure whether the circles corresponding to course and the specific branch have been shaded on the OMR answer sheet.
3. This question booklet is issued to you by the invigilator after the 2nd bell i.e., after 10.25 am.
4. The serial number of this question booklet should be entered on the OMR answer sheet.
5. The version code of this question booklet should be entered on the OMR answer sheet and the respective circles should also be shaded completely.
6. Compulsorily sign at the bottom portion of the OMR answer sheet in the space provided.

DON'Ts:

1. **THE TIMING AND MARKS PRINTED ON THE OMR ANSWER SHEET SHOULD NOT BE DAMAGED / MUTILATED / SPOILED.**
2. **THE 3RD BELL RINGS AT 10.30 AM, TILL THEN;**
 - Do not remove the seal / staple present on the right hand side of this question booklet.
 - Do not look inside this question booklet.
 - Do not start answering on the OMR answer sheet.

IMPORTANT INSTRUCTIONS TO CANDIDATES

1. This question booklet contains 75 (Items) questions and each question will have one statement and four answers. (Four different options / responses.)
2. After the 3rd Bell is rung at 10.30 am, remove the seal / staple stapled on the right hand side of this question booklet and check that this booklet does not have any unprinted or torn or missing pages or items etc., if so, get it replaced by a complete test booklet. Read each item and start answering on the OMR answer sheet.
3. During the subsequent 120 minutes:
 - Read each question (item) carefully.
 - Choose one correct answer from out of the four available responses (options / choices) given under each question / item. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **only one response** for each item.
 - Completely **darken / shade the relevant circle with a blue or black ink ballpoint pen against the question number on the OMR answer sheet.**
4. Use the space provided on each page of the question booklet for Rough Work. Do not use the OMR answer sheet for the same.
5. After the **last bell is rung at 12.30 pm**, stop marking on the OMR answer sheet and affix your left hand thumb impression on the OMR answer sheet as per the instructions.
6. Hand over the **OMR answer sheet** to the room invigilator as it is.
7. After separating the top sheet (KEA copy), the invigilator will return the bottom sheet replica (candidate's copy) to you to carry home for self evaluation.
8. Preserve the replica of the OMR answer sheet for a minimum period of ONE year.
9. Only **Non-programmable** calculators are allowed.

MARKS DISTRIBUTION

PART - 1	50 QUESTIONS CARRY ONE MARK EACH (1 TO 50)
PART - 2	25 QUESTIONS CARRY TWO MARKS EACH (51 - 75)

SEAL



BIOTECHNOLOGY

PART - 1

(Each question carry one mark)

(50 X 1 = 50)

- | | |
|----------------------------------|--------------------------------------|
| 1. Western blotting used | 5. Prokaryotic cell |
| a. RNA | a. Angiosperms |
| b. DNA | b. Gymnosperms |
| c. Proteins | c. Bacteria |
| d. Amino acids | d. Fungi |
| 2. Viral vectors | 6. Cytoplasmic Inclusions |
| a. Bacteriophages | a. Golgi |
| b. Cosmid | b. Mitochondria |
| c. Plasmid | c. Triacylglycerols |
| d. Bacteria | d. ATP Molecules |
| 3. CDK | 7. Lipid Metabolism synthesis |
| a. Cyclin Dependant Kinases | a. Phospholipids |
| b. Cyclin Dependant Kinetochores | b. ADP |
| c. Cyclin Dependant Karyotype | c. ATP |
| d. None of the above | d. Glycogens |
| 4. Jumping Genes | 8. One gene one enzyme |
| a. Mc Clintock | a. Robert Cook |
| b. Hugo De-vries | b. Beadle & Tatum |
| c. Morgan | c. Louis Pastuer |
| d. Mendel | d. Watson & Crick |
| | 9. Production of homozygous diploids |
| | a. Avenploids |
| | b. Triploids |
| | c. Polyploids |
| | d. Haploids |

Space For Rough Work



10. DNA double helix
- Paul Berg
 - Watson & Crick
 - Kary Mullis
 - H.O. Smith
11. Characteristic feature of all micro organisms
- They are multicellular
 - Cells have distinct nuclei
 - Visible only under microscope
 - They perform photosynthesis
12. A substance whose pH is 9.3 is said to be
- Alkaline
 - Acidic
 - Neutral
 - Inert
13. The carbohydrate Maltose
- A polysaccharide
 - Contains Amino acids
 - Contains two glucose units
 - Found in table sugar
14. Adenine, guanine, thymine, cytosine and uracil are:-
- Purine
 - Pyrimidines
 - Nitrogen bases
 - Monosaccharides
15. Currency of a cell is
- ATP
 - ADP
 - AMP
 - All the above
16. One turn of DNA possesses
- One base pair
 - Two base pairs
 - Five base pairs
 - Ten base pairs
17. Number of codons in the genetic triplet code is
- 4
 - 16
 - 32
 - 64
18. Initiation codon for protein synthesis
- UUU, GGG
 - AAU & UAA
 - AUG & GUA
 - AUG & GUG

Space For Rough Work



19. Termination codon for protein synthesis
- AAA, UUU & UGA
 - UGA, UAA & UAG
 - AUU, AUG & GUU
 - UAU, UAG & UUA
20. The two antiparallel strands of DNA are:-
- Equidistant and run in 5' - 3' direction.
 - Equidistant but run in 5' - 3' and 3' - 5' directions.
 - Unequal & run in opposite directions
 - Unequal & diverge from each other
21. The area of unwinding & separation of DNA strands during replication is called
- Origin
 - Initiation point
 - Primer
 - Replication fork
22. Topoisomerase is involved in
- Producing RNA primer
 - Joining the DNA segments
 - Producing nick in DNA
 - Separation of DNA strands
23. Okazaki segments are :-
- Small fragments of RNA
 - Small fragments of DNA
 - Small peptides
 - None of the above
24. Stoichiometry is often used to
- Physical force → calculation
 - Balanced chemical equation
 - Measure Geometry
 - Evaluate trigonometric function
25. Photo - excited - electron can stay in triplet state for about
- | | |
|------------------|-------------------|
| a. 10^{-9} sec | b. 10^{-12} sec |
| c. 10^{-3} sec | d. 10^{-13} sec |
26. Blender experiment to prove DNA as genetic material was performed by
- Hershey & Chase
 - Messelson & stake
 - Watson & Crick
 - Rosalind & Franklin

Space For Rough Work



27. Photo - luminescence refers to
- a. Release of energy in the form of heat
 - b. Transfer of ADP to ATP
 - c. Release of energy in the form of light
 - d. Photo excitation of chloroplast

28. The only tetrose produced in photosynthesis is
- a. Erythrose
 - b. Xylulose
 - c. Ribose
 - d. Ribulose

29. Site of Kreb's Cycle
- a. Cytoplasm
 - b. Mitochondria
 - c. Ribosome
 - d. Chloroplast

30. The purple and green bacteria are anaerobic that carry photosynthesis in the absence of:-
- a. Oxygen
 - b. Carbondioxide
 - c. Nitrogen
 - d. Amino acids

31. Asexual spores produced by fungi:-
- a. Arthrospore
 - b. Blastospore
 - c. Conidiospores
 - d. All the above

32. Mushrooms toxic to humans
- a. Agaricus
 - b. Amanita
 - c. Saccharomyces
 - d. Yeast

33. The carbondioxide released by yeast cells during metabolism used
- a. For producing silk
 - b. to flavor liquors
 - c. to produce spores
 - d. to make bread rise

34. Puffballs, mushroom and truffles belong to class of fungi
- a. Ascomycetes
 - b. Basidiomycetes
 - c. Oomycetes
 - d. Deuteromycetes

Space For Rough Work



35. Virus that contain RNA in its genome is
- Aids virus
 - TMU
 - Cauliflower mosaic virus
 - Herpes simplex virus
36. Capsomeres
- Bacteria
 - Bacteriophage
 - Fungi
 - Cyanobacteria
37. Interferons used against viruses
- Protein
 - Carbohydrates
 - Vitamins
 - Amino Acids
38. Immunoglobulins
- Antigen
 - Antibody
 - T - Cells
 - B - Cells
39. Bacillus Thuringiensis used.
- As source of fermentation enzymes.
 - A producer of cheese & cheese products
 - An Insecticide
 - A purifier of water system
40. Chemical not approved for food preservation
- Sulphurdioxide
 - Sorbic acid
 - Benzoic acid
 - Nitric acid
41. Physical methods used in food preservation
- Ultrasonic vibrations
 - Gamma irradiations
 - Ultra violet light
 - All of the above
42. Essential cellular element of amino acids, purines, pyrimidines and co - enzymes
- Nitrogen
 - Oxygen
 - Carbondioxide
 - Ammonia

Space For Rough Work



43. Main reservoirs of nitrogen on
- Atmosphere
 - Hydrosphere
 - Lithosphere
 - Biosphere
44. The presence of E.coli in water detected by
- Eosin methylene blue [EMB]
 - Murashige & Skoog [MS]
 - Nutrient agar media
 - None of the above
45. Gene probes useful to detect the presence of DNA from an organism
- Water bacteriology
 - Soil bacteriology
 - Air bacteriology
 - None of the above
46. Viruses first isolated by
- Stanley
 - Miller
 - Iwanowsky
 - Schwann
47. Tobacco mosaic viruses was first crystallized by
- F. C. Bawden
 - K.N. Smith
 - W. M. Stanley
 - V.Iwanowsky
48. A virulent poison produced in canned food by
- Xanthomonas
 - Pseudomonas
 - Rhizobium
 - Clostridium
49. Xenobiotics
- Aglacones
 - Antigens
 - Glucans
 - Antibiotics
50. Population Genetics
- Newton's Law
 - Thermodynamics Law
 - Mendelian Laws
 - Hardy Weinberg Law

Space For Rough Work



PART - 2

(Each question carries two marks)

(25 X 2 = 50)

- | | |
|---|---|
| <p>51. The most widely used program for Multiple sequence alignment is</p> <ul style="list-style-type: none">a. BLASTb. CLUSTALc. CHIMEd. FASTA | <p>55. Technique used to synthesize RNA</p> <ul style="list-style-type: none">a. RTPCRb. Southern Blottingc. Northern Blottingd. Micro array |
| <p>52. What is NCBI</p> <ul style="list-style-type: none">a. National Centre for Biotechnology Informationb. National Congress of Biotechnology Informationc. National Council for Biotechnolgy Informationd. National Corporation of Bio-technology Information | <p>56. Genomic DNA Library is constructed with the help of</p> <ul style="list-style-type: none">a. YACb. BACc. Vectorsd. Probes |
| <p>53. DNA fragment having size between 500 to 2000 KDa can be separated</p> <ul style="list-style-type: none">a. PAGEb. Chromatographyc. Centrifugationd. Pulse field gel electrophoresis | <p>57. Viruses inserted in genome can be recognized</p> <ul style="list-style-type: none">a. Southern Blotb. Northern Blotc. FISHd. Microarray |
| <p>54. Yeast artificial chromosomes possess</p> <ul style="list-style-type: none">a. Centromeresb. Centromeres & Telomeresc. Telomeres & ARSd. Centromere, Telomere & ARS | <p>58. "Tag" enzyme utilized in PCR</p> <ul style="list-style-type: none">a. Ligaseb. RNA polymerasec. DNA Polymerased. Reverse transcriptase |

Space For Rough Work



59. Flow cytometer used to detect the
- Genome size
 - DNA
 - RNA
 - Proteins
60. Immunofluorescence involves fluorescently labelled
- Antigens
 - Antibodies
 - Antigen specific antibodies
 - Immunoglobulin specific antibodies
61. Antibody tagged with ferritin can be seen through
- Electron Microscope
 - Fluorescence Microscope
 - Autoradiography
 - Phase contrast microscope
62. Stem cells can be converted into insulin producing β -cells was discovered by
- Assady Etal
 - Stanley
 - Joseph Kolereuter
 - Dobzhansky
63. Antibody producing B-lymphocytes and Myeloma cells are made to fuse and form
- Immune Cells
 - Carcinoma cells
 - Hybridoma cells
 - Bone Marrow cells
64. The structure of Protein can be determined in Proteomics
- Gene Bank
 - PDB
 - EMBI
 - NIH
65. To PCR amplify the sequence
 ATGTTGTACG.....AAGGTTGCGG
 TAGAAGATGC.....TTCGAACCCG
 The required Primer's are
- ATCTTCTA and CGAACGCC
 - ATCTTCTA and CCGCAAGC
 - TAGAAGAT and CGAACGCC
 - TAGAAGAT and CCGCAAGC
66. Heterofogous protein for its expression in milk of a transgene animal - gene coding for
- β -Lactoglobulin
 - Lac Z
 - β - Globin
 - Lac Y

Space For Rough Work



67. To integrate Ti - Plasmid into plant genome the essential components required
- Origin of replication
 - Tumor inducing gene
 - Nopline utilization gene
 - All of the above
68. More indoor chemical pollution is cause by
- Burning coal
 - Burning cooking gas
 - Burning Mosquito coil
 - Room spray
69. Positional cloning approach exploits information
- On the status of its expression
 - On the location of the gene in the genome
 - Restriction sites
 - Promoter Sites
70. Father of plant tissue culture
- Skoog
 - Hanning
 - Murashige
 - Haberlandt
71. Individual member of a clone
- Organism
 - Drone
 - Hybrid
 - Ramet
72. Irregular unorganised and undifferentiated mass of cells produced from tissue culture
- Clones
 - Callus
 - Embryoids
 - Plantlets
73. Somatic cell capable of producing a complete organism
- Cellular totipotency
 - Stem Cell
 - Multipotent cell
 - Pleuriptent
74. In human body the chlorinated hydrocarbons keep on accumulating in
- Bones
 - Brain
 - Fatty tissue
 - Skin
75. The study of Evolutionary relationships is known as
- Genetics
 - Phylogenetics
 - Genomics
 - Proteomics

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