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 PGCET NO.					QUESTION BOOKLET SERIAL NUMBER	365056
					VERSION CODE	B – 4

DOs :

1. Check whether the PGCET 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.

SEAL

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)

BIOTECHNOLOGY

PART - 1

(Each question carry one mark) **(50 X 1 = 50)**

1. Western blotting used
   a. RNA
   b. DNA
   c. Proteins
   d. Amino acids

2. Viral vectors
   a. Bacteriophages
   b. Cosmid
   c. Plasmid
   d. Bacteria

3. CDK
   a. Cyclin Dependant Kinases
   b. Cyclin Dependant Kinetochores
   c. Cyclin Dependant Karyotype
   d. None of the above

4. Jumping Genes
   a. Mc Clintock
   b. Hugo De-vries
   c. Morgan
   d. Mendel

5. Prokaryyotic cell
   a. Augiosperms
   b. Gymnosperms
   c. Bacteria
   d. Fungi

6. Cytoplasmic Inclusions
   a. Golgi
   b. Mitochoudria
   c. Triacylglycerols
   d. ATP Molecules

7. Lipid Metabolism synthesis
   a. Phospholipids
   b. ADP
   c. ATP
   d. Glycogens

8. One gene one enzyme
   a. Robert Cook
   b. Beadle & Tatum
   c. Louis Pastuer
   d. Watson & Crick

9. Production of homozygous diploids
   a. Avenploids
   b. Triploids
   c. Polyploids
   d. Haploids

Space For Rough Work

10. DMN double helix

a. Paul Berg

b. Watson & Crick

c. Kary Mullis

d. H.O. Smith

11. Characteristic feature of all micro organisms

a. They are multicellular

b. Cells have distinct nuclei

c. Visible only under microscope

d. They perform photosynthesis

12. A substance whose pH is 9.3 is said to be

a. Alkaline

b. Acidic

c. Neutral

d. Inert

13. The carbohydrate Maltose

a. A polysaceaharide

b. Contains Amino acids

c. Contains two glucose units

d. Found in table sugar

14. Adenine guanine, thymine, cytosine and uracil are:-

a. Purine

b. Pyramidines

c. Nitrogen bases

d. Monosaccarides

15. Currency of a cell is

a. ATP b. ADP

c. AMP d. All the above

16. One turn of DNA possesses

a. One base pair

b. Two base pairs

c. Five base pairs

d. Ten base pairs

17. Number of codons in the genetic triplet code is

a. 4 b. 16

c. 32 d. 64

18. Initiation codon for protein synthesis

a. UUU, GGG

b. AAU & UAA

c. AUG & GUA

d. AUG & GUG

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19. Termination codon for protein synthesis

a. AAA, UUU & UGA

b. UGA, UAA & UAG

c. AUU, AUG & GUU

d. UAU, UAG & UUA

20. The two antiparallel strands of DNA are:-

a. Equidistant and run in 5' - 7 3' direction.

b. Equidistant but run in 5' - 3' and 3' - 5' directions.

c. Unequal & run in opposite directions

d. Unequal & diverge from each other

21. The area of unwinding & separation of DNA strands during replication is called

a. Origin

b. Initiation point

c. Primer

d. Replication fork

22. Topoisomerase is involved in

a. Producing RNA primer

b. Joining the DNA segments

c. Producing nick in DNA

d. Separation of DNA strands

23. Okazaki segments are :-

a. Small fragments of RNA

b. Small fragments of DNA

c. Small peptides

d. None of the above

24. Stoichiometry is often used to

a. Physical force $\rightarrow$ calculation

b. Balanced chemical equation

c. Measure Geometry

d. Evaluate trignometric 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^{-15} sec

26. Blender experiment to prove DNA as genetic material was performed by

a. Hershey & Chase

b. Messelson & stake

c. Watson & Crick

d. Rosalind & Franklin

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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. Basidomycetes

c. Oomycetes

d. Deuteromycetes

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35. Virus that contain RNA in its genome is

a. Aids virus

b. TMU

c. Cauliflower mosaic virus

d. Herpes simplex virus

36. Capsomeres

a. Bacteria

b. Bacteriophage

c. Fungi

d. Cyanobacteria

37. Interferons used against viruses

a. Protein

b. Carbohydrates

c. Vitamins

d. Amino Acids

38. Immunoglobulins

a. Antigen

b. Antibody

c. T - Cells

d. B - Cells

39. Bacillus Thuringiensis used.

a. As source of formentation enzymes.

b. A producer of cheese & cheese products

c. An Insecticide

d. A purifier of water system

40. Chemical not approved for food preservation

a. Sulphurdioxide

b. Sorbic acid

c. Benzoic acid

d. Nitric acid

41. Physical methods used in food preservation

a. Ultrasonic vibrations

b. Gamma irradiations

c. Ultra voilet light

d. All of the above

42. Essential cellular element of amino acids, purines, pyrimidines and co - enzymes

a. Nitrogen

b. Oxygen

c. Carbondioxide

d. Ammonia

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43. Main reservoirs of nitrogen on

a. Atmosphere

b. Hydrosphere

c. Lithosphere

d. Biosphere

44. The presence of E.coli in water detected by

a. Eosin methylene blue [EMB]

b. Murashige & Skoog [MS]

c. Nutrient agar media

d. None of the above

45. Gene probes useful to detect the presence of DNA from an organism

a. Water bacteriology

b. Soil bacteriology

c. Air bacteriology

d. None of the above

46. Viruses first isolated by

a. Stanley

b. Miller

c. Iwanowsky

d. Schwann

47. Tobacco mosaic viruses was first crystallized by

a. F. C. Bawden

b. K.N. Smith

c. W. M. Stanley

d. V.Iwanowsky

48. A virulent poison produced in canned food by

a. Xanthomonas

b. Pseudomonas

c. Rhizobium

d. Clostridium

49. Xenobiotics

a. Aglacones

b. Antigens

c. Glucans

d. Antibiotics

50. Population Genetics

a. Newton's Law

b. Thermodynamics Law

c. Mendelian Laws

d. Hardy Weinberg Law

Space For Rough Work

PART - 2

(Each question carries two marks)

(25 X 2 = 50)

51. The most widely used program for Multiple sequence alignment is

    a. BLAST

    b. CLUSTAL

    c. CHIME

    d. FASTA

52. What is NCBI

    a. National Centre for Biotechnology Information

    b. National Congress of Biotechnology Information

    c. National Council for Biotechnolgy Information

    d. National Corporation of Bio-technology Information

53. DNA fragment having size between 500 to 2000 KDa can be separated

    a. PAGE

    b. Chromatography

    c. Centrifugation

    d. Pulse field gel electrophoresis

54. Yeast artificial chromosomes posses

    a. Centromeres

    b. Centromeres & Telomeres

    c. Telomeres & ARS

    d. Centromere, Telomere & ARS

55. Techinique used to synthesize RNA

    a. RTPCR

    b. Southern Blotting

    c. Northern Blotting

    d. Micro array

56. Genomic DNA Library is constructed with the help of

    a. YAC b. BAC

    c. Vectors d. Probes

57. Viruses inserted in genome can be recognized

    a. Southern Blot

    b. Northern Blot

    c. FISH

    d. Microarray

58. "Tag" enzyme utilized in PCR

    a. Ligase

    b. RNA polymerase

    c. DNA Polymerase

    d. Reverse transcriptase

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59. Flow cytometer used to detect the

a. Genome size b. DNA

c. RNA d. Proteins

60. Immunofluorescence involves fluorescently labelled

a. Antigens

b. Antibodies

c. Antigen specific antibodies

d. Immunoglobulin specific antibodies

61. Antibody tagged with ferritin can be seen through

a. Electron Microscope

b. Fluorescence Microscope

c. Autoradiography

d. Phase contrast microscope

62. Stem cells can be converted into insulin producing β-cells was discovered by

a. Assady Etal

b. Stanley

c. Joseph Kolereuter

d. Dobzhansky

63. Antibody producing B-lymphocytes and Myeloma cells are made to fuse and form

a. Immune Cells

b. Carcinoma cells

c. Hybridoma cells

d. Bone Marrow cells

64. The structure of Protein can be determined in Proteomics

a. Gene Bank b. PDB

c. EMBI d. NIH

65. To PCR amplify the sequence ATGTTGTACG.....AAGGTTGCGG

TAGAAGATGC.....TTCGAACCCG

The required Primer's are

a. ATCTTCTA and CGAACGCC

b. ATCTTCTA and CCGCAAGC

c. TAGAAGAT and CGAACGCC

d. TAGAAGAT and CCGCAAGC

66. Heterofogous protein for its expression in milk of a transgene animal - gene coding for

a. β-Lactoglobulin

b. Lac Z

c. β - Globin

d. Lac Y

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67. To integrate Ti - Plasmid into plant genome the essential components required

a. Origin of replication

b. Tumor inducing gene

c. Nopline utilization gene

d. All of the above

68. More indoor chemical pollution is cause by

a. Burning coal

b. Burning cooking gas

c. Burning Mosquito coil

d. Room spray

69. Positional cloning approach exploits information

a. On the status of its expression

b. On the location of the gene in the genome

c. Restriction sites

d. Promoter Sites

70. Father of plant tissue culture

a. Skoog b. Hanning

c. Murashige d. Haberlandt

71. Individual member of a clone

a. Organism b. Drone

c. Hybrid d. Ramet

72. Irregular unorganised and undifferentiated mass of cells produced from tissue culture

a. Clones b. Callus

c. Embryoids d. Plantlets

73. Somatic cell capable of producing a complete organism

a. Cellular totipotency

b. Stem Cell

c. Multipotent cell

d. Pleuripotent

74. In human body the chlorinated hydrocarbons keep on accumulating in

a. Bones

b. Brain

c. Fatty tissue

d. Skin

75. The study of Evolutionary relationships is known as

a. Genetics

b. Phylogenetics

c. Genomics

d. Proteomics

Space For Rough Work

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SEAL