

Question Booklet No.

(To be filled up by the candidate by **blue/black ball-point pen**)

Roll No.

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Roll No. (Write the digits in words)

Serial No. of OMR Answer Sheet

Day and Date

(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES(Use only **blue/black ball-point pen** in the space above and on both sides of the **Answer Sheet**)

1. Within 10 minutes of the issue of the Question Booklet, Please ensure that you have got the correct booklet and it contains all the pages in correct sequence and no page/question is missing. In case of faulty Question Booklet, bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope*.
3. A *separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided.*
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*
6. *No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet No. on the Question Booklet.*
7. *Any changes in the aforesaid-entries is to be verified by the invigilator, otherwise it will be taken as unfair means.*
8. *This Booklet contains 40 multiple choice questions followed by 10 short answer questions. For each MCQ, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet. For answering any five short Answer Questions use five Blank pages attached at the end of this Question Booklet.*
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. *Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).*
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit *both OMR Answer Sheet and Question Booklet* at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages : 15

FOR ROUGH WORK

Research Entrance Test – 2014

No. of Questions : 50

Time : 2 Hours

Full Marks : 200

Note : (i) This Question Booklet contains 40 Multiple Choice Questions followed by 10 Short Answer Questions.

(ii) Attempt as many MCQs as you can. Each MCQ carries 3 (Three) marks. 1 (One) mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question. If more than one alternative answers of MCQs seem to be approximate to the correct answer, choose the closest one.

(iii) Answer only 5 Short Answer Questions. Each question carries 16 (Sixteen) marks and should be answered in 150-200 words. Blank 5 (Five) pages attached with this booklet shall only be used for the purpose. Answer each question on separate page, after writing Question No.

1. Decrease in biodiversity in tropical countries is mainly due to :
(1) Urbanization (2) Deforestation
(3) Pollution (4) Soil erosion
2. Where does glycolysis occur in a cell ?
(1) Chloroplast (2) Mitochondria (3) Cytoplasm (4) Golgibody
3. The process that accounts for transfer of genetic information from DNA to RNA is called as :
(1) Translocation (2) Translation (3) Transformation (4) Transcription
4. Leydig's cells produce :
(1) Thyroxine (2) Growth hormone
(3) Testosterone (4) Progesterone
5. A tumor suppressor gene which is known as "Guardian of the genome" is :
(1) myc (2) P⁵³ (3) Sr C (4) H-Ras
6. Which is the function of interleukins ?
(1) Stimulation of wound healing
(2) Treatment of infertility
(3) Dissolving blood clot
(4) Enhancement of action of immune system
7. Which of the following is *not* an anticoagulant ?
(1) Heparin (2) Protamine sulphate
(3) Warfarin (4) Hirudin
8. Which of the following is *not* a part of triple response ?
(1) White reaction (2) Red reaction (3) Wheal (4) Flare

9. Virus envelope is known as :
(1) Capsid (2) Virion (3) Nucleoprotein (4) Core
10. Peptide synthesis inside a cell takes place in :
(1) Mitochondria (2) Chloroplast (3) Ribosomes (4) Chromoplast
11. Sarcosine is a metabolic product derived from :
(1) Glycine (2) Methionine (3) Arginine (4) Alanine
12. BLAST (Basic local alignment search tool) is *not* employed for analysis of :
(1) Proteins (2) DNA (3) RNA (4) Lipids
13. Sequencing of the first human genome was completed in :
(1) 2003 (2) 2004 (3) 2001 (4) 2007
14. Which of the following organ is *not* involved in calcium metabolism ?
(1) Kidney (2) Gut (3) Pancreas (4) Bone
15. Which class of MHC antigen is primarily expressed on B lymphocytes ?
(1) I (2) II (3) III (4) All
16. Deamination of cytosine produces :
(1) Uracil (2) Inosine (3) Thymine (4) Adenine
17. Which amino acid is most likely to be found in the interior of a protein ?
(1) Glutamic Acid (2) Lysine (3) Histidine (4) Leucine
18. Which of the following is responsible for Alzheimer's disease ?
(1) PrP_{sc} Protein (2) PrP_c Protein (3) Amyloid β (4) Parkin
19. Which of the following DNA mutations results in insertion of an inappropriate stop codon ?
(1) Frameshift mutation (2) Nonsense mutation
(3) Missense mutation (4) Silent mutation

34. A competitive inhibitor of an enzyme :
- (1) Increases K_m without affecting V_{max}
 - (2) Decreases K_m without affecting V_{max}
 - (3) Increases V_{max} without affecting K_m
 - (4) Decreases both V_{max} and K_m
35. Which of the following enzyme is stable at acid pH ?
- (1) Pepsin
 - (2) Chymotrypsin
 - (3) Trypsin
 - (4) Carboxypeptidase
36. Dinitrophenol causes :
- (1) Inhibition of ATP synthase
 - (2) Inhibition of electron transport
 - (3) Uncoupling of oxidation and phosphorylation
 - (4) Accumulation of ATP
37. Phenylalanine is the precursor of the following molecules, except :
- (1) Tyrosine
 - (2) Epinephrine
 - (3) Thyroxin
 - (4) Melatonin
38. Sources of the nitrogen in the urea cycle are :
- (1) Aspartate and ammonia
 - (2) Glutamate and ammonia
 - (3) Arginine and ammonia
 - (4) Uric acid and ammonia
39. If urine sample darkens on the standing, the most likely condition is :
- (1) Phenylketonuria
 - (2) Alkaptonuria
 - (3) Maple syrup urine disease
 - (4) Tyrosinemia
40. Pyruvate can be converted directly into all the following except :
- (1) Phosphoenol pyruvate
 - (2) Alanine
 - (3) Acetyl CoA
 - (4) Lactate

Attempt any five questions. Write answer in 150-200 words. Each question carries 16 marks. Answer each question on separate page, after writing Question Number.

1. Metabolism of high density lipoproteins.
2. Micro RNA.
3. Gene Cloning.
4. Applications of flow cytometry.
5. Inhibitors of respiratory chain.
6. Super-secondary structure of proteins.
7. Real-time PCR.
8. Proteasome.
9. Regulation of intracellular calcium.
10. Post-translational modification of proteins.

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FOR ROUGH WORK

