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 change 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 pages 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: 16
No. of Questions : 50

Time : 2 Hours

Full Marks : 200

Note: (1) This Question Booklet contains 40 Multiple Choice Questions followed by 10 Short Answer Questions.

(2) 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.

(3) 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.

01. Which of the following is pluripotent cell
   (1) Stem cell            (2) Sertoli cells
   (3) Memory t cells       (4) Langerhans cells

02. Which of the following is NOT a lymphoid organ
   (1) Lymphnodes           (2) Tonsils
   (3) Thyroid              (4) Spleen

03. Enzymes for kreb cycle are located in
   (1) Mitochondria         (2) Cytoplasm
   (3) Peroxisomes          (4) Nucleus

04. Which of the following is a non communicable disease
   (1) HIV                  (2) Tuberculosis
   (3) Measles              (4) Tetanus
05. Which of the following is NOT a part of immune system of the body?
   (1) Langerhans cells                     (2) Helper T cells
   (3) Histiocytes                         (4) Reticulocytes

06. Ovulation occurs at
   (1) 5th day of menstrual cycle
   (2) 14th day of menstrual cycle
   (3) 21st day of menstrual cycle
   (4) 28th day of menstrual cycle

07. Amount of growth hormone secretion reach its peak by
   (1) 8 am                                (2) 8 pm
   (3) 12 am                               (4) 12 pm

08. Which of the following is false?
   (1) Bones are attached to other bones by means of tendon
   (2) Bones are attached to muscles by means ligaments
   (3) Bones are joined to other bones by mean of articular cartilage
   (4) Bones are joint to each other by mean of fibrous tissue

09. Regulators of thirst and hunger centre is present in
   (1) Medulla                            (2) Midbrain
   (3) Hypothalamus                      (4) Cortex

10. Which of the following is NOT included in the stages of embryological development?
    (1) Inscmination                      (2) Gastrulation
    (3) Blastula formation               (4) Morula formation

11. GeneXpert determine resistance of tuberculosis against which drug?
    (1) Rifampicin                       (2) Pyrazinamide
    (3) Isoniazid                       (4) Ethambutol
12. Protein is purified using ammonium sulfate by:
   (1) Salting out
   (2) Ion exchange chromatography
   (3) Mass chromatography
   (4) Molecular size exclusion

13. Gene for major histocompatibility complex is located on which chromosome?
   (1) Chromosome 13
   (2) Chromosome 11
   (3) Chromosome 6
   (4) Chromosome 16

14. Nested case control study is a type of:
   (1) Retrospective study
   (2) Descriptive study
   (3) Cross sectional study
   (4) Prospective study

15. Which co-enzyme is responsible for carboxylation reaction?
   (1) Biotin
   (2) NADH
   (3) FAD
   (4) Thiamine pyrophosphate

16. The best marker to diagnose thyroid related disorder:
   (1) T3
   (2) T4
   (3) TSH
   (4) Thyroglobulin

17. Most common cause of hyperparathyroidism:
   (1) Iatrogenic
   (2) Medullary carcinoma
   (3) Parathyroid adenoma
   (4) Parathyroid hyperplasia

18. Which of the following is Not a tumour marker?
   (1) Tartrate-resistant acid phosphatase
   (2) Carcinoembryonic antigen
   (3) Alfa fetoprotein
   (4) Alfa-1 antitrypsin
19. Which type diabetes is HLA associated?
   (1) Type I diabetes  (2) Type II diabetes
   (3) Malnutrition related diabetes  (4) Pregnancy related diabetes

20. Which is not carcinogenic?
   (1) Benzpyrine  (2) Aniline dye
   (3) Vitamin A  (4) Aflatoxin B1

21. An example of a tumour suppressor gene is:
   (1) myc  (2) fos
   (3) ras  (4) p53

22. Which of the following is an occupational disease?
   (1) Malaria  (2) Diabetes
   (3) Hypothyroidism  (4) Pneumoconiosis

23. Renin is secreted from the cells of:
   (1) Liver  (2) Kidney
   (3) Intestines  (4) Bones

24. Wearing of gloves is a part of:
   (1) Disinfection  (2) Sanitation
   (3) Operation  (4) Universal precautions

25. DOTS program is related with:
   (1) HIV  (2) Tuberculosis
   (3) Leprosy  (4) Polio

26. Smallest cell organelle is:
   (1) Vacuole  (2) Ribosome
   (3) Golgi body  (4) Cytoplasm
27. Trypsinogen an inactive enzyme secreted by the pancreas is activated by:
   (1) Enterokinase  (2) Pepsin of stomach
   (3) Bile          (4) Chymotrypsin

28. Oxygen dissociation curve is:
   (1) Sigmoid       (2) Straight
   (3) Parabola      (4) Slope

29. The respiratory centre in brain which controls respiration?
   (1) Hypothalamus  (2) Cerebellum
   (3) Medulla oblongata (4) Spinal cord

30. Blood circulation that starts in capillaries and end in capillaries:
   (1) Hepatic circulation (2) Portal circulation
   (3) Cardiac circulation (4) Pulmonary circulation

31. All are screening test for Down syndrome except:
   (1) Low maternal serum α-fetoprotein
   (2) Elevated human chorionic gonadotropin
   (3) Low unconjugated estriol.
   (4) Progesterone

32. All are the Turner Syndrome genotypes except:
   (1) 45,X            (2) 45,X/46,XX
   (3) 45,X/47,XXX     (4) 47,XXY
33. Assisted reproductive technology, IVF involves transfer of:
   (1) Zygote into the uterus
   (2) Embryo with 16 blastomeres into fallopian tube
   (3) Ovum into the fallopian tube
   (4) Zygote into fallopian tube

34. Wuchereria bancrofti is transmitted by:
   (1) Sand fly
   (2) Tse-tse fly
   (3) Culex
   (4) Anopheles mosquitoes

35. The first human hormone produced by recombinant DNA technology:
   (1) Insulin
   (2) Thyroxin
   (3) Estrogen
   (4) Prolactin

36. Analysis of chromosomal DNA using the southern hybridization technique does not use:
   (1) Autoradiography
   (2) PCR
   (3) Electrophoresis
   (4) Blotting

37. HIV principally infects and reduces:
   (1) All T cells
   (2) T-helper cells
   (3) B cells only
   (4) Both B and T cells

38. Universal donors are:
   (1) O Rh +
   (2) AB Rh +
   (3) O Rh -
   (4) AB Rh -

39. Pacemaker of the heart is:
   (1) SA node
   (2) AV node
   (3) Bundle of His
   (4) Purkinje fibre
40. Hypothalamus of the brain is not involved in this function:
   (1) Sleep-wake cycle
   (2) Osmoregulation
   (3) Temperature control
   (4) Accuracy of muscular movement
Short Answer Questions

Note: 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.

01. Proto-oncogene

02. Complications of diabetes

03. Life cycle of malaria

04. Classify the lymphocytes of blood and mention their key functions.

05. Meiosis - I

06. What are the components of metabolic syndrome?

07. Enumerate the differences between DNA and RNA.

08. Interferons

09. Western blotting

10. Microchip Electrophoresis.
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<thead>
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<th>Question No.</th>
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13 P.T.O.
अभ्यासियों के लिए निर्देश
(इस पुस्तिका के प्रथम आवरण पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर
केवल नीली-काली बाल-ग्लाइन ग्रेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के १० मिनट के अन्तर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोपुस्त या जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देखकर सम्पूर्ण प्रश्नपत्र की दृष्टि पुस्तिका प्राप्त कर ले।

2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।

3. उत्तर-पत्र अलग से दिखा गया है। इसे न तो मोड़ों और न ही फिस्कूद करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही पूर्णता किया जायेगा।

4. अर्थनीति अनुसार पत्र का क्रमज्जोग प्रथम आवरण-पृष्ठ पर छेद से निर्धारित स्थान पर लिखें।

5. उत्तर-पत्र के प्रथम पृष्ठ पर देने से अर्थनीति अनुसार निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा करें। क्योंकि यहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमज्जोग तथा सेट का नवन उपस्थित स्थानों पर लिखें।

6. आयो.एमो. आर.पी. अर्थनीति पत्र पर अनुसार संख्या, प्रश्नपुस्तिका संख्या व नंद संख्या (यदि कोई हो) तथा प्रश्नपुस्तिका पर अनुसार और आयो.एमो. आर.पी. संख्या की प्रतिविधियों में उपस्थित वहाँ अनुसार नहीं है।

7. उपुक्त प्रतिविधियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होता चाहिए अन्यथा यह एक अनुचित समान का प्रयोग माना जायेगा।

8. प्रश्न-पुस्तिका में प्रश्न प्रश्न के बारे में बैंकलिक उत्तर दिये गये हैं। प्रथम प्रश्न के बैंकलिक उत्तर के लिए आपको उत्तर-पत्र की सम्पूर्ण प्लास्टिक के सामने दिखे गये वृत्त का उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पृष्ठ से गाढ़ा करना है।

9. प्रश्न प्रश्न के उत्तर के लिए केवल एक ही वृत्त को गाढ़ा करें। अर्थतः एक ही वृत्त को अपूर्ण नहीं पर यह उत्तर गलत माना जायेगा।

10. ध्यान में रखिए कि एक बार चाहिए अंकित उत्तर बदलना नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो संवेदित प्लास्टिक के सामने दिखे गये सभी वृत्तों को खारी छोड़ दें। ऐसे प्रश्नों पर अंक दिये जायेंगे।

11. इस कारण के लिए प्रश्न-पुस्तिका के ग्रुप-पृष्ठ के अंदर शास्त्रीय पृष्ठ तथा उत्तर-पुस्तिका के अंतिम पृष्ठ का प्रयोग करें।

12. परीक्षा के उपसागर केवल आयो.एमो. आर.पी. परीक्षा भवन में जमा कर दें।

13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।

14. यदि कोई अनुमोदन परीक्षा में अनुमुख माध्यम का प्रयोग करता है, तो वह विश्वसनीय दृष्टि से निरीक्षित दें जा जायेंगे/होंगे।