**MAHATMA GANDHI UNIVERSITY**

**B.Sc Zoology Programme Semester-VI (Vand VI combined)**

**Practical Model Question Paper- March 2020 (ZY6CRP03)**

 **Environmental Biology and Toxicology& Cell biology and Genetics**

**Time: 3hrs Maximum Marks: 40**

**Certified record – 10 marks**

**(Combined record of practical 5 and 6)**

**PART-A**

1. **Prepare a neat squash preparation of onion root tip**
2. **Preparation and identification of any two mitotic stages (4 marks)**
3. **Comment on identified stages, giving reasons (2 marks)**
4. **Sketch and label the identified stages (2 marks)**

**OR**

**Prepare human blood smear**

1. **Preparation and identification of any two leucocytes (4 marks)**
2. **Comment on identified leucocytes, giving reasons (2 marks)**
3. **Sketch and label the identified leucocytes (2 marks)**
4. **Estimate the amount of dissolved oxygen in the water sample provided**
5. **Principle (2marks)**
6. **Procedure (3marks)**
7. **Calculation and Result (3marks)**

**OR**

 **Estimate the amount of dissolved carbon dioxide in the water sample provided**

1. **Principle and Procedure ( 4marks)**
2. **Calculation and Result (2marks)**
3. **Write down the procedure to estimate soil organic carbon (2marks)**

**PART-B**

1. **Prepare a smear of human buccal epithelium and identify the Barr body and Comment on ( 2+1=3 marks)**

**OR**

**Prepare a temporary whole mount of the material provided and write down the procedure for the preparation of permanent whole mount (1+2=3 marks)**

**OR**

 **Identify the sex of the given Drosophila and comment on (1+2=3marks)**

1. **Mount any 3 marine/ freshwater planktons from the sample provided and comment on their adaptation. (1 ½ + 1 ½=3 marks)**

**OR**

 **Carry out a plankton count and estimate the abundance of any 3 zooplankton from the sample provided and make a graphical representation (simple bar diagram) of the data obtained (Enumeration and calculation -1½ marks, graphical representation -1½ marks =3 marks)**

**OR**

 **Identify any 3 sandy/ rocky shore fauna and comment on any two adaptations. (1 ½ + 1 ½=3 marks)**

1. **PART- C. Answer all (2 marks each)**
2. **Genetic problem**

**( Monohybrid/Dihybrid cross / Back cross or Test cross / Blood group inheritance)**

1. **Identify and comment on:**

**(Any tissue / Cell organelles/Polytene chromosome )**

1. **Identify and comment on /phenotypical manifestations**

**(Human karyotype Male or female / Karyotype of Down’s / Klinefelter’s /Turner’s syndrome)**

1. **Identify and write notes on**

**(Plankton net / sechi disc / Animal association). (4x2=8 marks)**

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**B.Sc Zoology Programme Semester-VI (Vand VI combined)**

**Practical Model Question Paper- March 2020 (ZY6CRP04)**

**Evolution, Ethology and Zoogeography &**

**Biochemistry Human Physiology and Endocrinology,**

**Time: 3hrs Maximum Marks: 40**

**Certified record – 10 marks**

**(Combined record of practical 7and 8)**

 **PART A**

1. **Enumerate the total RBC in your blood using a haemocytometer .**
2. **Enumeration -3marks**
3. **Procedure -3marks**
4. **Calculation -2marks**

**OR**

**Enumerate the total WBC in your blood using a haemocytometer .**

**a)Enumeration -3marks**

**b)Procedure -3marks**

**c)Calculation -2marks**

**II.**

1. **Mark the given Zoological realms in the world map provided (four realms)**

 **(4marks)**

**b) Locate the listed four endemic animals to their appropriate realms (2marks) c) Write the names of any two organisms belonging to the given realms (2 marks)**

 **OR**

 **a) Mark any two continental/oceanic islands in the world map provided-2marks**

 **b) Trace the route of HMS Beagle in the map -3marks**

 **c) Write the distribution of any three animals (Lung fishes, Camel, Elephant) given -3marks**

**PART B**

**III. Estimate the haemoglobin content in your blood**

1. **Procedure -2marks**
2. **Result -1mark**

**OR**

 **Analyze any one of the given solution and report the findings**

**(Protein /glucose/starch/lipid)**

1. **Procedure -2marks**
2. **Result -1mark**

**OR**

**Determine the tonicity of the given solution on RBC**

**a) Principle and Procedure -2marks**

**b) Result -1mark**

**IV. Comment on the morphological and adaptive modification of the item provided (Analogous and homologous organ (Any two figures/ any two skeleton/any two specimen may be given)**

1. **Identification and morphological adaptive modification- 2marks**
2. **Comment on Evolutionary significance -1 mark**

**OR**

**Identify and arrange the following items in their evolutionary sequence (provide figure of the limb bones of different stages of horse evolution)**

1. **Identification and arrangements in sequence -1½marks**
2. **Comment on their period of occurrence and -1½marks**

**Morphology of limb bones**

**OR**

**Identify any 3 scientists and comment on their contribution.**

1. **Identification -1½marks**
2. **Comment on -1½marks**

**PART C Answer all (2 marks each)**

1. **Comment on behavioural activity (Figure can be provided)**

**(Grooming/courtship dance of flamingos/stickle back fish/ Tail wagging dance/ Aggressive behaviour/ Auto/Allo grooming, Flehmen response/ phototaxis and chemotaxis of Drosophila/Housefly )**

1. **Identify and comment on the equipment/ evolutionary significance (Phermone trap/ Skinner box/ T- maze ;Archaeopteryx/Peripatus / Protopterus/Echidna)**

**3. Identify and write notes on the principle and use of the given instrument. (kymograph/ sphygmomanometer/stethoscope/ Chromatography )**

1. **Identify and comment on the principle/procedure/importance of microhaematocrit /Effect of Adrenalin on heart beat of Cockroach/Corpora cardiac and corpora allata. (4x2=8 marks)**

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**B.Sc Zoology Programme Semester-VI (Vand VI combined)**

**Practical Model Question Paper- March 2020 (ZY6CRP05)**

**Developmental Biology& Microbiology and immunology.**

**Time: 3hrs Maximum Marks: 40**

**Certified record – 10 marks**

**(Combined record of practical 9 and 10)**

**PART- A**

1. **Determine the age of the chick embryo and write notes on. sketch and label the parts.(18hrs/24hrs/33hrs/48hrs)**
2. **Identification and notes -3marks**
3. **Sketch and label -3marks**
4. **Identify the fertility of egg using candling method and write down the procedure.-2marks**

**OR**

**Dissect and Display the male /female reproductive system of Cockroach. Sketch and label the parts.**

1. **Dissection and display -4marks**
2. **Sketch and label -2marks**
3. **Write down the principle and procedure of vital staining -2marks**
4. **Perform gram staining with the given bacterial culture and prepare the report. Write down the principle and procedure**
5. **Preparation & Identification 4 marks**
6. **Principle 2marks**
7. **procedure 2 marks**

**OR**

1. **Prepare a stained mounting of the given fungus on a neat slide- 4 marks**
2. **Test the motility of the given bacterium by hanging drop method-4 marks**

**PART B**

1. **Determine the fecundity of given fish.( Pieces of ovary shall be provided )**
2. **Enumeration and calculation - 2marks**
3. **Result -1mark**

**OR**

 **Determine the Gonado-somatic index of given fish ( Fish and gonad shall be provided**

1. **Procedure and Calculation - 2marks**
2. **Result - 1mark**
3. **Determine the blood group and Rh factor**

**a) Preparation &Result - 2 marks**

**b) Principle -1 mark**

**OR**

 **Perform Streak Plating Technique**

 **Performance - 2 marks**

 **procedure -1mark**

**V PART C Answer all (2 marks each)**

1. **Identify the given slides/models/chart and comment on placenta of man/pig / sketch and label the blastula/ gastrula/ of frog/chick .**
2. **Write short notes on the techniques**

**(Amniocentesis/Embryo transfer technology/cloning-chart/diagram)**

1. **Identify and comment on / the working and use of the instrument**

 **( primary and secondary immune organs/ Hot air oven / Bacteriological incubator/ laminar air flow/ Autoclave)**

1. **Identify& write a report (Antibiotic sensitivity test) identify & comment on the culture media-ingredients and method of preparation/culture techniques-lawn/pour plate/liquid) 4x2=8 marks**

**MAHATMA GANDHI UNIVERSITY**

**B.Sc Zoology Programme Semester-VI (Vand VI combined)**

**Practical Model Question Paper- March 2020 (ZY6CRP05)**

**BIOTECHNOLOGY, BIO INFORMATICS AND MOLECULAR BIOLOGY**

**& OCCUPATIONAL ZOOLOGY**

**Time: 3hrs Maximum Marks: 40**

**Certified record – 10 marks**

**(Combined record of practical 11and 12)**

**PART A**

**I . Identify by Common and Scientific name of any four specimens of Culturable fishes/Earthworms / Honeybees and Comment on morphology and economic importance (any two points each)**

**a) Identification (4marks )**

**b) Comment (4marks)**

**(Culturable fishes-2, Earthworm-1 and Honeybee-1)**

**OR**

 **Identify by Common and Scientific name of any four specimens of ornamental fishes/ shell fishes and Comment on morphology and economic importance (any two points each)**

**a) Identification (4marks)**

**b) Comment (4marks)**

**(Ornamental fishes-2 and Shell fishes-2)**

**II. a) Download/use print out/pictures of genome sequences of any 2 organisms. Identify and mention the characteristic features of both. (5 marks)**

 **b) Write down the procedure involved in DNA isolation (3marks)**

**OR**

**a) Download/ use print out/pictures of a macromolecule. Write a brief note on the bioinformatics tool used to visualise its structure. (3 marks)**

**b) Download/ use print out/pictures of a protein sequence, identify it & comment on its amino acid composition (3 marks )**

 **c) Identify and comment on the item provided: (Western blotting / Southern blotting/Northern blotting / PCR) (2marks)**

**PART B**

1. **Analyse the given honey and report the findings**

 **a) Procedure -2marks**

 **b) Result -1mark**

**OR**

**Mounting the mouth parts of honey bee**

 **a) Mounting -2marks**

 **b) Sketch and label - 1mark**

**OR**

 **Write down the feed formula and procedure for the preparation of artificial feed for aquarium fishes**

 **a) Feed formula -1mark**

 **b) Procedure -2marks**

1. **Submit a report of Group activity and field study and viva*( Each student shall submit the report of group activity along with study tour report)***

 **a) Report -2marks**

 **b) Viva - 1mark**

1. **PART C Answer all (2 marks each)**

**a)Identify and comment on its molecular composition / structural orientation / functional significance: DNA, DNA replication, RNA different types using models or diagrams)**

**b)Identify and comment on / the working and use of the instrument - Aquarium filters, Aquarium aerator, Aquarium plants, Oven, Pelletiser, Screw Press, die plate**

**c)Identify and comment on Bee keeping equipments, Beehive, Smoker, honey extractor, Queen Cage/ Uses of Bees wax, Honey, Vermicompost,**

**(d)Identify and comment on the castes of Honeybee( worker/Drone/queen) / fish parasites and diseases using specimens/ slides/pictures**

 **(4x2=8 marks)**