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UNIVERSITY OF MUMBAI
No.UG./ 205 of 2005

CIRCULAR:-

A reference is invited to the Ordinances, Regulations and Syllabi relating to the Master of Science (M.Sc.) (Part I & II) degree course vide Pamphlet No.175 and to this office Circular No.UG./324 of 2004 dated 9th August,2004 and the Director, Institute of Science and Principals of the affiliated colleges in the Faculty of Science are hereby informed that the recommendation made by the Board of Studies in Botany at its meeting held on 19th January,2005 has been approved by the Academic Council at its meeting held on 5th February,2005 vide item No.4.25 and that in accordance therewith, certain additions/corrections is made in the skeleton papers in the subject of Botany at the M.Sc.(Parts I & II) (Practical) examination as per ***Appendix*** and that the same has been brought into force with effect from the examination held in the first half of the year 2005.

MUMBAI-400 032
27th May, 2005

for REGISTRAR

To,
The Director, Institute of Science and the Principals of the affiliated colleges in Science,
AC/4.25/05.02.05

No.UG/ 205-A of 2005, MUMBAI-400 032 27th May, 2005

Copy forwarded with compliments for information to :-

1) The Dean, Faculty of Science
2) The Chairman, Board of Studies in Botany

for REGISTRAR

Copy to :-

The Director, Board of College and University Development, the Deputy Registrar (Eligibility and Migration Section), the Director of Students Welfare, the Personal Assistants to the Vice-Chancellor, the Pro-Vice-Chancellor, the Registrar and the Assistant Registrar, Administrative sub-center, Ratnagiri for information .

The Officer on Special Duty-cum-Controller of Examinations (10 copies), the Finance and Accounts Officer (2 copies), Record Section (5 copies), Publications Section (5 copies), the Deputy Registrar, Enrolment, Eligibility and Migration Section (3 copies), the Deputy Registrar, Statistical Unit (2 copies), the Deputy Registrar (Accounts Section),Vidyanagari (2 copies), the Deputy Registrar, Affiliation Section (2 copies), the Director, Institute of Distance Education,(10 copies) the Director University Computer Center (IDE Building). Vidyanagari, (2 copies) the Deputy Registrar (Special Cell), the Deputy Registrar,(PRO) . **the Assistant Registrar, Academic Authorities Unit (2 copies)and the Assistant Registrar, Executive Authorities Unit (2 copies) . They are requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to in the above Circular and that no separate Action Taken Report will be sent in this connection.** the Assistant Registrar Constituent Colleges Unit (2 copies), BUCT(1 copy), the Deputy Account, Unit V(1 copy), the In-charge Director, Centralize Computing Facility (1 copy), the Receptionist (1 copy), the Telephone Operator (1 copy), the Secretary MUASA (1 copy), the Superintendent, Post-Graduate Section (2 copies), the Superintendent, Thesis Section (2 copies)

4.2.5
5.2.05

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
TECHNIQUES AND INSTRUMENTATION
PRACTICAL V

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Statistically analyse the given data (As per slips provided) (10)

Q.2. Represent the given data graphically using Excel worksheet. (10)

Q.3. Journal. (05)

Q.4. Project evaluation. (25)

Instructions to examiners: Data to be provided;
Slips as per theory

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
CELL AND MOLECULAR BIOLOGY
PRACTICAL VI

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Isolate and separate plasmid DNA from the given bacterial suspension A. (20)

Q.2. Study the growth of the given bacteria B & plot a growth curve; calculate the generation time. (13)

Q.3. Identify and describe C, D & E. (12)

Q.4. Journal. (05)

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UNIVERSITY OF MUMBAI
M.Sc.(PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
MYCOLOGY AND PLANT PATHOLOGY
PRACTICAL VII

DURATION: 5 HOURS
MAX.MARKS: 50

Q.1. Isolation of fungal organisms from the given soil sample using PDA/Czapek'sDox medium (acidic,/alkaline/rhizosphere). (08)
Q.2. Isolation of seed borne mycoflora from the given seed sample by blotter Method. (08)
Q.3. Isolation of the mycorrhizal spores from the given soil sample by Wet sieving and decanting method. (08)
Q.4. Study of the activity of enzymes CMCase for pH/Temperature/enzyme protein/substrate variations/ Protease. (08)
Q.5. Journal of Practical VII and VIII (10)
Q.6. Collection and slides(submission). (08)

UNIVERSITY OF MUMBAI
M.Sc.(PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
MYCOLOGY AND PLANT PATHOLOGY
PRACTICAL VIII

DURATION: 5 HOURS
MAX.MARKS: 50

Q.1. Identify and classify the given specimens A,B.C.D and E giving reasons (20)
Q.2. Set the experiment to show immobilization of microbial biomass. (05)
Q.3. Evaluate the effect of Temperature/pH/Nitrogen sources on the growth of the organism F in terms of biomass formation/Soluble proteins. (08)
Q.4. a. Identify the pathogens from G and H using differential staining (06)
b. Identify the diseases on the basis of symptoms from specimens I and J(06)
Q.5.Measure the diameter of the fungal spores from the given sample K using occular micrometer (05)

OR

Sketch the fungal spores from the given specimen/slide K using camera lucida

OR

Determine the location of the fungal infection in the seed sample K

OR

Identify the fungal contaminants from the given food sample K

OR

Isolate a single spore from the given sample K

OR

Macerate the given wood sample K to show the damage caused by the fungus.

UNIVERSITY OF MUMBAI
M.Sc.(PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
ANGIOSPERMS
PRACTICAL VII

DURATION: 5 HOURS
MAX.MARKS: 50

Q.1. Using technical terms, describe the exomorphic characters of specimen A. Draw diagrams to support your observation. (10)
Q.2.Make necessary preparations to explain peculiar epidermal characters and cell inclusions in specimen B. Show the preparations to the examiner. (08)
Q.3.Explain the anatomical peculiarities in specimen C and thereby establish its systematic position. (04)
Q.4.a) Identify and comment on slides/specimens/photographs D,E,F and G (08)
b)Perform qualitative tests for the active constituents from specimen H.(03)
Q.5. Problem on nomenclature I. (06)
Q.6. Prepare artificial key for the sample specimens provided to you (06)
Q.7. Journal (05)

UNIVERSITY OF MUMBAI
M.Sc.(PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
ANGIOSPERMS
PRACTICAL VIII

DURATION: 5 HOURS
MAX.MARKS: 50

Q.1. Establish systematic position of the specimens A and B. (12)
Q.2. Identify and comment on slides/specimens/photographs C,D,E and F (08)
Q.3. Comment on pericarp structure in specimen G and seed coat Structure in specimen H. (06)
Q.4. With the help of labeled sketches, describe the organoleptic and Microscopic features seen in specimen I. Perform chemical tests to identify principal ingredients present in it. (09)
Q.5 a) Examine sample Jfor presence of adulterants by microscopy. (06)
b) Determine total ash contents/water soluble ash value/acid soluble ash value of the same specimen. (04)
Q.6.Journal. (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
PLANT PHYSIOLOGY AND BIOCHEMISTRY
PRACTICAL VII

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Perform the given experiment A and analyse the results. (25)

Q.2. Perform the given experiment B and analyse the result. (20)

Q.3 Journal. (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
PLANT PHYSIOLOGY and BIOCHEMISTRY
PRACTICAL VIII

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Perform the given experiment A and analyse the results. (25)

Q.2. Perform the given experiment B and analyse the result. (20)

Q.3 Journal. (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION

BOTANY
SKELETON PAPER
ENVIRONMENTAL BOTANY
PRACTICAL VII

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Determine the LD 50 values for pollutants, of the given plant material. A,using 24 hour duration. (15)
Q.2 Prepare inventory of water in ecosystem, , based on at least 3 components in the ecosystem. (10)
Q.3. Identify the polluted water from the given water samples, on the basis of their Phytoplankton populations and Nygaard index. (10)
Q.4. Assess the carbon cycle in an ecosystem. (10)
Q.5. Journal (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
ENVIRONMENTAL BOTANY
PRACTICAL VIII

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Determine the water holding capacity of the given soil samples 'A' & 'B', Explain the results. (10)
Q.2. Prepare life form spectrum of a plant community, shown to you. (10)
Q.3. Indicate geographical positions of five biosphere reserves in the given map of India 'B' and state their ecological significance. (10)
OR
Q.3. Indicate the geographical positions of five National Parks and Sanctuaries in the given map of Maharashtra, 'B' and state their ecological significance. (10)
Q.4. Identify the plant species C, D&E given to you. State the place of origin, range of present distribution and status of conservation of each one of them. (05)
Q.5. Journal. (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
CYTOGENETICS AND PLANT BIOTECHNOLOGY
PRACTICAL VII

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Separate the proteins from the given plant material A using PAGE and stain the gel. (20)

Q.2. Prepare MS medium; sterilize the explant B and inoculate. (03)

Q.3. Extract and detect the active constituent from the given plant material C. (10)

Q.4. Identify and describe D, E, F and G. (12)

Q.5. Journal. (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART II) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
CYTOGENETICS AND PLANT BIOTECHNOLOGY
PRACTICAL VIII

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Make a squash preparation of the pretreated root tip of material A. Show the slide to the examiner. (05)

Q.2. Make a squash preparation of the root tip B. Calculate the mitotic index. (10)

Q.3. Make a smear preparation of material C so as to expose stages of meiosis. (08)

Q.4. Carry out field trial D using Randomised block/ Latin square (10)

Q.5 Identify and describe E, F, and G as per instructions. (12)

Q.6. Journal. (05)

UNIVERSITY OF MUMBAI
M.Sc. (PART I) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
PRACTICAL I

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Identify, classify and specify points of morphological and / or reproductive interest seen in specimen A, B, C and D. (12)
Q.2. Identify and describe with the help of labeled sketches the vegetative/ reproductive structures seen in specimens E and F. (08)
Q.3. By means of chromatography, separate algal pigments from specimen G and determine their Rf values. (08)
Q.4. Identify and describe any three types of algae from the given mixture H. (06)
Q.5. Identify and comment on the specimen/ slides I, J, K, L, and M. (10)
Q.6. Journal. (06)

UNIVERSITY OF MUMBAI
M.Sc. (PART I) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
PRACTICAL II

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Identify, classify and describe specimen A giving reasons. (04)
Q.2. (a) Classify specimen B to its respective family giving reasons. Give a floral diagram and floral formula. (08)
(b) Identify the family, genus and species of specimen C with the help of flora. (06)
Q.3. Macerate specimen D to expose the xylem elements. Sketch and label the cell Types. (05)
Q.4. Perform an experiment to show the effect of temperature on pollen viability of specimen E. (05)

OR

Q.4. Perform an experiment to demonstrate *invitro* germination of pollen grain in various concentrations of sucrose. (05)
Q.5. (a) Identify and describe slides F, G and H. (06)
(b) Identify specimen I. State its morphological peculiarities/ economic importance. (04)
Q.6. Journal and field diary. (06)
06)

UNIVERSITY OF MUMBAI
M.Sc. (PART I) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
PRACTICAL III

DURATION: 5 HOURS
MAX. MARKS: 50

Q 1. Set up physiology experiment A allotted to you. (14)
(Major experiment)
Q.2. Set up physiology experiment B allotted to you (08)
(Minor experiment)
Q.3. Carry out the experiment C allotted to you. Discuss its ecological Significanance. (Major experiment). (14)
Q.4. Carry out the experiment C allotted to you. Discuss its ecological significance. (Minor experiment). (08)
Q.5. Journal (06).

UNIVERSITY OF MUMBAI
M.Sc. (PART I) PRACTICAL EXAMINATION
BOTANY
SKELETON PAPER
PRACTICAL IV

DURATION: 5 HOURS
MAX. MARKS: 50

Q.1. Make a smear preparation of Specimen A to show the stages of meiosis. Comment on the same. (08)
Q.2. Make squash preparation of the pretreated material B. Identify the aberrations, if any (06)
Q.3.By means chemical tests, identify the active constituents of specimen C. Sketch and label the macroscopic and microscopic structures, wherever possible. (08)
Q.4.Identify and mention the botanical source and the medicinal properties of specimens D and E. (06)
Q.5. Identify and comment on the slides/photomicrographs/specimens F, G, H and I. (08)
Q.6. Journal (06)
Q.7. Viva-voce. (08)