
AN OVERVIEW

THE INSTITUTE

Forest Research Institute (F.R.I.), Dehra Dun made a humble beginning as Forest School established in 1878. Initially named as Imperial Forest Research Institute, F.R.I., came into being in 1906. Later renamed as Forest Research Institute and Colleges, with a number of centres located at different places all over the country administering research as well as training of Forest Officers and Forest Rangers. After reorganization of Forestry Research in the country and creation of Indian Council of Forestry Research and Education (ICFRE) in 1988, the training and research centres were given an independent status of institutes. Forest Research Institute, now one of the institutes under ICFRE, was conferred the status of Deemed University in December 1991 on the recommendations of the U.G.C., Ministry of Human Resource Development, Government of India.

OBJECTIVES OF THE FRI UNIVERSITY

- To impart education in different branches of forestry and environment.
- To provide for research, advancement and dissemination of knowledge in the field of forestry and environment.
- To create consciousness about forest and environment among people through forestry extension programme.
- To carry out such other activities as may be necessary and desirable to further the safeguarding of environment and protection of forests and wildlife.

RESEARCH DIVISIONS AND DISCIPLINES IN THE INSTITUTE

- FOREST BOTANY (Systematic Botany, Wood Anatomy and Plant Physiology)
- CHEMISTRY of FOREST PRODUCT (Chemical Extracts from Trees and Forest Based Oilseeds)
- EXTENSION (Social Forestry, Extension and Agro-forestry)
- FOREST ECOLOGY and ENVIRONMENT (Forest Productivity, Biodiversity, Environment and Pollution)
- FOREST ENTOMOLOGY (Control Measures and Taxonomy)
- FOREST PATHOLOGY (Forest Diseases and Biofertilizers)
- FOREST PRODUCTS (Timber Mechanics, Wood Seasoning, Wood Preservation, Composite Wood, Wood Working & Finishing, and Timber Engineering)
- FOREST SOIL and LAND RECLAMATION (Wasteland reclamation, Soil Fertility, Soil Geology and Mineralogy)

-
-
- GENETICS and TREE PROPAGATION (Genetics, Improvement, Breeding and Tissue Culture)
 - NON WOOD FOREST PRODUCTS (Medicinal and Aromatic Plants, Resins and Gums)
 - RESOURCE SURVEY and MANAGEMENT (Forest Mensuration and Forest Economics)
 - SILVICULTURE (Experimental Silviculture, Logging and Seed Technology)
 - CELLULOSE & PAPER (Paper Technology)
 - FOREST BIOTECHNOLOGY
 - FOREST BIO INFORMATICS
 - ENVIRONMENT MANAGEMENT
 - WILDLIFE MANAGEMENT
 - FOREST GEOINFORMATICS
 - FOREST HYDROLOGY

THE APPLICATION FORM

The Forest Research Institute University admission test, 2016 will be held at 12 centres in the country on **Sunday, 8th May, 2016** for the following courses:-

| Sl.No. | Courses | Duration (Years) | No. of seats | |
|--------|------------------------------------|---------------------|--------------|-------------------|
| | | | Indian | Foreign Nationals |
| 1. | M.Sc. Forestry | 2 | 38 | 2 |
| 2. | M.Sc. Wood Science & Technology | 2 | 38 | 2 |
| 3. | M.Sc. Environment Management | 2 | 38 | 2 |
| 4. | M.Sc. Cellulose & Paper Technology | 2 | 20 | - |

Applications for admission shall be made in the prescribed form available from the Registrar, Forest Research Institute University, Dehra Dun. The application form and the 'Information Bulletin' can be obtained in person or by post on payment of Rs.1200/- wherever applicable through bank draft drawn in favour of Registrar, Forest Research Institute University payable at Dehra Dun. **Forms can also be downloaded from the website <http://fri.icfre.gov.in> / www.icfre.gov.in**

Date of sale of forms: 18th January, 2016 to 31st March, 2016

Application forms will be available from 18th January to 31st March 2016 from the counter of the office of the FRI (Deemed) University/ Union Bank of India, F.R.I. Branch, Dehra Dun. The last date for issue of forms from the office of the FRI (Deemed) University by post is 31st March, 2016. Thereafter any request for sending the forms by post will not be entertained. *(For details of important dates please see the last page of the Information Bulletin, 2016)*

Application duly filled in legibly in applicant's own handwriting with blue/black pen should be sent so as to reach the Registrar, Forest Research Institute University, P.O.: I.P.E., Kaulagarh Road, Dehra Dun – 248 195 on or before the last date. The application form can also be downloaded from the website <http://fri.icfre.gov.in/> www.icfre.gov.in . The candidates filling the downloaded form must pay fee of Rs.1200/-.

The last date of receipt of completed application form: 4th April 2016.

(Forms received after the last date will not be accepted)

It is advised that the application form be sent by Registered Post/Speed Post/Courier. Postal delay will not be accepted as a plea to entertain applications after the last date.

Admit card containing centre code and roll number will be mailed to the applicant by the third week of April, 2016.

If the admit card is not received by 30th April, 2016, the Registrar, F.R.I., (Deemed) University may be contacted on e-mail tripathiak@icfre.org & registrarfri@icfre.org

Please quote your Name, Fathers Name and Date of Birth in all correspondence with the Registrar, FRI, (Deemed) University, P.O. I.P.E., Kaulagarh Road, Dehra Dun – 248 195.

In case a candidate has either not received the admit card or has lost it, duplicate card can be obtained from the centre superintendent of his/her examination centre. Alternatively, the candidate may reach office of the Registrar, FRI University, Dehra Dun on working day during working hours. Where duplicate admit card will be issued after submission of a bank draft of Rs. 50/- and a photograph identical to that pasted on the admission test form.

| |
|--|
| <p><i>Under no circumstances the admission test fee, once paid, will be refunded or held in reserve for any future admission test.</i></p> |
|--|

ELIGIBILITY REQUIREMENTS

The eligibility requirements for admission to these courses are as follows:

| Sl. No. | Course Code No. | Courses of Studies | Eligibility requirement |
|---------|-----------------|------------------------------------|--|
| 1 | 01 (A) | M.Sc. Forestry | Three years bachelor's degree in science with at least one of the subjects namely Botany, Chemistry, Geology, Mathematics, Physics, Zoology or a Bachelor's degree in Agriculture or Forestry. |
| 2 | 01 (B) | M.Sc. Wood Science & Technology | Three years bachelor's degree with Physics, Mathematics and Chemistry or B.Sc. degree in Forestry. |
| 3 | 01 (C) | M.Sc. Environment Management | Three years bachelor's degree in any branch of Basic or Applied Sciences or Bachelor's degree in Forestry or Agriculture or BE in Environment Science. |
| 4 | 01 (D) | M.Sc. Cellulose & Paper Technology | Graduate degree with minimum 50% marks in aggregate in Science with Chemistry as one of the subjects. BE/B.Tech. (Chemical or Mechanical Engineering with minimum 50% aggregate). |

Age Limit for In-service Candidate:

The maximum age limit in respect of in-service candidate to M.Sc. Environment Management course shall be 50 years. The age shall be reckoned as on 31st July of the year of admission and no further relaxation will be given in any case.

The minimum age limit for admission to M.Sc. courses shall be 19 and 21 years respectively. The age shall be reckoned as on 31st July 2016 and no further relaxation will be given to the candidate.

RESERVATION OF SEATS

A) SCHEDULED CASTES AND SCHEDULED TRIBES:

Fifteen percent of the total available seats shall be reserved for scheduled castes and seven and half percent for scheduled tribes candidates subject to their being otherwise suitable. These reservations shall be interchangeable e.g. if sufficient number of candidates are not available to fill up the seats reserved for scheduled tribe candidates, these can be filled up from suitable scheduled castes candidates within the course concerned.

B) OTHER BACKWARD CLASSE (OBC):

The reservation to OBC is being provided as per the policy of the Govt. of India.

C) PHYSICALLY HANDICAPPED:

One seat shall be reserved in two courses for the candidates with locomotor disabilities one leg, one arm (without mobility restriction) and persons with partial deafness as per Govt.of India rules in M.Sc. Forestry and M.Sc. Environment Management courses only. The candidate will have to produce disability certificate issued by competent authority at the time of counseling for admission.

D) IN-SERVICE CANDIDATES:

Five seats shall be reserved in M.Sc. Environment Management course for in-service candidates working in Government Departments/Autonomous bodies under the Central/State/Union Territory/ICFRE. However, if in-service candidates are not available then the seats reserved for them will be filled up by general candidate(s).

E) FOREIGN NATIONALS:

Reservation to the extent of 15% of the prescribed seats on supernumerary basis for Foreign Nationals shall be made for admission to each M.Sc. course available in the Institute. The foreign nationals are **exempted from appearing in admission test** provided they have passed the equivalent qualifying examination from a University outside India and fulfill the following conditions:

- (a) that they must have minimum eligibility requirements;
- (b) that the applications of scholarship holding Foreign Nationals (Under various schemes) are routed through Indian Council for Cultural Relations /Ministry of Human Resource & Development (Dept. of Education), Govt. of India, New Delhi;
- (c) that the applications of self-financing Foreign nationals should be routed through concerned Indian Diplomatic Mission abroad or Diplomatic Mission of the country of the applicant in India and should be reached in the office of the FRI, University by the 30th May, 2016. Fee to be charged from the foreign nationals is given below.

-
-
- (d) that they have valid residential permit in India granted for studies/Student Visa for the prescribed duration of the concerned course;
 - (e) that the antecedents of the candidate have been verified by the forwarding Agencies/Ministry and found in order;
 - (f) that the candidate must submit certificate duly verified by the Ministry/Agencies to the effect that he/she has been subjected to AIDS test and found negative;
 - (g) that the degree/certificates of the candidates have been approved by the Association of Indian Universities (AIU) as equivalent to the corresponding degrees/certificates of the AIU;
 - (h) that they have adequate knowledge of English as per requirements of the course.

Fee

- 1. Semester fee - 750 US\$ per semester
(1st installment is payable at the time of admission)
- 2. Caution money - 50 US\$ (Refundable)
- 3. Hostel fee - 40 US\$ per month
- 4. Sports, Magazines fees - 30 US\$ p.a.
- 5. Library/Teaching aid fee - 50 US\$ per semester
- 6. Degree fee - 10 US\$
- 7. The mess charges will be around 23 US\$ p.m., if they join mess run by the students.

GUIDELINES

- ❖ In case a candidate has appeared for the degree examination required for admission but the result of the same has not been announced till the time of submission of application, the application form may still be completed in all other respects and may be submitted to the Registrar, Forest Research Institute, University on or before the last date. The degree/result (mark sheet) should however be furnished as soon as it becomes available, which must reach the office of the Registrar, FRI University on or before the date fixed for admission failing which he/she shall not be admitted treating his/her application for admission as incomplete.
- ❖ In case a candidate comes from a university/institute that follows the course credit system, the application shall be considered even though the final viva/voce is yet to be completed provided a full transcript is enclosed showing the grade point average obtained along with a course completion certificate from the Registrar of the University/Institute/Head of the College, Dean/Associate Dean of the campus of multi-campus, Universities/Institutes to the effect that the candidate has completed all the prescribed work. The certificate issued in this regard by the Head of the

Department/Division shall not be entertained. However, at the time of admission a certificate shall have to be produced from the Registrar/Head of the College, Dean/Associate Dean of the campus of multicampus Universities stating clearly that the candidate has passed the last degree examination, failing which the candidate shall not be admitted treating his/her application for admission as incomplete.

- ❖ The candidate must in his/her own interest fill up the application form most ***carefully and ensure that all the columns are filled up correctly. Incomplete application shall be rejected out right.***
- ❖ A candidate may apply in more than one course in test but he/she is required ***to fill up the separate admission form and separate fee for each course e.g. In case candidate applies for two courses the fee payable shall be Rs.2400/- for application forms. Similarly, for three courses the fee payable shall be Rs.3600/- respectively.***
- ❖ The applicant is required to mention his/her category in clear terms. The category to which the applicant belongs once mentioned on the form shall be final and no subsequent change shall be allowed. If boxes requiring indication of category on the application form are left blank, the candidate shall be treated as general category and he/she cannot claim the benefit of any other category.
- ❖ Candidates are allowed to appear for the Admission Tests provisionally subject to the verification of equivalence of degrees/certificates and validity of certificates/marks-sheets of qualifying examination and also whether involved in the adoption of unfair means in any of the examinations of the University/Admission Tests held earlier at the time of admission in the respective courses. Degree/Certificate recognized by AIU shall be deemed as equivalent degrees.
- ❖ Candidates who were admitted as regular students to any course of studies in this Institute through Admission Test in earlier year(s) shall not be allowed to re-appear in the admission test for admission in same course.
- ❖ Please fill up all the columns correctly.
- ❖ Please read the Information Bulletin thoroughly before filling up the form.
- ❖ In your own interest please do not give any false information which may make you liable for disqualification.
- ❖ List of test centres and their codes are as follows.

| <u>Test Centre</u> | <u>Code No.</u> | <u>Test Centre</u> | <u>Code No.</u> |
|---------------------------|------------------------|---------------------------|------------------------|
| Bangalore | 1 | Jodhpur | 7 |
| Chandigarh | 2 | Jorhat | 8 |
| Coimbatore | 3 | Kolkata | 9 |
| Dehradun | 4 | Lucknow | 10 |
| Delhi | 5 | Ranchi | 11 |
| Jabalpur | 6 | Shimla | 12 |

Production of original certificates and mark sheet at the time of admission is an essential requirement which is not relaxable in any case under any circumstances. If any information submitted by the candidate is found to be false at any stage during his/her study at FRI University, his/her admission shall be cancelled.

- ❖ The minimum qualifying marks for allowing candidate to appear in the written test are 50 percent in aggregate at B.Sc. level/M.Sc. level prescribed for admission to the different courses in respect of general category candidates including physically handicapped, in-service candidates and foreign nationals and 45 percent in aggregate in respect of SC/ST candidates.
- ❖ Candidates selected for written test based on the academic and other requirements will be sent the admit card through e-mail/surface mail. In case of admission to the M.Sc. courses the aggregate marks of all the three science subjects will only be computed for ascertaining the 50% qualifying marks in respect of general candidate and 45% in respect of SC/ST candidates. The marks of other than Science subjects and aggregate marks of honours subject shall not be considered in any case for ascertaining the qualifying marks for appearing in the admission test.

❖ In case there is any change in the date of examination for some unforeseen reasons, the final date will be indicated in the admit card.

ANNOUNCEMENT OF RESULTS & ADMISSION

- ❖ A merit list of candidates including a waiting list will be formed for each course on the basis of aggregate marks secured in the written test. Candidates will be selected in order of merit in all the categories. The result of the exam will be declared on the website <http://friuniversity.icfre.gov.in/www.icfre.gov.in>. **Date of first counseling is 8th July 2016 and date of second counseling is 12th July 2016. The candidates will be suitably advised before they come for counseling.**
- ❖ The selected candidates will have to pay the prescribed fees and join the course by the due date notified. The fee has to be paid at the time of counseling otherwise the seat will be offered to the next candidate.
- ❖ If a selected candidate does not join by the prescribed date or if no extension has been asked for and **granted** by the University the admission shall stand cancelled automatically and the seat shall be offered to the candidate in the merit/waiting list.

Documents in original to be produced by the candidate at the time of counselling:

1. Transfer Certificate
2. Migration Certificate, if passed from University (to be submitted not later than 90 days of admission)
3. High School Certificate/equivalent Certificate and Mark sheet.

-
-
4. Intermediate Certificate/equivalent Certificate and Mark sheet.
 5. B.Sc. degree and Mark sheet of all the three years.
 6. M.Sc. degree and Mark sheet.
 7. Admission Test admit card issued from this office.
 8. SC/ST certificate on the basis of which reservation is claimed.
 9. Physically Handicapped certificate from Civil Surgeon/C.M.O.
- ❖ *The candidates called for admission have to produce original certificates, mark sheet etc. before the payment of fees. However in cases where the original mark sheet indicates clearly that the candidate have passed the qualifying examination prescribed for admission he/she be admitted on the condition that he/she shall produce the original degree / provisional degree within one month failing which his / her admission is liable to be cancelled. There can be no appeal to any authority if the candidate fails to produce the original documents at the time of admission.*
 - ❖ In case equal marks in written test, the following criteria shall be adopted for taking admission in the course concerned:-
 - i) Preference will be given to the candidate who has higher percentage of aggregate marks in the qualifying examination.
 - ii) In case the candidates have equal percentage of aggregate marks in qualifying examination then the candidate higher % in graduation will be given preference.

PLACEMENTS

FRI University provides assistance in placement of deserving students. Various industries/ organizations visit the campus for campus interviews. On an average 50% of the students get placements through the campus interviews. However, in case of M.Sc. Wood Science & Technology the placement is 100% in general.

SCHOLARSHIP

FRI (Deemed) University provides merit scholarship to the topper students in each course. The scholarship may be upto Rs.11,000/- per semester and is awarded separately for each semester depending on the result of the previous semester. For the purpose of award of scholarship in the first semester the result of the entrance test is considered and the topper in general category and SC/ST category are awarded the scholarship in each course. However general category candidate must score minimum 50% marks and SC/ST must score 30% marks for obtaining the scholarship.

GENERAL

- a) Candidate who satisfies the above eligibility requirements may apply for admission test on the prescribed application form for any of the courses mentioning the name of the course with its Code No.
- b) The category to which the applicant belongs once mentioned on the form is final and no subsequent change shall be allowed. Boxes requiring indication of category, if left, blank will be treated as indicating General Category.
- c) Application forms of candidates, who have submitted forged/fake certificates or adopted fraudulent means, shall be rejected without any reference to the candidate. Further, such candidates are liable to be prosecuted and shall be debarred from appearing in any subsequent Admission Test conducted by FRI, University.
- d) Candidates are allowed to appear in the Admission Tests provisionally subject to the final decision of equivalence of degrees/certificates of qualifying examination at the time of admission in the respective courses.
- e) *Mere appearance in the admission test will not entitle a candidate to be considered for admission to the course unless he/she fulfills the eligibility conditions. Applicants must fully satisfy themselves about their eligibility as prescribed above, before filling in the application form.*
- f) No candidate shall be allowed to appear in the Admission Test without a valid admit card issued by the office of the Registrar, FRI (Deemed) University.
- g) The **Admission Test will be held on 08th May, 2016.** Date, time and venue for test will be indicated on the admit card.
- h) In all matters relating to the Admission Test, the decision of Registrar, FRI (Deemed) University shall be final and binding.
- i) No scrutiny or revaluation of the answer book of the Admission Test shall be allowed on any grounds.
- j) The candidate who wants to apply for more than one course may do so but he/she is required to fill up **separate form and fee for each course** and indicate the same in prescribed column of the form. Test for all the courses will be the same.

CANCELLATION OF ADMISSION

REASONS FOR REJECTION OF APPLICATION FORMS

- a) Non-submission of self-attested identical recent photographs at all appropriate places. **(Xeroxed copy/copies of photographs shall not be accepted.).**

-
-
- b) Lack of signature of the candidate at any of the appropriate place.
 - c) Submission of application form by a candidate after erasing the entries made earlier by another candidate.

FRI (Deemed) University has the right to cancel, at any stage, the admission of a candidate who is admitted to a course to which he/she is not entitled, being unqualified or ineligible in accordance with the rules and regulations in force.

INSTRUCTIONS FOR WRITTEN TEST

- a) There will be an objective type written test of three hours with questions grouped under the following four sections:
 - I.** Basic Sciences including Social Science **(100 questions)**
 - II.** Arithmetic and Quantitative abilities, Computational ability, Quantitative reasoning, Interpretation of Tables, Graphs, etc. **(40 questions)**
 - III.** General Knowledge and Current Affairs **(30 questions)**
 - IV.** English Language, Comprehension, Vocabulary, Grammar, Idioms, etc. **(30 questions)**
- b) The candidate will check within 5 minutes of issue of the test booklet, and ensure that it contains all the pages and no question is missing. If any discrepancy is noticed the candidate must bring it to the notice of the Superintendent/Invigilator and obtain a fresh booklet.
- c) The entries in answer sheet must be made with Black/Blue ball point pen only. The options in the answers are also to be rounded with ball point pen only.
- d) The candidate will fill in all the details in the space provided for it on the front page and affix his signature before starting to answer the questions.
- e) Each question will be followed by four alternative answers. The candidate is required to select the one which he/she feels is correct answer. The detail instructions will be printed on the answer sheet. The candidate is advised to go through the instructions.
- f) **There will be negative marking for wrong answer to the extent of one-fourth ($\frac{1}{4}$) of the marks allotted to the questions.**
- g) No page from the test booklet is to be torn or removed. If candidate is found tearing any paper from the test booklet, he/she is liable to be punished for use of unfair means.
- h) Inner cover page of the Test Booklet or the blank space/pages at the end of the Test Booklet may be used for rough work.
- i) In case of any dispute it will be subject to jurisdiction of Dehra Dun court only.

SAMPLE WRITTEN TEST QUESTIONS

The set of questions given below will familiarize the candidates with the type of Questions in the F.R.I University Admission Test. These questions are only indicative of the nature of the test and it is possible that types of questions not illustrated here may appear in the test.

SECTION I : ARITHMETIC/QUANTITATIVE ABILITIES

1. One side of a rectangular field is 15 m and one of its diagonals is 17 m. The area of the field is
 - a. 150 m^2
 - b. 120 m^2
 - c. 180 m^2
 - d. 110 m^2
2. If the radius of a circle is decreased by 50%, the percentage decrease in its area will be
 - a. 25%
 - b. 50%
 - c. 33.33%
 - d. 75%
3. A man bought marbles at 3 for a rupee. How many for a rupee must he sell to gain 50%?
 - a. 1
 - b. 2
 - c. 3
 - d. None of the above
4. The sum of $(2 + 2^2 + 2^3 + 2^4 + \dots + 2^{10})$ is
 - a. 2406
 - b. 2604
 - c. 2046
 - d. 2406
5. The least number when divided by 6,7,8,9 and 12 leaves remainder 1 is
 - a. 505
 - b. 501
 - c. 404
 - d. 303
6. The quotient of $0.0204 \div 17$ is
 - a. 0.12
 - b. 0.012
 - c. 1.2
 - d. 0.0012
7. The value of $2.5 \div 0.0005$ is
 - a. 500
 - b. 5000
 - c. 50
 - d. 50000

-
-
8. The value of $18800 \div 470 \div 20$ is
- 1
 - 2
 - 3
 - 4
9. An employer pays Rs. 20 for each day a worker works, and forfeits Rs. 3 for each day he is idle. At the end of 60 days, a worker gets Rs. 280. The number of days the worker remain idle is
- 30
 - 20
 - 10
 - 40
10. The value of $5004 \div 139 - 6$ is
- 30
 - 36
 - 24
 - 44
11. If 30 people are made to stand in a column, 16 columns could be formed. If 24 people are made to stand in a column, the number of columns could be formed is
- 28
 - 24
 - 20
 - 32S
12. If $\sqrt{2} = 1.4142$, the value of $\sqrt{2}/(2+\sqrt{2})$ is
- 2.4142
 - 0.4142
 - 1.4142
 - 1.732
13. The least number by which 4320 be multiplied to obtain a number which is a perfect cube is
- 25
 - 75
 - 40
 - 50
14. The cube root of 2744 is
- 14
 - 28
 - 56
 - 14

-
-
15. The average of first 30 natural numbers is
- 20.5
 - 15.5
 - 25.5
 - 18.5
16. Two numbers differ by 5. If their product is 336, their sum is
- 22
 - 27
 - 56
 - 37
17. The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, the elder one is
- 22 years
 - 30 years
 - 35 years
 - 40 years
18. The value of $(1000)^7 \div 10^{18}$ is
- 10000
 - 100
 - 10
 - 1000
19. If $5^a = 3125$, the value of $5^{(a-3)}$ is:
- 5
 - 25
 - 125
 - 625
20. 28% of 450 + 45% of 280 is
- 252
 - 522
 - 248
 - 268
21. $1/2$ is what percent of $1/3$?
- 50%
 - 150%
 - 200%
 - 25%

-
-
22. The value of a machine depreciates at the rate of 10% pr annum. If its present value is Rs. 1,62,000, its worth after 2 years will be
- a. Rs. 132210
 - b. Rs. 123120
 - c. Rs. 122310
 - d. Rs. 131220
23. In an examination, 35% of total students failed in Physics, 45% in Chemistry and 20% in both. The percentage of those who passed in both is
- a. 20
 - b. 30
 - c. 40
 - d. 35
24. If the cost price is 96% of the selling price, the profit percent is
- a. $25/6$
 - b. $24/9$
 - c. $22/9$
 - d. $25/7$
25. The mean proportional between 0.08 and 0.18 is
- a. 0.21
 - b. 0.23
 - c. 0.15
 - d. 0.12
26. Divide 672 in the ratio 5:3
- a. 420, 252
 - b. 260, 412
 - c. 312, 360
 - d. None of the above
27. A can cover a certain distance in 1 hour 2 minutes by covering two-third of the distance at 4 kmph and the rest at 5 kmph. The total distance is
- a. 4 km
 - b. 6 km
 - c. 8 km
 - d. 10 km
28. A train, 110 m long, is moving at a speed of 132 kmph. The time it will take to cross a railway platform 165 m long is
- a. 6.5 seconds
 - b. 7 seconds
 - c. 7.5 seconds
 - d. 8 seconds
-
-

-
-
29. A man can row 40 km upstream and 55 km downstream in 13 hours. He can also row 30 km upstream and 44 km downstream in 10 hours. The speed of the man in still water is
- 5 kmph
 - 7 kmph
 - 9 kmph
 - 8 kmph
30. The ratio in which rice at Rs. 9.30 per kg be mixed with rice at Rs. 10.8 per kg to give a mixture worth Rs. 10.00 per kg is
- 7:6
 - 8:7
 - 5:3
 - 9:7
31. A sum at 13.5% simple interest per annum amounts to Rs. 2502.5 after 4 years. The sum is
- Rs. 1625
 - Rs. 1265
 - Rs. 1350
 - Rs. 1200
32. The sum which will yield a compound interest of Rs. 2522 in 9 months at 20% per annum compounded quarterly is
- Rs. 18000
 - Rs. 20000
 - Rs. 16000
 - Rs. 12000
33. The value of $\log_2 16$ is
- 2
 - 4
 - 6
 - 8
34. The diagonal of a rectangle is 17 cm and perimeter is 46 cm. The area of the rectangle is
- 120 cm^2
 - 140 cm^2
 - 160 cm^2
 - 200 cm^2
35. The diagonals of two squares are in the ratio 2:5. The ratio of their areas is
- 1:4
 - 2:5
 - 4:25
 - 1:3
-
-

-
-
36. The length of the altitude of an equilateral triangle of side $3\sqrt{3}$ cm is
- 4.5 cm
 - 5.6 cm
 - 6.75 cm
 - 4.25 cm
37. If each edge of a cube is increased by 50%, the percentage increase in its surface area will be
- 100%
 - 75%
 - 125%
 - 150%
38. A can run 1 km in 3 minutes 10 seconds. B can cover the same distance in 3 minutes 20 seconds. The distance by which can A beat B is
- 100 m
 - 75 m
 - 25 m
 - 50 m
39. The number of ways in which 5 members comprising 3 men and 2 women can be selected from 6 men and 5 women is
- 150
 - 200
 - 250
 - 75
40. A ladder 19 metres long is leaning against a wall and is making an angle of 60° with the ground. The distance of the foot of the ladder from the wall is
- 9.0 metres
 - 8.8 metres
 - 7.6 metres
 - 9.5 metres

SECTION II: BASIC SCIENCES

41. The capability of nitrogen-fixation by certain bacteria has been traced to a set of genes, called the
- | | |
|---------------------|-------------------------|
| (a) Recessive genes | (b) Complementary genes |
| (c) Lethal genes | (d) Nif genes |
42. Abscission of leaves is affected by the formation of an abscission zone
- | | |
|--------------------------------|--------------------------------------|
| (a) At the base of the petiole | (b) At the tip of the leaf primodium |
| (c) At the base of the veins | (d) At the abaxial side of the leaf |

-
43. The wall of parenchyma is composed of
 (a) Suberin (b) Cutin (c) Calcium pectate (d) Calcium phosphate
44. The presence of which of the following substances in the thickened walls of collenchyma endow it with the capacity to expand and give a tensile strength to the organs ?
 (a) Cellulose and glucose (b) Glucose and suberin
 (c) Lignin and Pectin (d) Cellulose and pectin
45. DNA is
 (a) Single stranded (b) Double stranded
 (c) Both (a) and (b) (d) None of the above
46. As a carrier of genetic material DNA exhibits which of the following functions
 (a) Heterocatalytic (b) Autocatalytic
 (c) Both (a) and (b) (d) None of the above
47. Hairy seeds are common in
 (a) Mango (b) Calotropis (c) Rose (d) Pea
48. Choose the parasitic alga among the following
 (a) Chlamydomonas (b) Nostoc (c) Cephaleuros (d) Ulothrix
49. Each grass flower is usually called a
 (a) Glume (b) Awn (c) Floret (d) None of the above
50. Match the following
- | | |
|-----------------------|---|
| I. Oenothera type | A. Monosporic embryo sac |
| II. Allium type | B. Bisporic embryo sac |
| III. Fritillaria type | C. Tetrasporic embryo sac |
| IV. Endymion type | D. Embryo sac formed by the micropylar dyad |
-
- | | A | B | C | D |
|-----|-----|-----|-----|----|
| (a) | I | II | III | IV |
| (b) | III | I | IV | II |
| (c) | III | IV | I | II |
| (d) | II | III | IV | I |
51. Which of the following is not a pest of Cotton
 (a) Earias vitella (b) Pectinophora (c) Sesamia (d) Dysdercus
52. Sharbati Sonora is
 (a) Suitable for late sowings
 (b) Early maturing and has better grain colour
 (c) An amber grained mutant developed by IARI from sonara 64
 (d) All of the above
-

-
-
53. Which of the following is the most resistant wheat species which carries cytoplasmic male sterility?
(a) *T. timopheevii* (b) *T. persicum*
(c) *T. monococcum* (d) None of the above
54. Production of normal organ at abnormal place is called
(a) Heterotrophy (b) Mosaic
(c) Prolepsy (d) None of the above
55. The removal of stamens from the female parent before they burst and have their pollens is called
(a) Pollination (b) Fertilization (c) Emasculation (d) Blebbing
56. When new plants are introduced into a locality with different climate then, their adjustment with the changed climate is known as
(a) Segregation (b) Vernalization
(c) Acclimatization (d) None of the above
57. Which of the following elements are designated as major or primary nutrients ?
(a) Nitrogen, phosphorus, potassium (b) Nitrogen, calcium, magnesium
(c) Calcium, magnesium, sulphur (d) Nitrogen, magnesium, sulphur
58. The kind and amount of fertilizers to be applied to the soil are determined considering which of the following points?
(a) Kinds of crops to be given - particularly its economic value, nutrient removal and absorbing ability
(b) Chemical condition of soil in respect of total nutrients and available nutrients
(c) Physical state of the soil, especially as to moisture content and aeration
(d) All of the above
59. The major techniques used in wheat breeding are
(a) Introduction (b) Selection (c) Hybridization (d) All of the above
60. Crops usually take nitrogen from the soil in the form of
(a) Nitrite and ammonia (b) Nitrate and amino acid
(c) Nitric acid and ammonia (d) Nitrate and ammonia
61. The lock and key hypothesis of enzyme illustrates which of the following facts ?
(a) Enzymes do not have a rigid structure
(b) Enzymes undergo conformational changes
(c) Enzymes show induced fit mechanism
(d) All of the above
62. The theory of inheritance of acquired characters was propounded by
(a) Darwin (b) Linnaeus (c) Lamarck (d) George Cuvier

-
-
63. The blood groups found in apes but not in monkeys are
(a) A and B (b) AB (c) O and B (d) AB and O
64. In geological time scale the periods are divided into
(a) Eras (b) Realms (c) Epochs (d) Spans
65. Which of the following transmits spirochaetosis
(a) Psoroptes (b) Boophilus (c) Argas (d) Mangemite
66. Which of the following diseases is caused by Aedes
(a) Malaria (b) Filariasis (c) Yellow fever (d) Terstian fever
67. Kangaroo belongs to the order
(a) Chiroptera (b) Marsupialia (c) Monotremata (d) Edentata
68. The conduction of a nerve impulse is a
(a) Bio-chemical phenomenon (b) Electro-chemical phenomenon
(c) Physical phenomenon (d) Bio-Physiological phenomenon
69. During diastole
(a) Blood enters the heart (b) Blood leaves the heart
(c) Blood enters the lungs (d) Blood leaves the ventricle
70. Fertilized egg divides by the process of
(a) Cleavage (b) Invagination (c) Oogenesis (d) Gastrulation
71. The amount of DNA is measured by the micro-unit of the weight known as
(a) Picogram (b) Microgram (c) Milligram (d) Nannogram
72. The DBH in a sloping ground is measured from
(a) downhill side (b) uphill side (c) level side (d) none of these
73. If “t” is thickness of bark, “G” is girth over bark, “g” is girth under bark, then DOB can be converted into DUB using the formula
(a) $g = G - 2\pi / t$ (b) $g = G + 2\pi t$ (c) $g = G - 2\pi t$ (d) none of these
74. Bole height is defined as
(a) distance between the ground level and the crown point
(b) height of the bole
(c) height of the tree above DBH
(d) none of these
75. The main advantage of using Smythies hypsometer for measuring heights of trees is
(a) the vertical distance need not be measured (b) it is easily available
(c) the horizontal distance need not be measured (d) None of these
-
-

-
76. Form factor is defined as
- the ratio of the volume of the tree to the volume of a cylinder having the same cross section and length multiplied by length of the tree
 - the ratio of the volume of a cylinder to the volume of the tree having the same cross section and length
 - the ratio of the volume of the tree to the volume of a cylinder having the same cross section and length
 - None of these
77. If form height is represented by “F”, volume by “V”, basal area by “A” and species by “S” is then Form height is given by
- $F = V/A * S$
 - $F = V/A$
 - $F = V/S * A$
 - None of these
78. In India the most common formula used to calculate the volume of a log is Quarter girth formula. For a log with length “L” and girth “G” at the middle, according to this formula volume will be
- $G / 4^2 * L$
 - $G^2 / 16 * L$
 - $G / 4 * L^2$
 - None of these
79. Absolute form quotient is given by
- Ratio of average diameter of a stem to the DBH
 - Ratio of diameter of a stem at DBH to the one half its height above the breast height
 - Ratio of diameter of a stem at one half its height above the breast height to the DBH
 - None of these
80. If “P” is increment percent, “D” is diameter Under Bark at the point of boring and “n” is number of rings in the outermost cm of the radius then, according to Schneider’s formula increment percent is given by
- $P = 200 / nD$
 - $P = 400 / nD$
 - $P = 400n / D$
 - None of these

SECTION III: ENGLISH LANGUAGE

81-85. Choose the word opposite in meaning:

- Stealth
 - open
 - clandestine
 - sneaking
 - none of these
- Peevish
 - touchy
 - cordial
 - irritable
 - none of these
- Palatable
 - savoury
 - delicious
 - nauseous
 - none of these
- Moderate
 - exaggerate
 - temperate
 - calm
 - none of these

85. Ignorant
a) illiterate b) erudite c) uncultured d) none of these

86-90 Choose the word similar in meaning:

86. Deride
a) ridicule b) honour c) dismount d) none of these

87. Enthusiasm
a) happiness b) apathy c) fanaticism d) none of these

88. Placid
a) martial b) tranquility c) bellicose d) none of these

89. Rambling
a) wandering b) regular c) wariness d) none of these

90. Solemn
a) popular b) joyous c) religious d) none of these

91-100 Fill in the blanks :

91. We _____ be happy to see you again.
a) shall b) will c) am d) none of these

92. I _____ do as I like.
a) shall b) will c) can d) none of these

93. The ticket _____ be given to you by the manager.
a) will b) shall c) is d) none of these

94. Love not sleep _____ you should come to poverty.
a) is b) lest c) or d) none of these

95. He waited _____ the train arrived.
a) for b) until c) till d) none of these

96. Blessed are the merciful, _____ they shall obtain mercy.
a) because b) as c) for d) none of these

97. She congratulated me _____ my success.
a) for b) on c) at d) none of these

-
-
98. We must guard ourselves _____ vices.
a) against b) for c) to d) none of these
99. We are hopeful _____ our success.
a) on b) for c) of d) none of these
100. Hard work is indispensable _____ success.
a) to b) for c) on d) none of these
- 101-110 Write the correct answer:
101. The lawyer gladly _____ to his request.
a) asceded b) acceded c) exceeded d) none of these
102. My throat is _____ by cold.
a) affected b) effected c) eficated d) none of these
103. Your statements are good and quite _____.
a) blind b) opposite c) apposite d) none of these.
104. His conscience made him _____ his guilt.
a) agree b) admit c) confess d) none of these
105. _____ people often get deceived.
a) Credulous b) credible c) creditable d) none of these
106. All of his friends _____ to help him.
a) Didn't b) denied c) refused d) none of these
107. Our journey down the _____ was easy
a) decent b) decsent c) descent d) none of these
108. The lambs are _____ on the field.
a) gambling b) gamboling c) gambolling d) none of these
109. Large _____ of farmers invaded Paris.
a) herdes b) hordes c) hoardes d) none of these
110. The _____ treatment of prisoners is now advocated by all.
a) human b) humane c) humanely d) none of these

SECTION IV: GENERAL KNOWLEDGE/CURRENT AFFAIRS

111. Which of the following is an extra-constitutional and non-statutory body –
- Finance Commission
 - Planning Commission
 - Union Public Service Commission
 - Election Commission

-
-
112. Who was the first Governor General of Bengal –
- Robert Clive
 - Warren Hastings
 - William Bentinck
 - Cornwallis
113. The Draft of the Five –year plans in India is approved by the –
- National Development Council
 - Planning Commission
 - National Productivity Council
 - Ministry of Finance
114. The Copenhagen Summit for Climate Change 2009 saw –
- An agreement among the participants over CO₂ emission
 - Unanimity of views among the development and BASIC bloc of countries
 - Rise of African countries as a bloc
 - acceptance of the US as a leader to attain the objective of the Copenhagen Summit
115. Ms. Reena Kaushal Dharmshaktu is the first India women –
- to reach Antarctica
 - Pilot induced in Indian Air Force
 - to ski to the South Pole
 - to win the Gold medal in Asian Boxing Championship
116. “Irani Trophy” is associated with which of the following games –
- Badminton
 - Golf
 - Hockey
 - Football
117. Which of the following awards is given for the excellence in the field of literature in India –
- Arjun Award
 - Bharatiya Jnanpith Award
 - Dronacharya award
 - Tansen Sanman
118. Which of the following has written the book “ Between the Lines”–
- V.S. Naipal
 - Prem Bhatia
 - Kuldeep Nayyar
 - C. Rangarajan
119. Mr. Kurmanbek Bakiev has taken over as President of –
- Honduras
 - Lithuania
 - Venezuela
 - Kyrgyzstan
120. The first to have trade relations with India were the –
- Dutch
 - English
 - Portuguese
 - French
121. Jesse Owens Global Award is given in the field of –
- Literature
 - Journalism
 - Science
 - Sports
-
-

-
-
122. The rising of the evening star indicate the –
a. South Pole b. North Pole c. East d. West
123. Who among the following transferred his capital from Delhi to Devagiri –
a. Iltutmish
b. Ghiasuddin Balban
c. Ala-uddin Khilji
d. Muhammad bin Tughlaq
124. Which is the smallest gland in human body –
a. Liver b. Thyroid c. Pituitary d. Salivary Glands
125. Mahavira was born in the royal family of the –
a. Sakyas b. Kshatriyas c. Licchavis d. Satavahanas
126. Rome is situated on the banks of the river –
a. Vistula b. Avon c. Rhine d. Tiber
127. Where is the famous Shore Temple located –
a. Puri b. Visakhapatnam c. Mamallapuram d. Chennai
128. Which amongst the following statement is /are correct about the INS Arihant?
1) It is India 's first nuclear submarine , 2) It is India's first aircraft carrier
3) It has been indigenously built in India
a. 1 only b. 2 and 3 only c. 1 and 3 only d. 2 only
129. Which one of the following States does not figure in the ruling of the Krishna Water Disputes Tribunal -II headed by justice Brijesh Kumar –
a. Andhra Pradesh b. Kerala c. Karnataka d. Maharashtra
130. Suez Canal connects –
a. Pacific Ocean and Atlantic Ocean
b. Mediterranean Sea and Red Sea
c. Lake Huron and Lake Erie
d. Lake Erie and Lake Ontario
131. Which of the following has the highest calorific value –
a. Carbohydrates b. Fats c. Proteins d. Vitamins
132. The 2010 World Cup Football Tournament was held in –
a. France b. China c. Germany d. South Africa
133. How many permanent Members are there in the Security Council –
a. Three b. Five c. Six d. Four
134. Who among the following was the first Indian to set foot on Antarctica –
a. R.R. Sahai b. G.S. Sirohi c. M.H. Moos d. S.Z. Quasim
-
-

-
-
135. Name of the Film chosen to be India's official entry at the 2011 Oscar Awards in the Best Foreign Film Category –
a. Peepli Live b. Three Idiots c. Ghajani d. Paa
136. Who won the 2010 US Open Men's Singles title –
a. Rafael Nadal b. Novak Djokovic c. Pete Sampras d. Leander Paes
137. Who won 2010 Nobel Peace Prize –
a. Liu Xiaobo b. Dale Mortensen c. Andre Geim d. Wei Zhang
138. Who won Rajiv Gandhi Khel Ratna award in 2010 –
a. Saina Nehwal b. Virendra Sehwal c. Sushil Kumar d. Sachin Tendulkar
139. According to Karl Marx attainment of communism is possible only after –
a. resolution of tension between the leader and led
b. completion of permanent revolution
c. emergence of exploitation –free society
d. disappearance of difference between urban and rural areas
140. Xerophytes thrive in –
a. hot and arid condition
b. cool and wet condition
c. hot and wet condition
d. cool and arid condition

SECTION V: SOCIAL SCIENCE

141. The Council of Ministers has no option but to resign if it loses the confidence of-
a. Parliament
b. Either House of Parliament
c. Rajya Sabha
d. Lok Sabha
142. To whom does the President address his letter of resignation?
a. The Prime Minister b. The Vice President c. The Speaker d. The Chief Justice
143. Commonwealth countries are those that were under subjugation of-
a. France b. Japan c. Britain d. Germany
144. The state of Jammu and Kashmir was accorded special status under-
a. Article 69 of the constitution
b. Article 370 of the constitution
c. Article 71 of the constitution
d. All of the above articles
145. Which Union Territory has a Legislature, Chief Minister and Ministers?
a. Delhi b. Chandigarh c. Pondicherry d. None of these

-
-
146. The science of map-making and charts is also known as:
a. Geomorphology b. Geology c. Oceanography d. None of these
147. The temperature at the core of the earth is about
a. 20,000⁰C b. 2000⁰C c. 2,00,000⁰C d. 26,000⁰C
148. Which one of the following is the most densely populated country of the world?
a. China b. India c. Singapore d. Canada
149. Agriculture probably began in about
a. 4000 B.C. b. 7000 B.C. c. 2000 B.C. d. 100 B.C.
150. Which country is known for its highly developed dairy industry?
a. New Zealand b. Denmark c. Tasmania d. Italy
151. Which straits divides Europe from Africa?
a. Bosphorus b. Gibraltar c. Bering d. Dover
152. Which of the following Indian islands lies between India and Sri Lanka?
a. Elephanta b. Nicobar c. Rameshwaram d. Salsette
153. Which of the following mountains are the oldest according to geological history?
a. Nilgiris b. Satpura Range c. Vindhyas d. Aravalli
154. Ganga beyond Farakka, when it enters Bangladesh, is known as-
a. Padma b. Meghna c. Hooghly d. Swarn Ganga
155. Among the following cities, which one is at the high altitude above mean sea level?
a. Bangalore b. Delhi c. Jodhpur d. Nagpur
156. Which of the following is the Highest Mountain Range?
a. Annapurna b. Kunchenjunga c. Himalayas d. Kilimanjaro
157. Name of the Largest Church in World?
a. Basilica of St. Peters in Vatican City
b. Liverpool cathedral in Liverpool, U.K.
c. Milan cathedral Milan Italy
d. None of these
158. Which of the following is the Oldest National Flag of the world?
a. USA b. India c. China d. Denmark
159. Which is called, Rooftop of the World?
a. Cheerapunji b. Bolivia c. Tibet d. None of these
160. Jammu and Kashmir was acceded to India on:
a. 26th January 1950 b. 15th August 1947 c. 26th October 1947 d. None of these
-
-

SECTION VI: PHYSICAL SCIENCES

161. Optical fiber works on the principle of-
- Total internal reflection
 - Refraction
 - Scattering
 - Interference
162. Screw is an example of
- Pulley
 - Liver
 - Inclined plane
 - None of the above
163. While walking on ice, one should take small steps to avoid slipping. This is because smaller steps
- Larger friction
 - Smaller friction
 - Large normal friction
 - Smaller normal friction
163. If the acceleration due to gravity at the surface of the earth is g , the work done in slowly lifting a body of mass m from the earth's surface to a height R equal to the radius of the earth is-
- $mgR/2$
 - $2mgR/2$
 - mgR
 - $mgR/4$
164. Which of the following physical quantity is dimensionless-
- Angle
 - Strain
 - Specific gravity
 - All of these
165. The atmosphere is held to the earth by-
- Winds
 - Gravity
 - Clouds
 - The rotation of the earth.
166. A light and a heavy body have equal momentum. Which has greater kinetic energy?
- The light body
 - Both have equal kinetic energy
 - The heavy body
 - Data given is incomplete
167. If units of force and length are doubled, the unit of energy will become-
- Half
 - Two times
 - Four times
 - Eight times
168. A child swinging on a swing in sitting position, stands up, then the time period of the swing will-
- Increase
 - Decrease
 - Remain same
 - Increase if the child is long and decrease if the child is short

-
-
169. An engine is approaching a stationary observer. It sounds a whistle. Indicate whether the observer hears-
- The same frequency
 - A slight higher frequency
 - A slightly lower frequency
 - The same frequency but of different quality
170. While shaking hand, What type of force do we exert?
- Nuclear
 - Gravitational
 - Weak
 - Electromagnetic
171. In an elastic collision
- The initial kinetic energy is equal to the final kinetic energy
 - The final kinetic is less than the initial kinetic energy
 - The kinetic energy remains constant
 - The kinetic energy first increases then decreases
172. Soldering of two metals is possible because of the property of:
- Viscosity
 - Surface tension
 - Osmosis
 - Cohesion
173. Endoscopy, a techniques used to explore the stomach or other inner parts of the body, based on the phenomenon
- Total internal reflection
 - Interferences
 - Diffraction
 - Polarization
174. Consider the following statements: An ordinary bulb has a rather short life because the
- Filament wire is not uniform
 - Bulb cannot be evacuated completely
 - Wire supporting the filament melt at high temperatures
- Which of the above statements are correct?
- i and iii
 - ii and iii
 - i and ii
 - i, ii and iii
175. The charge of the electron was found by
- J.J. Thomson
 - Millikan
 - Faraday
 - Goldstein
176. Epsom salt is
- $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
 - $\text{CaSO}_4 \cdot \text{H}_2\text{O}$
 - $\text{MgSO}_4 \cdot 2\text{H}_2\text{O}$
 - $\text{BaSO}_4 \cdot 2\text{H}_2\text{O}$
177. Electromagnetic radiation with maximum wavelength is
- Infrared
 - Radio waves
 - X-rays
 - Ultraviolet
178. Laughing gas is prepared by heating:
- NH_4CL
 - NH_4NO_3
 - $\text{NH}_4\text{CL} + \text{NaNO}_3$
 - $(\text{NH}_4)_2\text{SO}_4$
-
-

-
-
179. In any nuclear reaction the reactants and the resultants must always be in conformity with the law of conservation of
- Energy alone
 - Charge number alone
 - Mass number alone
 - Both charge and mass numbers
180. Joule-Thomson expansion is:
- Isobaric
 - Isoenthalpic
 - Isothermal
 - None of these
181. The distribution law is applied for the distribution of acetic acid between:
- Water and ethyl alcohol
 - Water and amyl alcohol
 - Water and benzene
 - Water and liquor ammonia
182. Phosphine may be produced by adding to water some:
- Ca_3P_2
 - P_4O_{10}
 - P_4O_6
 - HPO_3
183. The following four colourless salt solutions are placed in separate test tubes and a strip of copper is placed in each. Which solution finally turns blue?
- KNO_3
 - AgNO_3
 - $\text{Zn}(\text{NO}_3)_2$
 - ZnSO_4
184. Glass is soluble in solutions of:
- HNO_3
 - HF
 - HCl
 - H_2CO_3
185. Aniline is purified by:
- Steam distillation
 - Simple distillation
 - Vacuum distillation
 - Extraction with a solvent
186. Which one of the following polymers is widely used for making bullet proof material
- Polyvinyl chloride
 - Polyamides
 - Polyethylene
 - Polycarbonates
187. The offending substance in the liquor tragedies leading to blindness etc is
- Ethyl alcohol
 - Amyl alcohol
 - Benzyl alcohol
 - Methyl alcohol
188. Silver halides are used in photographic plates. The chemical reaction is by influence of
- Contact
 - Heat
 - Light
 - Water
189. Soaps are used in washing because
- It lowers the surface tension of water
 - It increases the surface tension of water
 - Increases the viscosity of water
 - Decreases the viscosity of water
-
-

-
-
190. Decaying vegetation produces organic acids, which cause a breakdown of minerals. This is
a. Physical weathering
b. Chemical weathering
c. Both a and b
d. Chemical erosion
191. A V – shaped valley is a feature produced by
a. Youthful river b. Mature river c. Old river d. All of the above
192. Which of the following features may occur when lava cools at the surface?
a. Batholith b. Laccolith c. Basalt d. Plateau
193. Which of the following is not a igneous rock?
a. Rhyolite b. Dolerite c. Gabbro d. Granulite
194. Which of the following is the continent with highest mean elevation in the World?
a. Antarctica b. North America c. Asia d. South America
195. In which of the following minerals, aluminium is not present?
a. Cryolite b. Mica c. Fledspar d. Fluorspar
196. Which one of the following types of coal contains a higher percentage of carbon than the rest?
a. Bituminous coal b. Lignite c. Peat d. Anthracite
197. Which of the following period do not belong to Palaeozoic era?
a. Oligocene b. Permian c. Carboniferous d. Cambrian
198. Which of the following Volcano is not in Indonesia
a. Cameroon Mt b. Rindjani c. Semeru d. Slamet
199. Cinnabar is an ore of:
a. Pb b. Hg c. Cu d. Zn

DESCRIPTION OF COURSES OFFERED

M.Sc. Forestry

India has been bestowed by nature with a great diversity of flora and fauna. Advancement of technology, explosion of population and other attitudinal refinements in environmental and ecological consciousness have presented forestry workers with new challenges in their approach towards forest management. Trained manpower and awareness about the importance of forestry are the primary prerequisites of proper management of forests in the country.

The need for opening the forestry education found its expression in National Forest Policy 1988 wherein clear support for starting forestry education in Universities was enunciated.

In pursuit of the declared policy of the Govt. of India and to give support to forest education. Forest Research Institute, Dehra Dun has been granted in 1991, the status of

“Deemed University” by the University Grants Commission. Since then the Forest Research Institute, Deemed University, Dehra Dun (FRI, DU), has been actively involved in promoting formal forestry education. FRI University has started regular M.Sc. (Forestry) from the academic session 1996-97. Subjects being covered in the course are as under:-

Ist Semester

1. Soil Science
2. Biology
3. Basic Mathematics
4. Silviculture-I
5. Forest Ecology & Environment
6. Forest Mensuration
7. Forest Protection (General, Pathology & Entomology)
8. Silviculture-II

IInd Semester

1. Forest Law & Policy
2. Forest Management
3. Watershed Management
4. Eco-Development and Wildlife Management
5. Silvicultural Systems
6. Statistics & Research Methods
7. People & Forests
8. Computer Application

IIIrd Semester

1. Range Management
2. Natural Resource Management
3. Social Forestry
4. Forest Economics-I
5. Forest Resource Utilization-I
6. Forest Resource Utilization-II

IVth Semester

1. Forest Economics -II
2. Elective Paper
3. Project work/Thesis

M.Sc. Wood Science & Technology

Efficient utilization of the wood resources for wood based products calls for an ever widening range of technical skills, which are miserably lacking in the country. Presently the wood based industries as well as the procurement and inspection staff of the wood consuming organizations are mostly manned by semi-skilled personnel or fresh graduates not possessing knowledge of the wood properties or processes, depending largely upon in-service training. This

knowledge is also not taught in requisite detail in any of the engineering courses in the country. Even for research jobs in wood science and technology pure science graduates/post graduates are recruited, who learn wood science in service. This has resulted in wasteful utilization of valuable wood resources and slower pace of research.

Utilization trends are also significantly changing. Our forests have been overworked and felling of forests has had to be banned in many parts of the country. It has become imperative to utilize fast grown plantation woods from social and agro-forestry sources, which are more problematic than traditional forest species and need special processing procedures. New-engineered products that can be reconstituted from small girth wood or lops and tops are fast replacing traditional solid wood.

The FRI University have accordingly taken the long awaited step of instituting a 2-years M.Sc. Course in Wood Science & Technology, which no other University or Institution in the country is offering. In the past one had to go to foreign universities to take this course.

This comprehensive course deals with wood in a materials science approach as is being done for metals, plastics and other materials, besides covering the processing and manufacturing technologies of various wood products and a course on Wood Adhesives.

Instruction under the course includes, besides basic knowledge on the physics, chemistry, mechanics and engineering of wood, Wood Ultrastructure and its effect on wood properties; basics of wood Biodegradation and its prevention; special processing techniques for satisfactory utilization of fast grown plantation wood, both as direct sawn solid wood and as reconstituted engineered structural timber/products (such as, structural particle board, laminated wood, laminated veneer lumber, parallel strands lumber etc.) which have recently proved efficacious substitutes for traditional forest woods; utilization of lingo-cellulosic agri-residues for reconstituted products; and improved adhesive formulations.

The instruction work is handled by scientists of FRI, Dehradun having long experience of research. The class instruction work is adequately supplemented by laboratory work and practicals in pilot plants in the various technologies, with which the Institute is uniquely equipped. Excursions to industrial units form a part of the curriculum. The students are given a chance to take up some short duration industrial attachment and a 2-months dissertation project of industrial interest in F.R.I. laboratories or other Institutes/Industries.

The course thus fulfills the long-felt need of providing a highly qualified cadre of personnel to man the ever-increasing positions in wood based industry, wood consuming govt. as well as non-govt. organization and research Institutes in wood science and technology.

Subjects of study

Ist Semester

1. Orientation course
2. Wood Chemistry
3. Wood Physics : Paper I

-
-
4. Wood Physics : Paper II
 5. Saw Milling & Saw Doctoring
 6. Wood Anatomy: Paper I - Structure & Identification
 7. Wood Anatomy: Paper II – Wood Quality
 8. Computer Application

IIInd Semester

1. Timber Mechanics: Paper-I Strength Properties
2. Timber Mechanics: Paper-II Timber Grading
3. Timber Entomology
4. Wood Microbiology
5. Composite Wood: Paper I – Adhesives
6. Composite Wood: Paper II – Plywood
7. Wood Working
8. Wood Finishing

IIIrd Semester

1. Wood Seasoning: Paper - I
2. Wood Preservation: Paper - II
3. Wood Preservation: Paper-I
4. Wood Preservation: Paper-II
5. Composite Wood: Paper III- Reconstituted Wood
6. Composite Wood: Paper IV- Laminated Wood
7. Statistics
8. Industry Attachment & Report

IVth Semester

1. Timber Engineering
2. Products Design & Fabrication
3. Certification & Nano- technology
4. Special Wood Tech. Problem (Dissertation/Seminar)
5. Human Resource Management

M.Sc. Environment Management

Management of any production sector vis a vis management of natural resources have entered a phase of unprecedented change and uncertainty. The news of closer of one industry or other on environmental ground is not so rare as it had been some decades before. It is merely the ignorance of environmental principles, which could be blended with management principles to safeguard the environment without compromising production. One of the main reasons of failure on this front is non-availability of trained manpower in the field of environment management. Obviously this part is looked after by untrained personnel having nil or little knowledge of environment management.

So far as management of natural resources, is concerned, former paradigm, which stresses land allocation measures, maximum sustained yield principles and multiple use objectives is being rapidly replaced by new paradigm, which emphasizes “*Sustainable ecosystems*” rather than “*sustained yield*”. This new paradigm, termed *ecosystem management* focuses on management of “Whole systems” for a variety of purposes, rather than simply focusing on commodity production for a single resource.

In above background, to create trained manpower who can balance the science of production of industrial commodity and management of natural resources with the principles of environmental management; F.R.I. University Dehra Dun decided to start 2 years, course of M.Sc. Environment Management from the year 2000.

The course mainly aims for balancing science with management. The course will have 4 Semesters each one of 6 months. Followings are the course content:-

Ist Year

(Ist and IInd Semester)

1. Foundation Course in Ecology and Environmental Science.
2. Ecosystem Analysis
3. Environmental Physics and Biogeochemistry
4. Conservation Ecology
5. Environmental Impact Assessment
6. Environmental Pollution
7. Environmental Statistics
8. Restoration Ecology
9. Remote Sensing & Geographical Information Systems
10. Environmental Microbiology

IInd Year

(IIIrd and IVth Semester Course)

- Global climatic change
- Environmental Law & Sociology
- Disaster Management
- Environmental Pollution Management
- Biodiversity monitoring and management
- Natural Resource Conservation & Management
- Biostatistics & Computer Applications
- Solid Waste Management
- Forest & Climate Change
- Project work.
- Project seminar

M.Sc. Cellulose & Paper Technology

In India there are more than 800 paper mills and due to increase in paper demand some more mills are coming up. The Indian paper mills at present are facing acute shortage of trained man power. In India only few institutes are conducting the Post Graduate course in Cellulose & Paper technology. The curriculum for the course incorporates the needs of the Pulp & Paper and allied Industries.

The theoretical course shall be of four semesters and each semester of 6 months duration. The first and third semester shall be from July to December and second and fourth semester shall be from January to June. First and second semester shall be completed at FRI (Deemed) University. The third and fourth semester shall be completed at CPPRI, Saharanpur.

Practical: Exercise will be conducted based on the theoretical classes taken by the faculty for understanding the practical aspects of principles and practices.

FEES AND DEPOSITS

The fees is to be paid by a student to the Registrar, FRI (Deemed) University, Dehradun through Bank Draft payable at Dehradun only. A marginal upward revision of the fee is under active consideration of the University.

M.Sc. Courses:

i) General Seats:

Tuition fee Rs. 88,000/- payable in four equal installments of Rs.22,000/- each.

ii) Foreign National Seats:

Tuition fee 3000 US \$ payable in four equal installments of 750 US \$ each.

First installment fee will be paid at the time of admission and rest fee at the beginning of each semester.

Fee once paid will not be refunded under any circumstances.

Besides course fee they have to pay students club, sports and magazine, Library, Degree, Electricity/water, Hostel fees etc. as per schedule fixed by the Institute. The student who will be allotted hostel have to pay hostel fees as per schedule.

a) Caution Money:

Rs. 3,000/- is payable at the time of admission. The caution money will be refunded on completion of the course after making deductions, if any.

The breakup of fee chargeable from students is as follows:-

Amount in Rs.

| Sl. No. | Item | Fee Chargeable (in Rs.) |
|---------|--|----------------------------|
| | Fee to be charged only at the time of admission | |
| 1 | Misc. Fee/Sports / Cultural Fee (at the time of admission) | 2000.00 |
| 2 | Degree Fee | 200.00 |
| | Fee to be charged at the beginning of each semester | |
| 3 | Tuition Fee (per sem.) | 22,000.00 |
| 4 | Semester Exam Fee for M.Sc. courses | 500.00 |
| 5 | Hostel charges (optional) (per semester) (a) Single occupancy (b) Double occupancy | (a) 4200.00 (b) 3000.00 |
| 6 | Electricity, Water & Other General maintenance Fees (per month to be charged from the boarders only) | 1200.00 (per semester) |
| 7 | Library Fee/ Teaching aid (per sem.) | 1000.00 |
| 8 | Caution Money (Refundable) | 3000.00 |
| 9 | Late Fee | 500.00 |

Fee payable at the time of admission (with double occupancy) Rs. 32,900.00

Subsequent semester fee (with double occupancy) Rs. 28,900.00

HOSTEL RULES

Subject the general control of the Academic Council, the following Ordinances and Regulations shall regulate the maintenance of discipline among the students residing in the Hostels. The hostel facility is normally provided all the students subject to availability.

INSTITUTE HOSTELS

1. Residence

- 1.1 Students may be admitted to the Institute Hostel, according to the criteria laid down (vide Appendix – I) for the purpose and in accordance with the accommodation available for residence.
- 1.2 The Institute hostels should be totally vacated for a period of one month preferably in June, every year to enable the administration to attend to the maintenance and other associated matters of the hostels. However, if the presence of certain research students is considered essential then they may be accommodated in one hostel.

-
-
- 1.3 Students failing to secure a seat in a hostel are required to make their own arrangement and intimate to the registry address of their residences.

For the purpose of the above Regulation the term “Guardian” shall mean the legal guardian of the student, if one has been appointed or as an alternative a near relative if any, of responsible age provided that the guardian so declared shall sign a declaration of his relationship if any, with the student and shall execute a bond indicating that he shall be responsible for the good behavior of the student.

2. Disciplinary Control

- 2.1 Every student living in a hostel (city campus) will be subject to the disciplinary control of the Registrar/Warden / Dean or any officer appointed by the Director, as the case may be. The Director shall constitute a Disciplinary Committee which will deal with all matter arising out of indiscipline and misconduct in the hostels.
- 2.2 An officer appointed by the Director shall with the cooperation of warden deal with all cases of indiscipline of students.
- 2.3 So long as the students is on the role of the Institute he/she shall be subject to the disciplinary control of the Institute authorities.

3. Rules of Residence

- 3.1 Students residing in the hostel, shall not absent themselves except under condition prescribed under regulation and shall follow the rules laid down under these regulations.
- 3.2 (a) A boy boarder is required to return by 9.00 p.m unless he has taken permission of the concerned warden.
- (b) A girl boarder is required to return by 7.30 p.m (from September to February) and 8.30 p.m (from March to August) unless she has taken permission from the concerned warden.
- 3.3 No boarder shall leave the hostel of remain outside Dehra Dun when the Institute is open and course under which he has taken admission is running except with the written permission of the warden. Permission shall be given by the warden only when the student concerned has obtained leave from Course Coordinator.
- 3.4 Unless the permission of the warden has been received no boarder shall leave hostel except in an emergency. In the later case he shall inform the warden at the earliest and seek his permission.
- 3.5 Students going out on authorized tours excursion, etc, shall inform the warden in writing, stating that they have been permitted by the Course Coordinator/Dean /Director to go on such tours excursion, etc. for a specific period. The permission must be taken before they leave the hostel.

4. Extra – Curricular Activities

- 4.1 Apart from the official organizations approved by the Institute, students residing in the hostel with the permission of the Director organise Societies and Association for healthy promotion of their academic cultural, athletic and social welfare activities.
- 4.2 The Societies and Associations for promoting the academic cultural and other activities of the inmates of the hostel shall be subject to the guidance and control of the warden. On the recommendations of the warden the names of such Associations or Societies along-with their constitutions shall be forwarded to the Registrar as soon as possible for getting recognition by the Academic Council / Board of Management as the case may be.
- 4.3 For any functions in the hostel in respect of the Associations / Societies use of loudspeaker shall not be permitted.
- 4.4 Students shall not hold any meeting or organise any activity in the hostel without the written permission of the warden.
- 4.5 In all function and meeting organised in the Institute student shall maintain due decorum. Such student as are found to create disturbance or to disobey any instruction given to them shall be liable to disciplinary action as per Appendix-2

5 Accommodation of Guests

No boarder residing in hostel shall accommodate a guest in his/her room.

6 Boarder in Women's Hostel

- 6.1 Women students residing in the Women's hostel are required to return as per time given at 3.2 clause unless specially permitted by the warden.
- 6.2 Women Students residing in the Women's hostel shall be allowed to meet the visitors in the visitors room only from 5:00 p.m. to 6:30. p.m.
- 6.3 No Women student residing in the Women's hostel shall accommodate guests in her room.

7. Power of Enquiry from Students

Every Officer/Scientist and other members of the staff have the power of demanding from the students their identity card and such other information as may be desired by him/her. Students failing to provide the correct information shall be liable to disciplinary action as per Appendix-2.

8. Penalty for Violation

For any contravention of the Ordinances/Rules relating to discipline misconduct or moral turpitude the guilty students shall be liable to such punishment as is provided for in the

rules. Punishment for any omissions or commissions or for breach of discipline or any misconduct shall be awarded in accordance with the rules mentioned in Appendix-2.

- 1.1 In case of serious misconduct, the name of the students shall be entered in the conduct book maintained with the warden. If the name of the student has been entered thrice in the conduct book for misconduct the student shall be liable to expulsion from the hostel under the order of the Director.
- 1.2 Students found guilty of misconduct in the Institute are liable to be denied hostel facility.
- 1.3 For act of indiscipline and or misconduct student may be fined by the warden upto a limit of Rs. 200/-.

9 Articles Permitted/Prohibited in the room

- 9.1 Every border shall be provided at least the following articles
 - 1 Takhat/Cot (one)
 - 2 Mattress (one)
 - 3 Table (one)
 - 4 Chair (one)
- 9.2 Use of the heater by a boarder is not permitted.
- 9.3 Students desirous of keeping costly items may do at their own risk.
- 9.4 Students shall not be permitted to keep even licensed firearms, knives contraband material, etc, in the hostel room under any circumstances whatsoever. A breach of this regulation will lead to the expulsion of the student from the hostel without any enquiry.
- 9.5 Students shall not be permitted to use any hallucinogenic drug or alcoholic drinks. Even possession of these prohibited articles will render them to severe disciplinary action vide Appendix-2

10 Invitation to guests for inaugural and other functions

- 10.1 Students of the Institute may invite any person from outside the Institute for inaugural and other functions of the Societies, Associations, and Students function etc. after obtaining prior permission of the warden.

11 Breach of general rules of the Institute

- 11.1 Students of the Institution shall abide by the general rules of traffic, health, sanitation, messing extra curricular activities and security of property which may be announced by the Institute from time to time. Any breach on their part will render them liable to such disciplinary action as may be taken by the Institute vide Appendix-2. Wearing of helmet is compulsory in the campus.

12 Violation of general Laws of the land

-
- 12.1 All cases of indiscipline amounting to violation of the law of the land, shall be reported to the Registrar / Director who may after preliminary enquiry handover the student concerned to the police for instituting case in a Court of Law.

13 Saving Clause

- 13.1 Any question of discipline not covered by these rules and other rules framed by the Academic Council shall be dealt with by the Director.

Appendix – I

**CATEGORY OF BOARDERS / RESIDENTS IN A INSTITUTE
HOSTEL AND PERIOD OF THEIR STAY**

1. Ph.D. Research Scholars
 - 1.1 Residence facility - 4 years with effect from the date of registration or till submission of thesis, whichever is earlier.

It may be extended for one year in two installments of 6 months each on recommendation of the Supervisor / Head of the Division. However no extension will be given after the submission of thesis.
2. Other bonafide Students
 - 2.1 Only such students who have joined a regular Post – graduate Diploma, Post – graduate Degree & other courses in the Institute shall be eligible for hostel accommodation. The period of allotment though renewable every year, shall not exceed the period of the course to which a student has been admitted.
 - 2.2 Students, who have been expelled rusticated or are under suspension for various act (s) of indiscipline during the course of their studentship, shall not be considered for allotment of seats in the hostel.
 - 2.3 Unauthorised occupants will be expelled from the hostel by the warden. It is equally the responsibility of the hosteller to see that no guest stays in his room. If they persist in disobeying the orders then they are likely to be subjected to severe disciplinary action including rusticated for a specified period or even expulsion from the Institute.
 - 2.4 Defaulters in payment of fees will be liable for cancellation of their allotment in the hostel (vide appendix-2)
 - 2.5 It shall be necessary for the boarders of the hostel to fulfill the requirement of attendance in the classes as laid down in the regulations. Boarders are liable to loose their hostel seats if they do not fulfill the attendance requirement as stated above (vide appendix -2)

-
- 2.6 Notwithstanding the period of stay mentioned above at various level, no students of the Institute should be allowed to stay in the hostels of the Institute for a total period exceeding 7 (seven) years. Ordinarily it implies 2 years of post graduate course and maximum of 5 years of Ph.D. Programme but will depend on the duration of the courses run in the Institute.
- 2.7 No students of the Institute shall have the right to stay in the same room in the next academic session. In the beginning of each academic session fresh allotment of accommodation will be made on production of No Dues Certificate.

STUDENTS WELFARE ACTIVITIES

- The Institute provides basic medical facilities to its students.
- Hostel accommodation is available in the Institute. However, the admission to the Institute does not entitle a student to hostel accommodation automatically.
- The facilities for indoor games and common room/Gym are provided to the hostlers.
- Institute library facilities are available to the students.
- For hostel accommodation the students have to apply separately after taking admission in the FRI University.

UNIFORM

Boys

Maroon Blazer with FRI logo on the chest pocket of the Blazer (**In Winters**)

White shirt (Full sleeves)

Tie ; Brick Red with Diagonal pair of white strips and FRI Logo

Trouser : Black

Shoes: Black Leather shoes

Girls

Maroon Blazer with FRI logo on the chest pocket of the Blazer (**In Winters**)

Saree : Cream colour with Red Border of about two inches .

Blouse: Red colour with half sleeves

Shoes: cream colour bellies

ACCIDENTS DURING STUDY PERIOD

The Institute does not accept any liability in case of any injury caused due to any accident during the duration of the course.

DISCIPLINARY ACTION

Non conformity or infringements of the rules and regulations in force shall render a student liable to disciplinary action which may extend to expulsion of the student from the course and forfeiture of the deposits and fee already paid by him/her.

IMPORTANT DATES

| | |
|---|--------------------------------------|
| Issue of application forms starts on | 18th January, 2016 |
| Last date for issue of application forms by post | 21rd March, 2016 |
| Last date for issue of application forms from Institute's/ Bank counter at Dehra Dun | 31st March, 2016 |
| Last date for receiving completed application forms | 04th April, 2016 |
| Date of admission test | 08th May, 2016 |
| Date of Ist counseling | 08th July, 2016 |
| Date of IInd counseling | 12th July, 2016 |
| Date of starting new session | 15th July, 2016 |

The FRI (Deemed) University has the right to change these dates, if required.
However, the candidates will be informed in case of a change of date.