PROSPECTUS FOR

B.TECH LATERAL ENTRY COURSE – 2019-2020

(Approved vide G.O.(Rt)No.426/2019 /HEDN. Dated, Thiruvananthapuram, Dated. 20.03.2019)

1. **Introduction**

Lateral Entry Scheme is intended to admit meritorious Diploma/D.Voc/B.Sc holders to the Second Year/Third Semester of the B. Tech courses to acquire a Degree in Engineering. Lateral Entry Scheme is approved by Government of Kerala as per G.O (MS) No.156/2002/H.Edn dated: 13.11.2002 for 10% of the sanctioned seats in addition to total seats. A state level Entrance Examination for the selection is suggested to maintain uniformity among various schemes of Diploma /D.Voc/B.Sc holders.

2. **Institutions, Courses and Intake**

The list of various Engineering colleges, the courses/ branches offered and the number of seats available in each branch will be published in the website - **www.admissions.dtekerala.gov.in** before the ensuing online allotment.

3. **Fee Structure**

Fee for the various courses in Govt/ aided/ Govt controlled/ self financing Colleges will be as fixed by the Government from time to time. Students will be liable to pay the fees and all other charges as per statutes. Fees structure of various courses in Government/aided Engineering (merit seats) colleges are given in annexure J of the prospectus.

4. **Eligibility for admission**

4.1 The admission will be subject to regulations prescribed in the prospectus and of the Universities concerned.

4.2 Maximum age as on the last date of submission of application will be 30 Years.

4.3 Non-Keralites are also eligible to apply but their admission will be restricted to the Private Self-Financing Institution and Non-Government seats in the Government controlled Self- Financing Institutions.

4.4 Diploma candidates will be admitted only to the branch of Engineering as per the equivalency given in Annexure A.

4.5 Candidates who have passed diploma in Engineering/ Technology awarded by any state board of Technical Education or Institutions under Govt. of India after undergoing regular course with at least 45% marks (42% in the case of candidates belonging to SEBC and OEC category and 40% in the case of candidates belonging to SC/ST category) are eligible for writing the entrance examination. All candidates should produce a certificate showing the duration of the course and the details of the certificate issuing authority properly authenticated by the head of institution concerned, in the space provided in the body of the application form.

4.6 Candidates who have passed D.Voc (Vocational Diploma) stream in the same and allied sector in Engineering / Technology awarded by any state board of Technical Education or Institutions under Govt. of India with at least 45% marks (42% in the case of candidates belonging to SEBC and OEC category and 40% in the case of candidates belonging to SC/ST category) are eligible for writing the entrance examination. All candidates should produce a certificate showing the duration of the course and the details of the certificate issuing authority properly authenticated by the head of institution concerned, in the space provided in the body of the application form.

4.7 Candidates who have passed B Sc degree with Mathematics as their main or subsidiary subject from a recognized university as defined by the UGC and with at least 45% marks (42% in the case of candidates belonging to SEBC and OEC category and 40% in the case of candidates belonging to SC/ST category) and passed 10+2 examination with Mathematics as a subject are also eligible for writing the entrance examination All candidates should produce a certificate showing the duration of the course and the details

of the certificate issuing authority properly authenticated by the head of institution concerned, in the space provided in the body of the application form.

4.8 Those who are appearing for the Final year of Diploma stream/D.Voc stream/B.Sc stream Examination and satisfying the above criteria are also eligible to apply, subject to the condition that they will produce the Qualifying Certificate (original or Provisional) at the time of admission.

4.9 The students belonging to B.Sc stream shall clear the subject i) Engineering Graphics/ Engineering Drawing and ii) Engineering Mechanics of the First year Engineering programme along with the Second year Subjects.

4.10 The students belonging to B.Sc stream shall be considered only after filling the supernumerary and the unfilled vacancies of the first year B.tech/BE in this Category with students belonging to the Diploma stream and D.Voc stream.

4.11 All admission to Govt/ aided/ Govt controlled/ self financing engineering colleges will be as per the rank list prepared based on Entrance Examination conducted by The Joint Controller of Technical Examinations, Thiruvananthapuram vide Clause 9 of the prospectus.

4.12 Candidate who have acquired/are acquiring the eligibility for qualifying from Board/University outside Kerala state should produce equivalency certificate from Directorate Technical Education/ Universities in Kerala. For diploma /D.Voc eligibility shall be from Directorate Technical Education and for Degree it shall be from any of the Universities in Kerala.

4.13 **Certificates to prove Nativity**

Keralites: In order to prove that candidate is an Indian Citizen of Kerala origin for the limited purpose of eligibility for admission, he/she has to produce one of the following certificates along with the print out of the application itself.

i) The true copy of the relevant page of Secondary School Leaving Certificate of the candidate showing the place of birth in Kerala. OR

ii) The true copy of the relevant page of the Secondary School Leaving Certificate of either of the parents of the candidate showing Place of Birth in Kerala with corroborative certificate to establish the relationship between the parent and the candidate. OR

iii) The true copy of the relevant page of the Passport of the candidate, issued by Government of India, showing Place of Birth in Kerala or of either of the parents of the candidate showing Place of Birth in Kerala with corroborative certificate to establish the relationship between the parent and the candidate.

OR

iv) A certificate of birth from the authority competent to register birth (Panchayat/ Municipality/ Corporation) showing the candidate's or either parent's (in which case corroborative certificate to establish the relationship between the parent and the candidate is necessary) place of birth in Kerala, to be issued by a competent registering authority. OR

v) A certificate from the Village Officer/ Tahsildar to show that the candidate or his/her father/mother was born in Kerala (This is to be obtained in the prescribed format along with the printout of the application). OR

vi) A Certificate from the competent authority showing that the parent of the candidate is an All India Service officer allotted to Kerala cadre.

5. **Reservation of seats:**

5.1 All seats under Lateral Entry scheme will be filled from the common rank list prepared by the Directorate of Technical Education for the LET Admission 2019.

5.2 In Government Engineering Colleges all seats under Lateral Entry scheme will be allotted as Government seats

5.3 15% of seats under Lateral Entry are reserved as Management seats in Aided Engineering Colleges and remaining 85% will be allotted as Government seats.

5.4 The availability of Government seats in Government controlled and other Private Self-Financing Engineering Colleges will be announced before the ensuing online admission.

5.5 Communal reservation for candidate belonging to Socially and Educationally Backward Classes (SEBC) and SC/ST category will be followed as per Govt. norms. Detailed list of communities under these categories are included in Annexure D, E, F, F (a) and G.

5.6 5% Seats are reserved for physically disabled candidates. Candidates claiming reservation under physically disabled quota shall have a minimum of 40% disability. A disability Certificate from the District Medical Board has to be attached along with the application. Such candidates are also directed to produce a certificate obtained from a Medical officer not below the rank of Assistant surgeon to ensure the fitness of candidates to undergo the course at the time of admission.

5.7 One seat each is reserved for Electronics and Communication Engineering, Electrical & Electronics Engineering, Civil Engineering, Mechanical Engineering, Computer Science & Engineering, and Information Technology branch for defense quota. For claiming reservation in this quota, the certificate obtained from the concerned authority in the prescribed format (Annexure H) provided in the body of the application form is to be produced.

6. **Claim for Communal Reservation:**

6.1 Candidates belonging to SEBC but do not belong to the category of creamy layer are eligible for reservation under this category.

6.2 Candidates claiming reservation under SEBC category should produce non creamy layer certificates obtained from the concerned village officer/ Thahsildar in the space provided in the body of the application form.

6.3 The candidates claiming reservation under SC/ST quota should produce community certificate from the concerned Thahsildar in the space provided in the body of the application form.

6.4 In the absence of SC/ST candidates, their seats will be filled from OEC category as per the Annexure-F of the prospectus and they have to furnish community and Non creamy layer certificates from the Village Officer in the space provided in the body of the application form.

6.5 Candidates belonging to the communities listed in Annexure- F(a) of the prospectus whose annual family income is up to Rs.8 lakhs or as decided by Govt. from time to time are exempted from payment of fee. These candidates should provide community and income certificates from the Village Officer in the prescribed format along with the printout of the application at the time of admission.

Note: The Certificate issued by the e-District portal of the Government of Kerala will be preferred in lieu of the respective certificates.

7. TUITION FEE WAIVER SCHEME (TFW)

There are a maximum of 5% seats supernumerary in nature under Tuition Fee Waiver (TFW) scheme. It is provided to women, physically handicapped and Other Eligible (Economically weak) students from any of the background (GEN/OBC/SC/ST) to be admitted in Degree program of the institute.

Following are main features of the Scheme:

7.1 Sons and daughters of parents (Father and Mother both) whose annual income is upto Rs.8.00 lakhs from all sources shall only be eligible.

7.2 The waiver is limited to the Tuition Fee only. All other Fee except Tuition Fee will have to be paid by the beneficiary student.

7.3 Application are invited during registration but shall be taken into consideration after completion of second phase of document verification. The beneficiary student admitted under this scheme shall not be allowed to change the course (Branch/Discipline) under any circumstances.

7.4 The scheme shall come into effect once 30% seats of sanctioned seats are filled and the institute is able to fill Supernumerary seats as per scheme. Students who want to avail the scheme must get the income certificate from the competent authority issued on or after 31.03.2019.

8. **Application Forms:**

Application forms and prospectus are available in the websites **www.admissions.dtekerala.gov.in and www.tekerala.org. Application fee is Rs.750/- for general candidates and Rs.375/- for SC/ST candidates, which can be paid in 'SHAKTI ACCOUNT' of THE JOINT CONTROLLER OF TECHNICAL EXAMINATION at any branch of State Bank of India**.

9. **Submission of Application**:

Applications are to be submitted online and the downloaded application form duly filled up along with the relevant certificates and Shakti Chalan form should reach The Joint Controller of Technical Examinations, Kaimanam, Thiruvananthapuram- 695040 by Registered Post or Speed post or in Person. The last date for the receipt of application is as per the schedule given in Annexure B.

10.**Entrance Examination**:

10.1 A State level OMR based objective type Entrance Examination for a duration of two hours will be conducted by The Joint Controller of Technical Examinations, Kaimanam, Thiruvananthapuram for the selection.

10.2 Examination centers will be at Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, Kottayam, Thodupuzha, Ernakulam, Thrissur, Palakkad, Tirur, Malappuram, Sulthan Bathery, Kozhikode, Kannur & Kasaragod. Admit Cards for the Examination can be downloaded from websites:

www.admissions.dtekerala.gov.in

www.tekerala.org.

10.3 The Entrance Examination will be on selected subjects of first year B.Tech course and English language as per the scheme and syllabus of APJKTU refer(Annexure C). The rank list will be published by The Joint Controller of Technical Examinations, Kaimanam, Thiruvananthapuram- 40.

10.4 The Rank List shall be prepared with all the candidates in the order of marks secured in the entrance Examination, except those who secure Zero and Negative marks. Candidates should secure a minimum of 15% marks (general candidates), 10% marks (SC/ST candidates) and 12% marks (SEBC (OBC) candidates) in the entrance examination alone will be eligible for allotment to seats in various Engineering Colleges for which allotment is made by Director of Technical Education, Kerala. If seats still remain vacant in this category even after spot allotment, Management shall be given permission to admit students from the common rank list themselves.

11.**Valuation and Declaration of Results:**

11.1 A fully computerized system has been adopted for the valuation of the answer scripts using Optical Mark Reader (OMR) system and for the results.

11.2 The Rank list shall be prepared as per the criteria given in Annexure C. The marks secured by the Candidates will not be disclosed under any circumstances and any such enquiries will not be entertained.

11.3 There will be no provision for revaluation or rechecking of the answer scripts or recounting of the marks

12.**Allotment:**

12.1 The allotment of seats will be made by the Director of Technical Education, Kerala on the basis of the rank list published and availability of seats in the various categories through the website www.admissions.dtekerala.gov.in, according to the options given by the Candidates.

12.2 Allotment Memo will be published in the website for download. No duplicate Memo will be issued in any case after allotment.

12.3 Candidates who are eligible for allotment on the basis of the Rank List will have to enter their options online. After each allotment there will be provision for rearranging the options.

12.4 Once the candidate gets an allotment, he/ she will have to join the particular institution and then only he/ she will be considered for further allotments. Otherwise his/ her candidature will be cancelled.

12.5 Once the candidate gets an allotment, all the lower options will automatically be cancelled and re-allotment will only be done for higher options. The candidate who got the higher option in subsequent allotment, the previous institution must issue TC and report of vacancy to the Directorate of Technical Education.

12.6 If the candidate is satisfied with the allotment he/she gets in a particular allotment and if he/she does not want to be considered for further allotments, he/ she will have to cancel all the remaining options.

12.7 The selection for admission will be provisional and subject to the verification of the original documents by the concerned Principals at the time of admission.

12.8 Any other details not specifically covered by the clauses given in the prospectus will be decided by the undersigned and his/her decision will be final. He/ She is also empowered to cancel any admission found to be illegal subsequent to the admission.

12.9 All disputes pertaining to the Examination or admission shall fall within the jurisdiction of the Honorable High Court of Kerala.

13.No Liquidated damages

As per G.O(Rt)No.77/2019/H.Edn dated 18.01.2019,the liquidated damages are fully exempted and stated that the clause of chapter 7.13 of AICTE approval process Hand Book2019-20 stated as follows:

13.1 In the event of a student withdrawing before the start of the course, the entire fee collected from the student, after a deduction of the processing fee of not more than Rs .1000/ (Rupees One thousand only) shall be refunded by the Institution. It would not be permissible for institutions to retain the school/Institution leaving Certificates in original.

13.2 In case, if a student leaves after joining the course and if the vacated seat is consequently filled by another student by the last date of admission, the institution must refund the fee collected after a deductions of processing fee of not more than Rs.1000/-(Rupees One thousand only) and proportionate deductions of monthly fees and hostel rent, where applicable.

13.3 In case the vacated seat is not filled, the Institution should refund the Security Deposit and return the original documents.

13.4 The Institution should not demand fee for the subsequent years from the students cancelling their admission at any point of time. Fee refund along with the return of certificates should be completed within 7 days.

13.5 Institutions not following guidelines issued by the Counsil regarding refund of fee for cancellation of admission or delaying refunds shall be liable to any one or more of the following punitive actions by the Council.

* Fine for non-compliance of refund rules of the fee levied against each case shall be five times the total fee collected per student.
* Suspension of approval for NRI and Supernumerary seats, if any, for one Academic Year.
* Reduction in “Approved Intake”
* No admission in one /more course(s) for on e academic Year/ Withdrawal of approval for program(s) / course(s)

Thiruvananthapuram **Director of Technical Education**
Date: 20.03.2019

ANNEXURE A - EQUIVALENCY OF BRANCHES

NO	Specialization in Diploma Course	Branch Equated to B.Tech Course
1	Applied Electronics/Instrument Technology/ Electronics and Instrumentation/ Medical Electronics /Instrumentation Technology/ Instrumentation Engineering	Electronics and Communication Engg./ Applied Electronics and Instrumentation Engg/ Instrumentation and Control Engg./ Electronics and Instrumentation Engineering
2	Architecture	Civil Engineering
3	Civil	
4	Quantity Survey & Construction Management	
5	Biomedical Engineering/ Medical Electronics/ Medical Instrumentation	Bio Medical Engineering/ Electronics and Communication Engineering/ Applied Electronics and Instrumentation Engg
6	Biotechnology/Chemical/Polymer Technology	Chemical Engineering/ Polymer Technology/ Biotechnology /Biotechnology and Bio chemical Engineering
7	Computer Application and Business Management	Computer Science and Engineering /Information Technology
8	Computer Engineering, Computer Science	
9	Computer Hardware Maintenance/ Computer Hardware Engineering.	
10	Information Technology	
11	Electrical /Electrical & Electronics Engineering	Electrical and Electronics Engineering
12	Electronics Engineering/ Computer Engineering Computer Hardware Maintenance	Electronics and Communication Engineering
13	Electronics and Communication Engineering	
14	Electronics Production Technology	
15	Telecommunication Technology	
16	Electronics and Avionics Engineering	Electronics and Communication Engineering/ Aeronautical Engineering
17	Automobile Engineering	Mechanical engineering/ Automobile Engineering Mechanical (Automobile) Engineering
18	Tool and Die	Mechanical Engineering/ Industrial Engineering/ Production Engineering/ Mechanical(Production) Engineering
19	Wood and Paper Technology	
20	Plastic Moulding Technology from CIPET	
21	Manufacturing technology	
22	Printing Technology	Printing Technology (In the Absence of Printing Technology , other branches will be considered)

23	Mechanical Engineering	Automobile Engineering/ Mechanical Engineering/ Industrial Engineering/ Production Engineering/ Mechanical (Production)/ Mechanical (Automobile)/ Mechatronix/ Aeronautical Engineering
24	Mechatronix Engineering	Electronics and communication Engineering/ Mechanical Engineering/ Mechatronix
25	Petrochemical Engineering	Chemical Engineering/ Biotechnology/ Biotechnology and Bio chemical Engineering
26	Electronics & Robotics Engineering	Electronics and Communication Engineering/ Computer Science & Engineering
27	Aeronautical Engineering	Mechanical Engineering/ Aeronautical Engineering

ANNEXURE B

TIME SCHEDULE FOR LATERAL ENTRY B.TECH ADMISSION

Activity	
Online Registration	6/04/2019 to 24/04/2019, 5 pm
Last date of receipt of downloaded application in	30/04/2019, 5 pm
the Joint Controller of Technical Examinations	
Office, Thiruvananthapuram	
Downloading of Hall Tickets from the website	10/06/2019 to 14/06/2019
Date of Examination	15/06/2019
Publication of Result	26/06/2019
Downloading Score Cards from the website	27/06/2019 to 5/07/2019
Online filling of options	27/06/2019 to 3/07/2019, 5 pm
1st Allotment	08/07/2019
Admission (1st allotment)	10/07/2019,11/07/2019
Rearranging higher options	17/07/2019, 18/07/2019, 5 pm
2nd Allotment	22/07/2019
Admission (2nd allotment)	24/07/2019, 25/07/2019

After the completion of the 2nd allotment, if any seats are still lying vacant, a spot admission will be conducted on a suitable date as fixed later for the vacant seats in the courses specified in Annexure A. All students above the cut off rank are eligible to appear for spot admission. Head of the institution should issue No Objection Certificate to the admitted candidate who desires to appear for spot admission. Candidates selected for admission through spot admission will have to join the respective institutions on the date specified, by remitting the required fees at the respective institution. If seats are still lying vacant, Colleges can fill the seats by giving wide publicity in local dailies and based on the seniority and eligibility of the students in the common rank list for LET admission-2019. Institutions can fill seats up to the last date of closing admission which will be decided by the Director of Technical Education.

ANNEXURE C
CRITERIA FOR RANK LIST PREPARATION

1) LET Admission will be based on a rank list prepared based on an entrance test
2) The Entrance Test have two parts ie, part A for Diploma students and D Voc stream candidates and Part B for B.Sc stream students.
3) **Part A of the Entrance Test for Diploma and D.Voc stream candidates is for 120 marks and will be on following selected subjects of First year B.Tech course and English language.**
    i. Mathematics-20 marks (Annexure I(i))
    ii. Engineering Mechanics -15 marks (Annexure I(ii))
    iii. IT and Computer Science -15 marks (Annexure I(iii))
    iv. Civil Engineering-15marks (Annexure I(iv))
    v. Mechanical Engineering -15 marks (Annexure I(v))
    vi. Electrical Engineering-15 marks (Annexure I(vi))
    vii. Electronics and communication Engineering -15 marks (Annexure I(vii))
    viii. English -10 marks (Annexure I(viii))

    Part B of the Entrance Test for B.Sc stream candidates is for 120 marks and will be on following selected subjects of first year B.Tech course and English language.

    i. Mathematics-40 marks (Annexure I(ix))
    i. Physics -30 marks (Annexure I(x))
    ii. Chemistry - 20 marks (Annexure I(xi))
    iii. IT and Computer Science- 15 marks (Annexure I(xii))
    iv. English -15 marks (Annexure I(xiii))

4) The detailed syllabus of the above selected subjects is shown in Annexure I(i) to I(xiii)
5) 3 marks for each correct answers &1marks will be deducted for every wrong answer.
6) Marking for more than one bubble against a question will be considered as wrong answer.
7) Erasing, overwriting, partial marking etc may also be treated as wrong answer.
8) No deduction of mark will be made for unanswered questions.
9) If the candidate does not answer any single question, his candidature will be cancelled.

10) **Resolution of tie for preparing the rank list for the Diploma/D.Voc stream**
    a) If there is any tie exists for same rank, candidates with higher score in Mathematics will be placed in higher rank.
    b) If tie still exists, candidates with higher score in English will be placed in higher rank.
    c) If the tie further exists, age of the candidate will be taken into account and the older will be placed in higher rank than the younger one.

11) **Resolution of tie for preparing the rank list for B.Sc stream**
    a. If there is any tie exists for same rank, candidates with higher score in Mathematics will be placed in higher rank.
    b. If tie still exists, candidates with higher score in Physics will be placed in higher rank.
    c. If the tie further exists, age of the candidate will be taken into account and the older will be placed in higher rank than the younger one.

ANNEXURE -D

LIST OF SCHEDULED CASTES (SC)

[As Amended by The Constitution (Scheduled Castes) Orders (Second Amendment) Act, 2002 (Act 61 of 2002) Vide Part VIII – Kerala - Schedule 1 Notified in the Gazette of India dated 18.12.2002, The Constitution (Scheduled Castes) Order (Amendment) Act 2007, The Constitution (Scheduled Castes) Order (Amendment) Act 2016, No. 24 of 2016]

[See Clause 5.4.3 (a)]

1 Adi Andhra
2 Adi Dravida
3 Adi Karnataka
4 Ajila
5 Arunthathiyar
6 Ayyanavar
7 Baira
8 Bakuda
9 xxx
10 Bathada
11 xxx
12 Bharathar (Other than Parathar), Paravan
13 xxx
14 Chakkiliyan
15 Chamar, Muchi
16 Chandala
17 Cheruman
18 Domban
19 xxx
20 xxx
21 xxx
22 Gosangi
23 Hasla
24 Holeya
25 Kadaiyan
26 Kakkalan, Kakkan
27 Kalladi
28 Kanakkan, Padanna, Padannan
29 xxx
30 Kavara (other than Telugu speaking or Tamil speaking Balija Kavarai, Gavara, Gavarai, Gavarai Naidu, Balija Naidu, Gajalu Balija or Valai Chetty)
31 Koosa
32 Kootan, Koodan
33 Kudumban
34 Kuravan, Sidhanar, Kuravar, Kurava, Sidhana
35 Maila
36 Malayan [In the areas comprising the Kannur, Kasaragode, Kozhikode and Wayanad Districts].
37 Mannan (മണ്ണാൻ), Pathiyan, Perumannan, Peruvannan, Vannan, Velan
38 xxx
39 Moger (other than Mogeyar)
40 Mundala
41 Nalakeyava
42 Nalkadaya
43 Nayadi
44 xxx
45 Pallan
46 Palluvan, Pulluvan
47 Pambada
48 Panan
49 xxx
50 Paraiyan, Parayan, Sambavar, Sambavan, Sambava, Paraya, Paraiya, Parayar
51 xxx
52 xxx
53 xxx
54 Pulayan, Cheramar, Pulaya, Pulayar, Cherama, Cheraman, Wayanad Pulayan, Wayanadan Pulayan, Matha, Matha Pulayan
55 xxx
56 Puthirai Vannan
57 Raneyar
58 Samagara
59 Samban
60 Semman, Chemman, Chemmar
61 Thandan (excluding Ezhuvas and Thiyyas who are known as Thandan, in the erstwhile Cochin and Malabar areas) and (Carpenters who are known as Thachan, in the erstwhile Cochin and Travancore State) Thachar (Other than carpenters)
62 Thoti
63 Vallon
64 Valluvan
65 xxx
66 xxx
67 Vetan
68 Vettuvan, Pulaya Vettuvan (in the areas of erstwhile Cochin State only).
69 Nerian

ANNEXURE – E

LIST OF SCHEDULED TRIBES (ST)

[As Amended by The Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 2002 (Act 10 of 2003) Vide Part - VII - Kerala - Second Schedule Notified in the Gazette of India dated 8.1.2003, G.O. (Ms) No. 06/2014/SCSTDD dated 29.01.2014]

[See Clause 5.4.3 (a)]

1 Adiyan
2 Arandan [Arandanan]
3 Eravallan
4 Hill Pulaya, Mala Pulayan, Kurumba Pulayan, Kuravazhi Pulayan, Pamba Pulayan
5 Irular, Irulan
6 Kadar [Wayanad Kadar]
7 xxx
8 Kanikkaran, Kanikkar
9 Kattunayakan
10 [Kochuvelan]
11 xxx
12 xxx
13 Koraga
14 xxx
15 Kudiya, Melakudi
16 Kurichchan [Kurichiyan]
17 Kurumans, Mullu Kuruman, Mulla Kuruman, Mala Kuruman
18 Kurumbas, [Kurumbar, Kurumban]
19 Maha Malasar
20 Malai Arayan [Mala Arayan]
21 Malai Pandaram
22 Malai Vedan [Malavedan]
23 Malakkuravan
24 Malasar
25 [Malayan, Nattu Malayan, Konga Malayan (excluding the areas comprising the Kasaragod, Kannur, Wayanad and Kozhikode Districts)
26 Malayarayar
27 Mannan (മന്നാൻ)
28 xxx
29 Muthuvan, Mudugar, Muduvan
30 Palleyan, Palliyan, Palliyar, Paliyan
31 xxx
32 xxx
33 Paniyan
34 Ulladan, [Ullatan]
35 Uraly
36 Mala Vettuvan(in Kasaragod & Kannur districts)
37 Ten Kurumban, Jenu Kurumban
38 Thachanadan, Thachanadan Moopan
39 Cholanaickan
40 Mavilan
41 Karimpalan
42 Vetta Kuruman
43 Mala Panikkar
44 Maratis of Kasargod and Hosdurg Taluk

ANNEXURE - F

LIST OF OTHER ELIGIBLE COMMUNITIES (OEC)

[GO (Ms) No.14/2017/BCDD dated: 02.08.2017, GO (Ms) No.7/2013/BCDD dated: 19.07.2013, See Clause 5.4.3 (f)]

OEC (ST)

1 Allar (Alan)
2 Chingathan
3 Irivavan
4 Kalanadi
5 Malayan, Konga-Malayan(Kasargod, Kannur, Wayanad and Kozhikode Districts)
6 Kundu-Vadiyan
7 Kunnuvarmannadi
8 Malamuthan
9 Malavettuvar (Except Kasargod and Kannur Districts)
10 Malayalar
11 Panimalayan
12 Pathiyan (other than Dhobies)
13 Hindu-Malayali

OEC (SC)

1 Chakkamar
2 Madiga
3 Chemman/Chemmar
4 Kudumbi
5 Dheevara/Dheevaran (Arayan, Valan, Nulayan, Mukkuvan, Arayavathi, Valanchiyar, Paniyakal, Mokaya, Bovi, Mogayar, Mogaveerar)
6 Scheduled Caste converted to Christianity
7 Kusavan, Kulalan, Kumbharan, Velaan, Velaar, Odan, Andhra Nair, Andhuru Nair,
8 Pulaya Vettuvan (Except Kochi State)

ANNEXURE – F(a)

LIST OF COMMUNITIES ELIGIBLE FOR EDUCATIONAL CONCESSIONS AS IS GIVEN TO OEC

[G.O.(Ms) No. 10/2014/BCDD dated: 23.05.2014] [See Clause 5.4.3 (h)]

1	Vaniya (Vanika, Vanika Vaisya, Vanibha Chetty, Vaniya Chetty, Ayiravar, Nagarathar and Vaniyan
2	Veluthedathu Nair (Veluthedan and Vannathan)
3	Chetty/Chetties (Kottar Chetties, Parakka Chetties, Elur Chetties, Attingal Chetties, Pudukkada Chetties, Iraniel Chetties, Sri Pandara Cetties, Telugu Chetties, Udiyankulangara Chetties, Peroorkada Chetties, Sadhu Chetties, 24 Mana Chetties, Wayanadan Chetties, Kalavara Chetties and 24 Mana Telugu Chetties
4	Ezhavathi (Vathy)
5	Ganika
6	Kanisu or Kaniyar Panicker, Kani or Kaniyan (Ganaka) or Kanisan or Kamnan, Kalari Kurup/Kalari Panicker
7	Vilkurup, Perumkollan
8	Yadavas (Kolaya, Ayar, Mayar, Maniyani and Iruman), Erumakkar
9	Devanga
10	Pattariyas
11	Saliyas (Chaliya, Chaliyan)
12	Pandithar
13	Vaniar
14	Ezhuthachan
15	Chakkala/Chakkala Nair
16	Reddiars (throughout the State except in Malabar Area)
17	Kavuthiya
18	Veerasaiva (Yogi, Yogeeswara, Poopandram, Malapandaram, Jangam, Matapathi, Pandaram, Pandaran, Vairavi, Vairagi)
19	Vilakkithala Nair – Vilakkithalavan
20	Vaduka – Vadukan, Vadugar, Vaduka, Vaduvan
21	Chavalakkaran
22	Agasa
23	Kaikolan
24	Kannadiyans
25	Kerala Mudalis
26	Madivala
27	Naikkans
28	Tholkolans
29	Thottian
30	Mooppar or Kallan Moopan or Kallan Moopar

ANNEXURE - G

LIST OF SOCIALLY AND EDUCATIONALLY BACKWARD CLASSES (SEBC)

[Vide G.O. (P) 208/66/Edn. dated 02.05.1966, G.O. (Ms) No. 95/08/SCSTDD dated 06.10.2008 & G.O. (Ms) No. 58/2012/SCSTDD dated 16.04.2012, G.O.(Ms) No. 10/2014/BCDD dated: 23.05.2014, Lr No. 1538/A2/2014/BCDD dated 02.07.2014, G.O.(Ms) No. 03/2018/BCDD dated 09.04.2018]

[See Clause 5.4.2 (a)]

I. **Ezhavas** including Ezhavas, Thiyyas, Ishuvan, Izhuvan, Illuvan and Billava

II. **Muslims** (all sections following Islam)

III. **Latin Catholics and Anglo Indians**

IV. **Dheevara** including Dheevaran, Araya,Arayas, Arayan, Valan, Nulayan, Mukkuvan, Arayavathi, Valinjiar, Paniakkal, Paniakel, Mukaya, Bovis-Mukayar, Mukaveeran, Mogaveera, Mogavirar,Mogayan

V. **Viswakarmas** including Viswakarma, Asari, Chaptegra, Kallassari, Kalthachan, Kammala, Kamsala, Kannan, Karuvan, Kitaran, Kollan, Malayala Kammala, Moosari, Pandikammala, Pandithattan, Perumkollan, Thachan, Thattan, Vilkurup, Villasan, Viswabrahmanan or Viswabrahmanar, Viswakarmala and Palisa Perumkollan

VI. **Kusavan** including Kulalan, Kulala Nair, Kumbaran, Velaan, Velaans, Velaar, Odan, Kulala, Andhra Nair, Anthuru Nair

VII. **Other Backward Christians**

(a) SIUC

(b) Converts from Scheduled Castes to Christianity

VIII. **Kudumbi**

IX. **Other Backward Hindus**, i.e.

1. Agasa
2. Kharvi
3. Aremahrati
4. Arya, Atagara, Devanga, Kaikolan, (Sengunthar) Pattarya, Pattariyas, Saliyas (Padmasali, Pattusali, Thogatta, Karanibhakatula, Senapathula, Sali, Sale, Karikalabhakulu, Chaliya, Chaliyan) Sourashtra, Khatri, Patnukaran, Illathu Pillai, Illa Vellalar, Illathar
5. Bestha
6. Bhandari or Bhondari
7. Boya
8. Boyan
9. Chavalakkaran
10. Chakkala (Chakkala Nair)
11. Devadiga
12. Ezhavathi (Vathi)
13. Ezhuthachan, Kadupattan
14. Gudigara
15. Galada Konkani
16. Ganjam Reddies
17. Gatti
18. Gowda
19. Ganika including Nagavamsom
20. Hegde
21. Hindu Nadar
22. Idiga including Settibalija
23. Jangam
24. Jogi
25. Jhetty
26. Kanisu or Kaniyar-Panicker, Kaniyan, Kanisan or Kamnan, Kannian or Kani, Ganaka
27. xxx
28. Kalarikurup or Kalari Panicker
29. Kerala Muthali, Kerala Mudalis
30. Oudan (Donga) Odda (Vodde or Vadde or Veddai)
31. Kalavanthula
32. Kallan including Isanattu Kallar
33. Kabera
34. Korachas
35. x x x
36. Kannadiyans
37. Kavuthiyan, Kavuthiya
38. Kavudiyaru
39. Kelasi or Kalasi Panicker
40. Koppala Velamas
41. Krishnanvaka
42. Kuruba
43. Kurumba
44. Maravan (Maravar)
45. Madivala
46. Maruthuvar
47. Mahratta (Non-Brahman)

48. Melakudi (Kudiyan)
49. x x x
50. Moili
51. Mukhari
52. Modibanda
53. Moovari
54. Moniagar
55. Naicken including Tholuva Naicker and Vettilakkara Naicker, Naikkans
56. Padyachi (Villayankuppam)
57. Palli
58. Panniyar or Pannayar
59. Parkavakulam (Surithiman, Malayaman, Nathaman, Moopanar and Nainar)
60. Rajapuri
61. Sakravar (Kavathi)
62. Senaithalaivar, Elavania, Senaikudayam
63. Chetty/Chetties including Kottar Chetties, Parakka Chetties, Elur Chetties, Attingal Chetties, Pudukkada Chetties, Iraniel Chetties, Sri Pandara Chetties, Telugu Chetties, Udiyankulangara Chetties, Peroorkada Chetties,Sadhu Chetties, 24 Mana Chetties, Wayanadan Chetties, Kalavara Chetties and 24 Mana Telugu Chetties
64. Tholkolan
65. Thottiyan, Thottian
66. Uppara (Sagara)
67. Ural Goundan
68. Valaiyan
69. Vada Balija
70. Vakkaliga
71. Vaduvan(Vadugan), Vaduka, Vadukan, Vadugar
72. Veera Saivas (Pandaram, Vairavi, Vairagi, Yogeeswar, Yogeeswara, Poopandaram, Malapandaram, Pandaran, Matapathi and Yogi)
73. Veluthedathu Nair including Vannathan, Veluthedan and Rajaka
74. Vilakkithala Nair including Vilakkathalavan, Ambattan Pranopakari, Pandithar and Nusuvan
75. Vaniya including Vanika, Vanika Vaisya, Vaisya Chetty, Vanibha Chetty, Ayiravar Nagarathar, Vaniyan, Vaniya Chetty, Vaniar
76. Yadava including Kolaya, Ayar, Mayar, Maniyani, Eruman, Iruman, Erumakkar, Golla and Kolaries
77. Chakkamar
78. Mogers of Kasaragod Taluk
79. x x x
80. x x x
81. x x x
82. Reddiars (throughout the State except in Malabar area)
83. Mooppar or Kallan Moopan or Kallan Moopar

ANNEXURE H

CERTIFICATE FOR CLAIM OF SPECIAL RESERVATION UNDER QUOTA FOR CHILDREN OF SERVICING DEFENCE PERSONNEL (SD)/ PARA MILITARY FORCE PERSONNEL (RP)

Certified that Master/Kum…… ……. an applicant for admission to the professional degree course, Kerala 2019 is the son/ daughter* of Shri/Smt ……..…… (official address) who is serving defence/ paramilitary force* personnel presently working at …….

Place: **Signature of Commanding officer:**

Date:

Name :

(Office seal)

ANNEXURE I
SYLLABUS FOR DIPLOMA AND D. VOC STUDENTS

MATHEMATICS (ANNEXURE I (i))

Total 20 questions from 6 Modules - 4 questions each from module I to IV and 2 questions each from module V and VI.

Module I

Single Variable Calculus and Infinite series, Basic ideas of infinite series and convergence - Geometric series- Harmonic series-Convergence tests - comparison, ratio, root tests. Alternating series - Leibnitz Test- Absolute convergence, Maclaurins series - Taylor series - radius of convergence.

Module II

Partial derivatives and its applications - Partial derivatives of functions of more than two variables – higher order partial derivatives - differentiability, differentials and local linearity
The chain rule – Maxima and Minima of functions of two variables - extreme value theorem - relative extrema.

Module III

Calculus of vector valued functions, Introduction to vector valued functions - parametric curves in 3-space
Limits and continuity – derivatives – tangent lines – derivative of dot and cross product - definite integrals of vector valued functions - unit tangent-normal- velocity-acceleration and speed– Normal and tangential components of acceleration.
Directional derivatives and gradients-tangent planes and normal vectors

Module IV

Multiple integrals - Double integrals- Evaluation of double integrals – Double integrals in non-rectangular coordinates- reversing the order of integration- Area calculated as a double integral- Triple integrals (Cartesian co-ordinates only) - volume calculated as a triple integral.

Module V

Topics in vector calculus -Vector and scalar fields- Gradient fields – conservative fields and potential functions – divergence and curl - the □ operator – the Laplacian□2, Line integrals - work as a line integral- independence of path-conservative vector field.

Module VI
Topics in vector calculus, Green's Theorem, surface integrals – Divergence Theorem - Stokes' Theorem.

ENGINEERING MECHANICS (ANNEXURE I (ii))

Total 15 questions from 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from module VI.

Module I

Statics: Fundamental concepts and laws of mechanics - Rigid body – Principle of transmissibility of forces. Coplanar force systems – Moment of force – Principle of moments. Resultant of force and couple system. Equilibrium of rigid body – Free body diagram – Conditions of equilibrium in two dimensions – Two force and three force members.

Module II

Types of supports – problems involving point loads and uniformly distributed loads only.
Force systems in space – Degree of freedom – Free body diagram – Equations of equilibrium – Simple resultant and Equilibrium problems.

Module III

Properties of planar surfaces - Centroid and second moment of area - Parallel and perpendicular axis theorem – Centroid and Moment of Inertia of composite area. Polar Moment of Inertia – Radious of gyration - Mass moment of Inertia of cylinder and thin disc. Product of Inertia – Principle Moment Of Inertia. Theorems of Pappus and Guldinus.

Module IV

Friction – Characteristics of dry friction – Problems involving friction of ladder, wedges and connected bodies. Definition of work and virtual work – Principle of virtual work for a system of connection bodies – problems of determinate beams only.

Module V

Dynamics: Rectangular and Cylindrical co-ordinate system.
Combined motion of rotation and translation – Concepts of instantaneous centre – Motion of connecting rod of piston and crank of reciprocating pump.
Rectilinear translation – Newton's second law – D'Alembert's Principle – Application to connected bodies.

Module VI

Mechanical vibrations – free and forced vibrations – degree of freedom.
Simple and harmonic motion – Spring-mass model – Period – Stiffness – Frequency – Simple numerical problems of single degree of freedom.

IT AND COMPUTER SCIENCE (ANNEXURE I (iii))

Total 15 questions from 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from module VI.

Module I

Introduction to digital computer - Von Neumann concept - A simple model of computer, acquisition of data, storage of data, processing of data, output of processed data. Details of functional units of a computer. Storage - primary storage and secondary storage

Introduction to programming languages: types of programming languages - high level language , assembly language and machine language - System software - Operating systems - objectives of operating systems, compiler, assembler and interpreter.

Module II

Problem Solving strategies - Problem analysis - formal definition of problem - Solution - top- down design - breaking a problem into sub problems- overview of the solution to the sub problems by writing step by step procedure (algorithm) - representation of procedure by flowchart - Implementation of algorithms - use of procedures to achieve modularity.

Module III

Introduction to *Python* - variables, expressions and statements, evaluation of expressions, precedence, string operations.

Module IV

Functions, calling functions, type conversion and coercion, composition of functions, mathematical functions, user-defined functions, parameters and arguments.

Module V

Strings and lists - string traversal and comparison with examples. Tuples and dictionaries - operations and examples

Module VI

Files and exceptions - text files, directories. Introduction to classes and objects - attributes, instances.

BASIC CIVIL ENGINEERING (ANNEXURE I (iv))

Total 15 questions from 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from module VI.

Module I

General introduction to Civil Engineering- History of civil Engineering - Relevance of civil Engineering in the overall infrastructural development of the country. Types and classification of structures - buildings, towers, chimneys, bridges, dams, retaining walls, water tanks, silos, roads, railways, runways and pipelines. Definition and types of buildings as per National Building Code of India. Selection of site-Components of a building and their functions- setting out of a building.

Module II

Stones: Classification of stones-Qualities of good building stones-Quarrying-Dressing-Tests-Specifications-Uses of common building stones. Bricks: Composition of good brick earth - Classification-Qualities of good bricks –Field and laboratory tests-specifications. Tiles: Classification-Manufacture-properties-Tests-Specifications.

Module III

Cement: Basic Ingredients- Manufacturing process- Grades- Properties-Tests Specifications. Aggregates: Fine and coarse aggregate- Properties - uses-Tests. Cement Mortar: Types and preparation.

Module IV

Stone Masonry: Types-Details of Ashlars, Random Rubble, Coarse Rubble and Dry Rubble Masonry. Brick Masonry: Types - Bond-Introduction to all types of Bonds - English bond in detail - Comparison of stone and brick masonry.

Module V

Timber : Properties-Uses-Classification-Seasoning-Defects-Preservation-Tests; Hard board and particle board –Manufacture and use.
Steel: structural steel and steel as reinforcement-Types-Properties-Uses - Market forms

Module VI

Floors and Flooring materials: Different types and selection of floors and floor coverings. Roofs and roof coverings: Different types of roofs –Suitability-Types and selection of roofing materials

MECHANICAL ENGINEERING (ANNEXURE I (v))

Total 15 questions from 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from module VI.

Module I

Thermodynamics: Nature and scope of thermodynamics; basic concept; Laws of Thermodynamics, Discovery Significance and Applications; Qualitative ideas on Entropy, Available Energy ,Irreversibility, Principle of increase of Entropy& Carnot engine; Limitations of Thermodynamics; Source of power; history of power production; power production in the future.

Module II

Thermal Engineering: Historical development of steam engine ,steam turbines, gas turbines and hydraulic turbines; Principle of turbomachinary; History of IC engines; two stroke and four stroke engines-working, applications; Air compressors-types and uses; Principles of Rocket propulsion, chemical rockets, Indian space programme.

Module III

Refrigeration and air conditioning: History & Scope of refrigeration; applications of refrigeration; Food preservation, refrigerated storage; applications in chemical and process industries; special applications; Air conditioning – Principles & system; scope of air conditioning; Psychometric properties of air; Human comfort standards.

Module IV

Automobiles & Aeronautical Engineering: Introduction to an Automobile; history of the automobile; Indian automobiles; Types of automobiles; Major components and their functions; Manufactures of motor vehicles in India; Fundamentals of aerodynamics; drag force and lift force; jet engines types and applications.

Module V

Engineering and Materials: Introduction and history of materials: Basic crystallography; metals, alloys composites, ceramic, polymers; mechanical properties and testing of engineering materials.

Module VI

Manufacturing Engineering: Methods of manufacturing; casting, forging, rolling extrusion; machining operations-turning, milling, drilling, grinding, shaping, planning; Joining operations-soldering, brazing& welding; Introduction to CNC machines; examples of typical products manufactured by above methods.

ELECTRICAL ENGINEERING (ANNEXURE I (vi))

Total 15 questions from 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from module VI.

Module I

Fundamental Concepts of Circuit Elements and Circuit variables: Electromotive force, potential and voltage. Resistors, Capacitors Inductors- terminal V-I relations. Electromagnetic Induction: Faraday's laws, I Lenz's law, statically and dynamically induced EMF, self and mutual inductance, coupling coefficient-energy stored in inductance. Real and Ideal independent voltage and current sources, V-I relations. Passive sign convention.

Module II

Basic Circuit Laws: Kirchhoff's current and voltage laws, analysis of resistive circuits-mesh analysis super mesh analysis. Node analysis-super node analysis, star delta transformation.

Module III

Magnetic Circuits: Magneto motive force, flux, reluctance, permeability -comparison of electric and magnetic circuits, analysis of series magnetic circuits. Parallel magnetic circuits, magnetic circuits with air-gaps.

Module IV

Alternating current fundamentals:-Generation of Alternating voltages-waveforms, Frequency, Period, RMS and average values, peak factor and form factor of periodic waveforms and composite waveforms. Phasor Concepts, Complex representation (exponential, polar and rectangular forms) of sinusoidal voltages and currents phasor diagrams. Complex impedance - series and parallel impedances and admittances, Phasor analysis of RL, RC, RLC circuits.

Module V

Complex Power: Concept of Power factor: active, reactive and apparent power.
Resonance in series and parallel circuits
Energy, bandwidth and quality factor, variation of impedance and admittance in series and parallel resonant circuits.

Module VI

Three phase systems: Star and delta connections, three-phase three wires and three- 2 phase four-wire systems. Analysis of balanced and unbalanced star and delta connected loads. Power in three-phase circuits. Active and Reactive power measurement by one, two, and three wattmeter methods.

ELECTRONICS & COMMUNICATION ENGINEERING (ANNEXURE I (vii))

Total 15 questions with 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from module VI.

Module I

Evolution of electronics, impact of electronics in industry and in society. Resistors Capacitors: Types, Specifications, Standard values, marking colour coding Inductors and Transformers: Types, Specifications, and Principles of working. Electro mechanical components: relays and contactors.

Module II

Diodes: Intrinsic and extrinsic semiconductors, PN junction diode, barrier potential, V-I characteristics, Effect of temperature. Equivalent circuit of a diode. Piece wise linear model. Specification parameters of diodes and numbering.
Zener diode, Varactor diodes, characteristics, working principle of LED, photo diode, solar cell.

Module III

Bipolar Junction Transistors: Structure, typical doping, Principle of operation, concept of different configurations. Detailed study of input and output characteristics of common base and common emitter configuration, current gain, comparison of three configurations. Concept of load line and operating point. Need for biasing and stabilization, voltage divider biasing, Transistor as amplifier, switch, RC coupled amplifier and frequency response. Specification parameters of transistors and type numbering

Module IV

Junction Field Effect Transistors: Structure, principle of operation, characteristics, comparison with BJT. MOSFET: Structure, principle of operation of Enhancement type MOSFET, Current voltage characteristics, Depletion-type MOSFET. Principle of operation of Photo transistor, UJT, SCR

Module V

Diode circuits and power supplies: Series and parallel diode circuits, Clippers, Clampers, Voltage multipliers. Half-wave and full wave (including bridge) rectifiers, Derivation of Vrms, Vdc, ripple factor, peak inverse voltage, rectification efficiency in each case, capacitor filter, working and design of a simple Zener voltage regulator. Block diagram description of a DC Power supply, Principle of SMPS.

Module VI

Electronic Measurements and measuring Instruments. Generalized performance parameters of instruments: error, accuracy, sensitivity, precision and resolution. Principle and block diagram of analog and digital multimeter, Block diagram of CRO, Measurements using CRO, Lissajous patterns, Principle and block diagram of DSO, function generator. Testing of Electronic components.

ENGLISH (ANNEXURE I (viii))

For English, out of the 10 marks to be awarded, 5 marks will be for questions based on a given passage and remaining 5 marks for basic Grammar and General English of plus 2 standards.

SYLLABUS FOR B.SC STUDENTS

MATHEMATICS (ANNEXURE I (ix))

Total 40 questions from 6 Modules -7 questions each from module I to V and 5 questions from module VI.

Module I

Single Variable Calculus and Infinite series, Basic ideas of infinite series and convergence - Geometric series- Harmonic series-Convergence tests - comparison, ratio, root tests. Alternating series - Leibnitz Test- Absolute convergence, Maclaurins series - Taylor series - radius of convergence.

Module II

Partial derivatives and its applications - Partial derivatives of functions of more than two variables – higher order partial derivatives - differentiability, differentials and local linearity
The chain rule – Maxima and Minima of functions of two variables - extreme value theorem - relative extrema.

Module III

Calculus of vector valued functions, Introduction to vector valued functions - parametric curves in 3-space
Limits and continuity – derivatives – tangent lines – derivative of dot and cross product - definite integrals of vector valued functions - unit tangent-normal- velocity-acceleration and speed– Normal and tangential components of acceleration.
Directional derivatives and gradients-tangent planes and normal vectors

Module IV

Multiple integrals - Double integrals- Evaluation of double integrals – Double integrals in non-rectangular coordinates- reversing the order of integration- Area calculated as a double integral- Triple integrals (Cartesian co-ordinates only) - volume calculated as a triple integral.

Module V

Topics in vector calculus -Vector and scalar fields- Gradient fields – conservative fields and potential functions – divergence and curl - the □ operator – the Laplacian□2, Line integrals - work as a line integral- independence of path-conservative vector field.

Module VI
Topics in vector calculus, Green's Theorem, surface integrals – Divergence Theorem - Stokes' Theorem.

PHYSICS (Annexure I (x))

Total 30 questions from 6 Modules -5 questions from each module.

Module I

Harmonic Oscillations: Differential equation of damped harmonic oscillation, forced harmonic oscillation and their solutions -Resonance, Qfactor, Sharpness of resonance-LCR circuit as an electrical analogue of mechanical Oscillator.
Waves: One dimensional waves-Differential equation& its solution. Transverse vibration of stretched string.

Module II

Interference: Coherence, Interference in thin films and wedge shaped films (Reflected System), Newtons rings-measurement of wavelength and refractive index of liquid interference filters. Antireflection coating.

Diffraction Fresnel and Fraunhofer diffraction. Fraunhofer diffraction at single slit. Plane transmission grating. Grating equation-measurement of wavelength , Rayleigh's criterion for resolution of grating-Resolving power and dispersive power of grating.

Module III

Polarization of Light: Types of polarized light .Double refraction. Nicol Prism. Quarter wave plate and half wave plate, production and detection of circularly and elliptically polarized light. Induced birefringence-Kerr Cell-Polaroid & applications.

Super conductivity: Superconducting phenomena. Meissen effect. Type-I and Type II superconductors. BCS theory. High temperature super conductors-Application of super conductors.

Module IV

Quantum Mechanics: Uncertainty principle and its applications-formulation of Time dependent and Time dependent Schrodinger equations-physical meaning of wave function-Energy and momentum Operators-Eigen values functions-One dimensional infinite square well potential. Quantum mechanical Tunneling.

Statistical Mechanics: Microstates and Microstates. Phase space.Basic postulates of Maxwell-Boltzmann. Boltzmann, Bose-Einstein and Femi Diarc statistics. Distribution equation in the three cases. Femi Level and its significance.

Module V

Acoustics: Intensity of sound-Loudness-Absorption coefficient-Reverberation and reverberation time-Significance of reverberation time-Sabine's formula-Factors affecting acoustics of a building.

Ultrasonic's: Production of Ultrasonic waves- Magnetostriction effect and Piezoelectic effect-Magnetostrictionj oscillator and Piezoelectric oscillator-Detection of ultrasonic's-Thermal and piezoelectric methods-Applications of ultrasonics - -NDT and medical.

Module VI

Laser : properties of lasers, absorption, spontaneous and stimulated emissions, population inversion, Einstein's coefficients, Working principle of laser, Optical resonant cavity. Ruby Laser, Helium-Neon Laser, Semiconductor Laser, Application of Laser, holography (recording and reconstruction).

Photonics: Basics of solid state lighting-LED-Photo detectors-photo voltaic cell, junction &avalanche photo diodes, photo transistors, thermal; detectors, Solar cells-I-V characteristics-Optic fiber-Principle of propagation-numerical aperture-optic communication system-Industrial, medical and technological applications of optical fiber. Fiber optic sensors-Basics of Intensity modulated and phase modulated sensors.

CHEMISTRY (ANNEXURE I (xi))

Total 20 questions from 6 Modules -4 questions each from module I to IV and 2 questions from module V and VI.

Module I

Spectroscopy: Introduction, Beer Lamberts Law.
UV-visible spectroscopy - Principle, Instrumentation and application.
IR spectroscopy- Principle and application.
HNMR spectroscopy-Principle, chemical shift-spin-spin splitting and application including MRI, Spectral Problems.

Module II

Electrochemistry: Different types of of electrodes, SHE, Calomel electrodes, Glass electrode
Electrochemical series and its applications.
Nernst equation - Derivation, application & numericals.
Potentiometric titration - Acid-base and redox titration
Lithium ion cell and Fuel cell.

Module III

Instrumental Methods: Thermal analysis - Principle, instrumentation and applications of TGA and DTA
Chromatographic methods - Basic principles, column, TLC. Instrumentation and principles of GC and HPLC.
Conductivity - Measurement of conductivity

Module IV

Chemistry of Engineering Materials: Copolymers - BS, ABS -Structure and Properties.
Conducting Polymers - Polyaniline, Polypyrrole - Preparation, Structure and Properties.
OLED – An introduction
Advanced Polymers – Kevlar, Polybutadiene rubber and silicone rubber: Preparation, Structure and Properties.
Nanomaterials – Definition, Classification, chemical methods preparation- hydrolysis and reduction
Properties and Applications - Carbon Nano Tubes and fullerenes.

Module V

Fuels and Lubricants: Fuels - Calorific Value, HCV and LCV - Determination of calorific value of a solid and liquid fuel by Bomb calorimeter - Dulong's formula and Numerical.
Liquid fuel - Petrol and Diesel - Octane number & Cetane number

Biodiesel - Natural gas.

Lubricant - Introduction, solid, semisolid and liquid lubricants.

Properties of lubricants - Viscosity Index, Flash point, Fire point, Cloud point, Pour point and Aniline point.

Module VI

Water Technology: Types of hardness, Units of hardness, Estimation of Hardness – EDTA method.
Water softening methods - Ion exchange process - Principle. Polymer ion exchange.
Reverse Osmosis - Disinfection method by chlorination and UV
Dissolved oxygen, BOD and COD.
Sewage water Treatment - Trickling Filter and UASB process.

IT AND COMPUTER SCIENCE (ANNEXURE I (xii))

Total 15 questions from 6 Modules -3 questions each from module I to IV and 2 questions from module V and 1 question from VI.

Module I

Introduction to digital computer - Von Neumann concept - A simple model of computer, acquisition of data, storage of data, processing of data, output of processed data. Details of functional units of a computer. Storage - primary storage and secondary storage

Introduction to programming languages: types of programming languages - high level language , assembly language and machine language - System software - Operating systems - objectives of operating systems, compiler, assembler and interpreter.

Module II

Problem Solving strategies - Problem analysis - formal definition of problem - Solution - top- down design - breaking a problem into sub problems- overview of the solution to the sub problems by writing step by step procedure (algorithm) - representation of procedure by flowchart - Implementation of algorithms - use of procedures to achieve modularity.

Module III

Introduction to *Python* - variables, expressions and statements, evaluation of expressions, precedence, string operations.

Module IV

Functions, calling functions, type conversion and coercion, composition of functions, mathematical functions, user-defined functions, parameters and arguments.

Module V

Strings and lists - string traversal and comparison with examples. Tuples and dictionaries - operations and examples

Module VI

Files and exceptions - text files, directories. Introduction to classes and objects - attributes, instances.

ENGLISH (ANNEXURE I (xiii))

Total 15 questions for 15 marks based on the following topics

Vocabulary Building , The concept of Word Formation, Root words from foreign languages and their use in English, Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives. Synonyms, antonyms, and standard abbreviations. Basic Writing Skills, Sentence Structures, Use of phrases and clauses in sentences, Importance of proper punctuation, Creating coherence, Organizing principles of paragraphs in documents, Techniques for writing precisely Identifying common errors in writing, Subject-verb agreement, Noun-pronoun agreement, Misplaced modifiers, Articles Prepositions, Redundancies, Clichés, Nature and Style of sensible writing, Describing , Defining, Classifying, Providing examples or evidence, Writing introduction and conclusion.

ANNEXURE J

FEES FOR THE VARIOUS COURSES IN GOVERNMENT/AIDED COLLEGES

Fee component	Amount	Remittance
Admission Fee	Rs.225/-	At the time of admission
Tuition Fee	Rs. 3000/- per semester	Beginning of each semester
Special Fee (Revenue Rs.1650 + P.D Rs.350)	Rs.2000/ -	Beginning of odd semester
University Fee (Administration fee - Rs.1000/- at the time of admission. Exam fee - Rs. 500/- Subject fee - Rs.1200/-	Rs.2700/-	At the time of admission and Rs.1700/- at the beginning of each semester.
Caution deposit	Rs.1000/-	At the time of admission
Miscellaneous	Rs.25/-	At the time of admission
Total	**Rs. 8950/-**	

GUIDELINES FOR FILLING LET (B.Tech)-2019 APPLICATION FORM

1. Read the prospectus (available in the website: www.admissions.dtekerala.gov.in) with almost care before submitting the application through online**. The online registration closes on 16.04.2019 at 5 pm**

2. **First complete the registration and obtain login id (application no) and password. Do not forget to take the copy of the registration details. For resetting the password, the date of birth, mobile no and email id given at the time of registration are compulsory.**

3. The application forms shall be filled up strictly in accordance with the direction contained in the prospectus. No Colum shall leave blank.

4. Upload a passport size photo of the candidate in **jpg/jpeg** format of size between15 to 30 kb for online registration and **affix the same photograph duly attested by Gazetted Officer in the space provided in the hard copy of the application form.**

5. Candidates are requested to remit the required fee as per Para 8 of the prospectus after online registration.

6. The certificates required for supporting the claims are listed in the checklist. Candidates are requested to forward the copies of the certificates, duly attested by a Gazetted Officer, along with the application form. **Do not send original certificates along with the application** and same can be produced before the Principal of the Engineering colleges at the time of admission.

7. **No Editing or Modification is allowed after confirming the online submission of the application form.**

8. Hard copy of the application form,SBI chalan & the Performa for certificates will be obtained only after completing the online submission.

9. Defective or incomplete application will be rejected. **Documents/Certificates furnished after the submission of the application will not be entertained under any circumstances.**

10. Candidates are also advised to keep a photocopy on Form and the application number furnished may be used as the identification code for future reference.

11. **It is mandatory to submit the downloaded hard copy of the application form along with original Chelan and copies of the certificates duly attested by a Gazetted Officer to "The Joint Controller of Technical Examinations, Kaimanam P.O, and Thiruvananthapuram-695040"** in the envelope super scribed with "**LET (B.Tech) 2019**" by **Registered/Speed post or in person** on or before **26/04/2019 at 5 pm. Online registration alone is not a claim for appearing for the examination**.

12. Late applications will also be summarily rejected. The office of the JCTE will not be responsible for any postal delay/loss of applications.

13. Fee once remitted will not be refunded under any circumstances.

14. The computer printout of the e-certificates (for community) issued by Village Officers & Tahasildar is also acceptable.

15. For more information and identification on general doubts regarding LET(B.Tech)2019 admission, candidates can call at:**0471-2561313(10 am to 5 pm on all working days**).