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# AMRITA ENTRANCE EXAMINATION - ENGINEERING (AEEE) 2015

## (FOR ADMISSION TO B.TECH. PROGRAMMES)

### HANDBOOK

#### 1. INTRODUCTION

Amrita Vishwa Vidyapeetham is a University established under section 3 of the UGC Act 1956. The University focuses on higher education and research in the areas of Engineering, Medicine, Management, Arts & Sciences, Education, Mass Communication and Social Work. The University has five campuses at Amritapuri (Kollam), Bengaluru, Coimbatore, Kochi and Mysore.

Amrita Vishwa Vidyapeetham is conducting Entrance Examination every year on an all India basis for admission to the 4 year B.Tech. Degree programmes offered in the three campuses at Amritapuri (Kollam), Bengaluru and Ettimadai (Coimbatore). This examination is referred to as **Amrita Entrance Examination - Engineering, in short as AEEE**. Candidates who satisfy the eligibility criteria will be admitted to the first year of B.Tech. programmes (2015-19) through counselling, based on their ranks in the AEEE - 2015.

This handbook contains general information and rules relating to the Amrita Entrance Examination – Engineering 2015 (AEEE - 2015) and other relevant details about B.Tech. programmes, fee structure, modes of examination, exam centres, syllabus, application forms, conduct of examinaion, counselling etc. Candidates are required to go through the handbook thoroughly and acquaint themselves with the details relating to the entrance examination and subsequent admission. The contents of the handbook are subject to modification as may be deemed necessary by the University.

## 2. CAMPUSES & B.Tech. PROGRAMMES

The various B.Tech. programmes offered in the three Schools of Engineering are listed below:

<b>Amritapuri Campus</b>
Computer Science & Engineering Electrical & Electronics Engineering Electronics & Communication Engineering Mechanical Engineering
<b>Bengaluru Campus</b>
Computer Science & Engineering Electrical & Electronics Engineering Electronics & Communication Engineering Electronics & Instrumentation Engineering Mechanical Engineering
<b>Coimbatore Campus</b>
Aerospace Engineering Chemical Engineering Civil Engineering Computer Science & Engineering Electrical & Electronics Engineering Electronics & Communication Engineering Electronics & Instrumentation Engineering Mechanical Engineering

**Note : Applications are processed at Coimbatore campus. Hence all B.Tech. applications shall be sent to the Coimbatore Campus only.**

**For admission enquiries : 0422 - 2685 169 / 170 ( between 9 am and 4 pm on working days )**

### 3. ELIGIBILITY FOR ADMISSION

- 3.1 **Age** – Candidates shall be born on or after **1<sup>st</sup> July 1994**.
- 3.2 **Educational Qualification** – A pass in 10+2 ( class XII ) or its equivalent securing an aggregate of 60% marks in Mathematics, Physics and Chemistry with not less than 55% marks in each of these three subjects.

( OR )

A three year Diploma in Engineering with minimum 60% marks, awarded by any State Board of Technical Education.

Note: **Those who appear for the above examinations in March / April 2015 and expect to secure minimum marks as above, may also apply.**

### 4. MODE OF ENTRANCE EXAMINATION (AEEE - 2015)

- 4.1 The AEEE 2015 is conducted in two separate modes
- Computer Based Test (CBT)
  - Paper & Pencil Based Test (P&P)

**Candidates can choose ANY ONE of the two modes as per their choice. BUT NOT BOTH. If they mark both modes, their applications will become invalid and will be rejected.**

4.2 Duration of Exam: 2 1/2 hours

4.3 Schedule of Examination

4.3.1 Computer Based Test (CBT)

CBT is planned to be conducted on the following dates:

Dates:

16.04.2015, Thursday

17.04.2015, Friday

18.04.2015, Saturday

Timings on all days (Slots) :

09.00 am to 11.30 am

12.30 pm to 03.00 pm

04.00 pm to 06.30 pm

Among the three dates of CBT given in 4.3.1, candidate shall mark first, second and third preferences of dates. They need not mark slot preference. For exam cities, refer section 4.6.1

Preferred order of dates for CBT should be exercised while filling up the application form. The allotment of slots / dates will be on first come first served basis. If a candidate does not exercise his / her option, he / she shall be assigned a slot / date as per the availability of the same.

4.3.2 Paper & Pencil Based Test (P&P)

P&P is conducted in one slot only as below:

Date: 25.04.2015, Saturday

Time: 10 am to 12.30 pm

For exam cities, refer section 4.6.2

#### 4.4 ABOUT COMPUTER BASED TEST (CBT)

It is assumed that the candidate has a basic knowledge about the computer, use of key board and mouse. Candidate should acquire these skills before appearing for CBT.

The candidate sits in front of the allotted computer which is connected to the server. The test software presents 100 multiple choice questions on the monitor.

The candidate answers the questions in preferred sequence.

Candidates in different slots will get different question sets. An expert committee will ensure that the question sets are of comparable standards with respect to content, nature of questions and difficulty level. The decision of the expert committee in this matter will be final and binding on the candidate.

#### 4.5 ABOUT PAPER & PENCIL BASED TEST (P&P)

Printed question booklets in 4 different versions are distributed among the candidates. The question booklet contains 100 multiple choice questions. The answers are to be marked in printed OMR answer sheet. An expert committee will ensure that the question sets are of comparable standards with respect to content, nature of questions and difficulty level when compared with the question sets of computer based test. The decision of the expert committee in this matter will be final and binding on the candidate.

#### 4.6 Test Centres for CBT and P&P (See Section 11 also)

##### 4.6.1 CBT Centres (See Section 7.14 also)

Since large number of students are taking the test, the University offers CBT in 97 centres (Annexure - I). A candidate appearing for CBT can give three preferences of test centres, subject to the restriction in section 7.14. He / she will be allotted one out of the three. The final list of centres and the operating days and slots at each centre will depend on the number of applicants and their preferences.

The preferences given by the candidate are only indicative and are to guide the University for deciding the number of centres. The University will try its best to accommodate candidates at their first preference, but this cannot be guaranteed. If it is not possible to allot any of the three preferences given, the University reserves the right to allot any other any other city.

##### 4.6.2 P&P Exam Centres (See Section 7.16 also)

P&P exam is conducted in 45 cities. These cities are listed in Annexure II. Candidates can choose any two cities from this list. Candidate will normally be allotted to one of these two choices. If examination cannot be conducted in these two cities, candidate will be allotted to another city.

#### 5. APPLICATION FOR AEEE 2015

5.1 **Computer Based Test** : Application can be submitted either online or using printed OMR application form.

5.2 **Paper & Pencil Based Test** : Application can be submitted either online or using OMR application form.

5.3 **Application Fee**: Rs. 1000/- for CBT as well as P&P. Application fee once paid will not be refunded.

5.4 **Where to get Application Form** :

##### 5.4.1 ONLINE APPLICATION

*Refer to the University website [www.amrita.edu](http://www.amrita.edu) for details and instructions.*

5.4.2. Printed OMR Application Forms of AEEE 2015 can be obtained as given below :

- a) From sale outlets (Post Offices and Banks) on payment of Rs. 1000/-.

(For details visit the University Web site [www.amrita.edu](http://www.amrita.edu))

OR

- b) By post, from the Admission Co-ordinators of Amrita Schools of Engineering at Amritapuri, Bengaluru and Coimbatore, on a written request indicating their full communication address together with a Demand Draft for Rs. 1000/- drawn in favour of **Amrita School of Engineering payable at Coimbatore.** (See Front Cover inside for campus addresses)

OR

- c) Direct from the University counter of Amrita Schools of Engineering at Amritapuri, Bengaluru and Coimbatore on producing a demand draft for Rs. 1000/- as above.

**Note: When a demand draft is used, candidate should write on the back of the Demand Draft, “ B.Tech Application”, his / her Name and mobile number. Please keep a photocopy of the filled in application and Demand Draft with you for future reference.**

## 6. PRINTED OMR APPLICATION - DETAILS

Relevant details about the printed / coded OMR application are given in this handbook.

- 6.1 The application form will be processed by computer based Optical Mark Reader. Hence use HB Pencil and Black Ball Point Pen as per the instructions in section 6 and 7.
- 6.2 Mark your response, only within the space provided for the purpose. Response marked outside the space will not be read by the machine.
- 6.3 Application form should be filled in English only. Using black ball point pen write in capital letters the required information in the boxes (wherever provided) above the bubbles (ovals). Then completely darken the bubbles under each letter / number using HB Pencil.
- 6.4 Do not make any stray mark on the coded Application Form.
- 6.5 Do not enclose any certificate along with filled-in application & don't get attestation in the application.
- 6.6 Candidates must use only the original coded form; photocopy of the coded form will not be accepted.
- 6.7 Handle the coded sheet very carefully. **Do not staple, pin, wrinkle, tear or wet the coded sheet. Tampered application is liable to be rejected.**
- 6.8 Coded Application form is to be folded in the same manner as it is supplied. No new fold should be made.
- 6.9 Incomplete application forms will be summarily rejected and no communication will be sent in this regard.
- 6.10 Coded Application Form is enclosed in a pre-addressed special envelope. The applicants should despatch the filled-in form in the same pre-addressed envelope to **the Admission Co-ordinator (see section 8.2).**
- 6.11 **Request for change or correction of any information given in the application form will not be entertained under any circumstance.**
- 6.12 Candidate shall submit only one application.

## 7. GUIDELINES FOR FILLING EACH ITEM IN THE CODED APPLICATION FORM

The coded Application Form contains 19 items. Please fill up all the items carefully as per the guidelines below.

- ◆ Please note that the relevant bubbles (ovals) shall be completely darkened using **HB Pencil** and all writings shall be with **Black Ball Point Pen**.
  - **Use black ball point pen** for writing inside the **rectangle boxes** .
  - **Use HB pencil** for filling up the bubbles.
- ◆ If you desire to correct any entry made with HB pencil, you have to completely erase the wrong entry without damaging the paper and leaving any smudge, since a partially erased mark leads to wrong reading by the Optical Mark Reading machine.
- ◆ Candidates should take extreme care while writing inside the boxes using black ball point pen. In case any letter is entered wrongly, strike out the letter and write above it correctly. **Correction fluid should not be used.**

### 7.1 Name of the Candidate (Item 1)

7.1.1 Within the rectangular boxes, write your name in CAPITAL letters **as in the 10<sup>th</sup> class certificate using Black Ball Point Pen**

7.1.2 Leave one box vacant between the names and the initials as,

A	N	I	L		V	A	R	M	A		P	K
---	---	---	---	--	---	---	---	---	---	--	---	---

7.1.3 Darken the corresponding bubbles with HB pencil.

### 7.2 Category (Item 2)

7.2.1 Four categories are indicated, namely Scheduled Caste (SC), Scheduled Tribe (ST), OBC and Others. Darken the appropriate bubble.

7.2.2 Community certificate **shall not be enclosed** with the application form, but shall be produced in original during counselling.

### 7.3 Gender (Item 3)

- ◆ Darken the appropriate bubble against Male or Female to denote the candidate's gender.

### 7.4 Date of Birth (Item 4)

- ◆ Fill in the date of birth in Christian era in the boxes as below and darken the appropriate bubbles.

**16th August 1994**

Date		Month		Year	
1	6	0	8	9	4

### 7.5 State/Union Territory/Foreign country from where you have completed 12<sup>th</sup> class / diploma (Item 5)

- ◆ The code numbers for the States / Union Territories / other countries are given in **Annexure III**. Write the appropriate code number in the rectangular box provided. Darken the corresponding bubbles. The code denotes the state where the candidate has passed 12th / Pre-degree. Application will not be processed if the state code is not correctly entered.

7.6 **Nationality (Item 6)**

- ◆ Darken the appropriate bubble.

7.7 **Mobile Phone Number (Item 7)**

- ◆ Indicate your mobile phone number by writing in the rectangular box and darkening the bubbles.

9	8	9	4	5	0	9	2	1	7
---	---	---	---	---	---	---	---	---	---

7.8 **Full name and complete postal address of the candidate (Item 8)**

- ◆ The address written in this box will be scanned as such and used for correspondence. In order to ensure prompt delivery of letter, **the full name and address of the candidate should be written legibly in CAPITAL letters using black ball point pen.** The address should contain House No., House Name, Road / Street, Post Office, District etc. It should not touch or cross the border. State clearly your contact telephone number with STD code. Write the mobile number, if any. Write the Email address, if any, **in CAPITAL letters for clarity.** If your hand writing is not clear, or the address is incomplete, the letters sent are liable to be returned by the postal authorities and the university will not be responsible in this regard.

7.9 **Photograph (Item 9)**

- 7.9.1 Affix a good quality passport size colour photograph (size 3.5 X 4.5 cm) taken within the last three months. **Do not make any attestation in the photograph.** Do not staple or pin the photograph. The photograph shall not be larger than the space (box) provided for affixing it.
- 7.9.2 The candidates are advised to keep with them six copies of the photograph for subsequent use during counselling / admission.

7.10 **Signature of the Candidate (Item 10)**

- ◆ Your signature establishes your identity. Put your usual signature using **black ball point pen** within the box provided. The signature should not touch or cross the border of the box. The signatures in item number **10** and item number **18** shall be identical.

7.11 **Name of Parent / Guardian (Item 11)**

Write the name of parent in CAPITAL letters in the rectangular box provided. If both the parents are not alive, write the name of the guardian.

- ◆ Leave one box vacant between the names and the initials as,

K	R	I	S	H	N	A		K	U	M	A	R		C	K
---	---	---	---	---	---	---	--	---	---	---	---	---	--	---	---

- ◆ Write the name using black ball point pen.

7.12 **Academic details (Item 12)**

- ◆ Using black ball point pen write in capital letters the Name of school last attended, Address, Post, City, District, State and Pincode.

7.13 **Mode of Entrance Exam Opted (Item 13)**

**Entrance Exam is conducted in 2 modes.** You can choose one of the following modes:

- 1) Computer Based Test (CBT) - Conducted in 97 cities on 16th, 17th & 18th April 2015.
- 2) Paper and Pencil Mode Test (P&P) - Conducted in 45 cities on 25th April 2015.

**Mark your choice in Item 13 by filling the oval against ONE mode ONLY. If you mark both the ovals, your application becomes invalid and will be rejected.**



#### 7.14 Choice of Exam City - FOR CBT APPLICANTS ONLY (Item 14)

- ◆ 97 cities where CBT is conducted are listed in Annexure I.

**In Item 14 you can mark your city option for CBT.**

You have to choose three cities from Annexure - I subject to the following condition: **At least one city must be from city sl.no. 01 to 70 of Annexure I. The remaining two choices can be any two cities from 01 to 97 given in Annexure - I.** Write the city code and fill the corresponding bubble.

#### 7.15 Date of Entrance Exam (Item 15)

CBT is planned to be conducted on 16th, 17th & 18th April 2015. Those who opt CBT can mark their 1st, 2nd and 3rd preferences of date in Item 15.

#### 7.16 Choice of City - FOR P&P APPLICANTS ONLY (Item 16)

- ◆ **Candidates opting for P&P shall choose their two preferred cities from Annexure -II, write the city codes and darken the bubbles in item 16. P&P is conducted on 25th Aril 2015 only, and hence there is no choice of date for P&P.**

#### 7.17 Declaration (Item 17)

- ◆ Candidate and the parent / guardian should read and understand the declaration carefully.

#### 7.18 Signature of the Candidate (Item 18)

- ◆ Use black ball point pen and put the signature within the box, not touching or crossing the sides.

#### 7.19 Signature of the Parent / Guardian (Item 19)

By signing the declaration, the candidate and the parent / guardian undertake the responsibility for the correctness of all the statements in the application. So they shall ascertain the truth / correctness of the statements. Signature shall be with black ball point pen only. Application without the signature of the candidate and Parent / Guardian will be rejected. Write the place and date in the space marked for the purpose.

### 8. SUBMISSION OF THE FILLED-IN APPLICATION

- 8.1 **Please note down the Application number in your personal record and keep a photocopy of the filled-in application for future reference and correspondence.**
- 8.2 Duly filled-in application form shall be sent in the pre-addressed cover to the **following address ONLY:**

**The Admission Co-ordinator,  
Amrita School of Engineering, Amrita Vishwa Vidyapeetham,  
(P.O) Amritanagar, Ettimadai , Coimbatore 641 112, Tamil Nadu. Phone: 0422 - 2685169 / 170.  
(Applications are processed only at the above office and hence application should not be sent to  
any other campus)**

FOR ENQUIRIES, USE ONLY THE PHONE NUMBERS GIVEN IN SECTION 10

- 8.3 **Please send the filled-in application form at the earliest, so that you can avoid anxiety and confusion at the last moment.**

### 9. HALL TICKET & IDENTIFICATION

- 9.1 No candidate will be allowed to appear for the Entrance Examination without valid hall ticket. In the Examination hall, candidate should produce the hall ticket when demanded by the invigilator.
- 9.2 The Hall Ticket generated by the software will contain the Registration Number of the candidate and address of the Exam Centre allotted to the candidate.

- 9.3 **Hall Ticket can be downloaded from the University website by entering Application Number and Date of Birth. Hall Ticket will not be sent by post.**
- 9.4 In the examination hall, each candidate shall sign the attendance sheet. This signature shall be identical with the signatures on the Application Form and the Hall Ticket. During the examination, the candidate's left hand thumb impression also will be taken for identification. Thumb impression will be taken again at the time of admission for comparison.
- 9.5 **Candidates shall retain their hall tickets used in the examination hall having the signature of the invigilator and produce the same at the time of counselling failing which the candidate will not be allowed for counselling.**

## 10. ADMISSION ENQUIRIES

- ◆ **For all enquiries related to the Entrance Examination, and admission based on the Entrance Examination, please call 0422 – 2685 169 / 170 between 9.00 am - 4.00 pm on working days.**

## 11. EXAMINATION CITIES & CITY CODES

- ◆ Entrance examination (either Computer Based Test or Paper & Pencil Based Test) will be conducted in major cities / towns throughout India. The names of those cities / towns are listed in **Annexure I and II** along with the city code. Annexure I gives CBT cities and Annexure II P&P Test cities. Examination will be conducted in a centre only if there are sufficient candidates. If exam cannot be conducted at the first choice, of a candidate he / she will be allotted to their second / third choice.

**THE INSTRUCTIONS FROM 12 TO 17 BELOW PERTAIN TO PAPER & PENCIL MODE EXAM.**

**FOR INSTRUCTIONS ON CBT, VISIT OUR WEBSITE.**

## 12. AT THE EXAMINATION CENTRE

- 12.1 The examination is from 10 am to 12.30 pm. Candidates shall be present at the examination centre 30 minutes before the commencement of the examination. Candidates will not be allowed to appear for the examination without producing the Hall Ticket.
- 12.2 **Any malpractice or attempt to commit malpractice in the examination hall or any violation of the rules will lead to disqualification of the candidate.**
- 12.3 Candidates must bring black ball point pen, HB pencils, pencil sharpener and eraser.
- 12.4 Candidates shall occupy their respective allotted seats at 9.35 am.
- 12.5 **Candidates will not be admitted to the examination hall 15 minutes after the commencement of examination.**
- 12.6 Candidates will not be allowed to carry any textual material, printed or written bits of paper, Mathematical and Physical tables, electronic gadgets like calculator, cell phone etc. into the examination hall.
- 12.7 Read carefully the instructions on the question booklet and the coded answer sheet before answering the questions and fill up the required details on the question booklet and answer sheet.
- 12.8 Handle the OMR answer sheet carefully; no spare answer sheet will be given.
- 12.9 Candidates will not be allowed to leave the examination hall before the end of the examination.
- 12.10 Candidates should hand over the answer sheet and the question booklet to the invigilator at the stroke of the long bell at 12.30 PM.
- 12.11 If a candidate does not return the Question Booklet his / her answer sheet will not be valued.

- 12.12 **After handing over the answer sheet and question booklet to the invigilator, each candidate shall remain in his / her seat and affix his / her left hand thumb impression in the attendance sheet. The answer sheet of a candidate will not be valued if he / she has not affixed his / her thumb impression.**

### 13. ABOUT THE EXAMINATION

- 13.1 **Entrance Examination Pattern (Paper & Pencil Mode):** The duration of the Examination is 2 1/2 hours (10 AM to 12.30 PM). There will be only one question paper containing 100 objective type questions in Mathematics, Physics and Chemistry. Each question will be followed by four answers of which only one is correct / most appropriate. The question booklet will be in English. **Each correct answer will fetch 3 marks, each incorrect answer has a penalty (-1 mark)**

13.2 **Subject Combination:**

Subject	Weightage	Total No. of Questions	Total Marks
Mathematics	40 questions		
Physics	30 questions	100	300
Chemistry	30 questions		( 100 x 3 )

### 14. QUESTION BOOKLET & ANSWER SHEET

- 14.1 Sealed question booklet will be in 4 versions A, B, C & D. The version code of the question booklet, the number of pages and question booklet number will be printed on the front page of the question booklet.

- 14.2 **Using black ball point pen, candidate shall write his / her name, registration number and signature in the spaces provided in the front page of the question booklet.**

14.3 **Answer sheet**

- ◆ OMR answer sheet is used for marking the answers.

14.4 **Distribution of Question Booklet and Answer Sheet**

- ◆ Question booklet and coded answer sheet will be distributed in the examination hall 15 minutes before the actual time of commencement of examination, so that the candidates shall have sufficient time to read the instructions and fill up the required information on question booklet and answer sheet.

14.5 **Important Points to note**

- ◆ The candidate should not do any rough work on the answer sheet. All rough work should be done in the space provided for the purpose in the question booklet.
- ◆ Extra care is needed while handling the coded answer sheet in the following respects.
- ◆ **DO NOT: (i) pin or staple (ii) punch or tag (iii) make hole anywhere (iv) wet or soil (v) tear or mutilate (vi) wrinkle or fold the coded answer sheet.**

### 15. ENTRIES ON THE OMR ANSWER SHEET

**DATA PART of the coded answer sheet**

- ◆ **The coded answer sheet has provision for entering the following data:**
- Registration Number
- Question Booklet Number
- Question Booklet Version Code
- Signature of the Candidate
- Name of the Candidate

- ☐ Signature of the Invigilator
- ☐ Name of the Invigilator
- ◆ **Before you start answering, write the details using black ball point pen and darken the bubbles using HB pencil or black ball point pen as per the instructions below.**

- 15.1 **Registration Number:** On the answer sheet, write the registration number within the rectangular box provided as given in the Hall Ticket and darken the corresponding bubbles. The registration number should be written without any correction or overwriting.
- 15.2 **Question Booklet Number:** This number is printed on the front page of the question booklet. Copy this number in the rectangular box on the answer sheet and darken the appropriate bubbles.
- 15.3 **Question Booklet Version Code:** The question booklet given to you has a version code A, B, C or D. Write this code in the rectangular box and darken the appropriate bubble.
- 15.4 **Signature of the Candidate:** The candidate has to sign in the space indicated and it should match with the signature in the Application and Hall Ticket.
- 15.5 **Name of the Candidate:** Write the name as given in the Hall Ticket in CAPITAL letters correctly and legibly.
- 15.6 **Signature and Name of the Invigilator:** The invigilator will make these entries.
- 15.7 **Correcting entries in the answer sheet:** If any writing in INK in the boxes happens to be wrong, strike off the same and write correctly in the nearby space. **'DO NOT' use correction fluid on the answer sheet.** If any bubble darkened by pencil happens to be incorrect, erase the same carefully without leaving any smudge and darken the correct bubble. If the bubbles are darkened with ball point pen, it cannot be corrected, hence to be done very carefully.

**ANSWER PART of the coded sheet (Use HB pencil or black ball point pen)**

- ◆ This portion is intended for marking the answers to the questions.
- ◆ For each question, four alternative answers and corresponding four bubbles are given.
- ◆ Select the correct or most appropriate answer, and shade the corresponding bubble using HB pencil or **black ball point pen**. eg., If the answer to the **question 2 is C, the bubble C has to be darkened as shown below.**

Question No.	Answers			
1.	(A)	(B)	(C)	(D)
2.	(A)	(B)	●	(D)
3.	(A)	(B)	(C)	(D)

- ◆ Mark / shade only one bubble against each question in the answer sheet. The bubble should be darkened completely. You can use HB pencil or black ball point pen as per your choice.
- ◆ **In case a candidate, after a second thought, wishes to change the choice already darkened with HB pencil, he / she may erase the marking completely with a good eraser and thereafter darken the alternative bubble afresh. While erasing, extreme care should be taken to see that there is no damage to the sheet or no smudge left, as it will affect the evaluation. Bubbles darkened with ball point pen cannot be altered and hence a firm and final decision should be taken before marking with pen.**

## 16. OPENING THE QUESTION BOOKLET

- 16.1 Two minutes before the commencement of the examination, the invigilator will announce to open the question booklet. Do not open / break the seal before the announcement.
- 16.2 Immediately after opening the question booklet, the candidate should check the following:
- Whether the question booklet and all the pages are in good condition.
  - Whether it has the exact number of pages mentioned on the front page.
  - Whether it contains 100 questions numbered in serial order. If the question booklet is not in tact, report the matter to the invigilator.

## 17. EXAMINATION TIME SCHEDULE

Duration of the examination	10.00 AM - 12.30 PM
Entry to the examination hall	9.35 AM (Long Bell)
Distribution of question booklet and OMR answer sheet	9.45 AM (Short Bell)
Filling-up the entries in the question booklet and answer sheet	9.45- 9.58 AM
Opening the question booklet	9.58 AM (Short Bell)
Examining of the question booklet	9.58 - 10.00 AM
Commencement of the examination	10.00 AM (Short Bell)
Late entry of candidates to the hall permitted till	10.15 AM
Warning bell	12.20 PM (Short Bell)
End of the examination	12.30 PM ( Long Bell )
Submission of answer sheet & question booklet	12.30 PM
Affixing the left hand thumb impression	12.30 PM – 12.40 PM

## 18. EVALUATION AND NEGATIVE MARKS

- 18.1 Three marks will be awarded for every correct answer. **For every incorrect answer, one mark will be deducted from the total score.** If no response is indicated in the answer sheet against a question, no marks, positive or negative will be awarded. If more than one answer is indicated against a question, it will be treated as “incorrect answer” and negative mark will be awarded. You are advised to mark an answer only if you are sure that it is correct / the most appropriate.
- 18.2 **The answer sheets are machine graded and scrutinized with precision. Hence request for revaluation, rechecking or retotalling will not be entertained.**

## 19. PUBLICATION OF RANK LIST

- ◆ Rank list will be published in the University website.

## 20. COUNSELLING AND ADMISSION

- 20.1 Counselling for admission will be in May / June 2015. Counselling call letter will be sent after the publication of the rank list of the Amrita Entrance Examination. The counselling schedule will be available in the University website. Candidates should ensure their eligibility.
- 20.2 Candidate shall ascertain his / her eligibility for admission before attending the counselling. The seat allotment is based on rank in AEEE - 2015 and eligibility as per section 3 of the Handbook. If any candidate admitted is found to be ineligible at a later date, his / her admission will be cancelled.
- 20.3 Counselling will be arranged simultaneously in the three campuses. Candidate can appear for counselling in any one of the three campuses and opt a branch in any campus according to his / her preference and availability of seat.
- 20.4 A certain percentage of seats in each campus will be earmarked for the candidates who passed 12<sup>th</sup> class from the respective states in which the University campus is situated. In order to ensure admission to candidates from all states, the maximum intake from any state will be suitably restricted.
- 20.5 Candidate must be physically present for counselling. Parent / Guardian shall accompany the candidate.
- 20.6 At the time of Counselling, candidates shall produce originals of the following:
  - Marks statements of class X and XII,
  - Hall tickets of class XII Examination & Amrita Entrance Examination – Engg. 2015,
  - Transfer Certificate from the school last attended,
  - Community certificate in case of SC / ST,
  - Other testimonials as specified in the call letter.
- 20.7 If the original certificates are not produced by a candidate, he / she will not be permitted to attend the counselling.
- 20.8 When a candidate accepts the seat allotment, his / her original certificates will be retained by the University, unless otherwise decided by competent authority.
- 20.9 Each candidate shall pay Rs. 5,000/- by Demand Draft as counselling charges which is non-refundable.
- 20.10 Before seat allotment, each candidate has to pay Rs. 50,000/- by demand draft as part of tuition fees. Candidates are required to pay the balance fees and complete all other formalities within the time limit prescribed in the Seat Allotment Order. Request for extension of time for payment of fees will not be entertained. If a candidate fails to remit the fees on or before the stipulated date his / her seat allotment will get automatically cancelled without notice.
- 20.11 The candidate shall attend the counselling in neat formal dress.
- 20.12 Counselling call letter sent to a candidate does not guarantee admission to the B.Tech. Programme. Candidates are advised to note the seat availability from our website before coming to attend the counselling.

## 21.WITHDRAWAL FROM THE PROGRAMME AND REFUND OF FEES

- 21.1 Refund of fees will be made as per the regulations of the University.
- 21.2 If a student admitted to the B.Tech. programme withdraws from the programme before the starting of the classes, the fees collected from the student will be refunded after deducting a processing fee of Rs.1000/-.
- 21.3 If a student leaves after starting the classes, but before closing the admission, and if the seat consequently falling vacant is filled by another candidate before the last date of admission, the University will return the fees collected with proportionate deductions of monthly fees. If the vacancy is not filled up as above, the fee will not be refunded.
- 21.4 In any case given above (21.2 & 21.3) counselling charge will not be refunded.
- 21.5 No refund will be given to a student leaving after the closing of admissions.
- 21.6 The date of closing of admissions will be announced by the University.

## 22. FAQ ON B.TECH. ADMISSION 2015

Qn.- 1. What is the procedure to get admission for B.Tech. in Amrita University ?

Ans: A candidate should have a pass in 10+2 ( class XII ) or its equivalent securing an aggregate of 60% marks in Mathematics, Physics and Chemistry with not less than 55% marks in each of these three subjects (or) a three year Diploma in engineering with minimum 60% marks, awarded by any State Board of Technical Education and also should appear for Amrita Entrance Exam to be eligible to get admission based on his / her rank in the entrance exam. Age restrictions apply. See section 3.1 & 3.2 of this Handbook.

Qn.- 2. Can a candidate who has scored high rank in any other national or state entrance exam get direct admission in Amrita based on this rank?

Ans: No. Only candidates who appeared for Amrita Entrance Exam 2015 are eligible for admission.

Qn.- 3. Is Amrita Vishwa Vidyapeetham affiliated to any University for purpose of recognition of degrees?

Ans: No. Amrita Vishwa Vidyapeetham is a University established under sec 3 of UGC Act 1956. Being a University, the question of affiliation to another university does not arise. Since the university is recognized by UGC and Ministry of HRD, Govt. of India, the courses offered by Amrita University are recognized. The University is accredited by National Assessment and Accreditation Council ( NAAC ) with 'A' Grade in 2009 and 2014. The HRD Ministry's Panel Report(2010) on Deemed Universities has graded Amrita in Category 'A'.

Qn.- 4. How is Amrita B.Tech.Programme designed?

Ans: Choice Based credit system with continuous evaluation is followed in semester pattern.

Qn.- 5. Is campus transfer possible after joining the B.Tech. programme in anyone of the Amrita campuses?

Ans: No. There is no provision for campus transfer.

Qn.- 6. What is faculty student ratio for the engineering programmes?

Ans: 1 : 12 approximately.

Qn.- 7. Where should I attend the counselling for B.Tech. admission?

Ans: You can attend the counselling in any one of the three campuses at your convenience and opt any branch in any one of the three campuses according to the availability of seat at the time of your counselling.

Qn.- 8. At the time of counselling, is the presence of candidate compulsory?

Ans: Yes, the candidate along with his parent or guardian shall be present at the counselling desk.

Qn.- 9. At the time of counselling, is it enough to produce Photostat copies of the certificates?

Ans: Sorry. Original certificates are to be produced ( see section 20 in this Handbook.)

Qn.- 10. If I do not receive call letter in time to attend the counselling, what can I do?

Ans: The rank list and counselling schedule will be published in the university website. Candidates who do not get the intimation letter shall check the website and if their rank is included for counselling, they may attend the counselling with all their original certificates as specified. Moreover they may contact the university office



in this regard before the date of counselling. (Ph : 0422 2685169/170)

Qn.– 11. In XII class exam my average marks for Physics, Chemistry and Mathematics is above 60% but in one of the subjects the score is less than 55%. Can I attend the counselling?

Ans : No. You should get 55% or more separately in Mathematics, Physics and Chemistry together with 60% aggregate in these three subjects.

Qn.– 12. After admission, if one wants to withdraw from the programme, what about the refund of fees?

Ans : Refer to section 21 in this handbook. Refund will be given as per the regulations of the University.

### **23. PREVENTIVE MEASURES AGAINST RAGGING**

As per the orders of the Central and State Governments and the directives of the Hon'ble Supreme Court of India, precautionary steps are taken to preempt ragging in the campus, including the hostels. The students are warned that they would be expelled from the institution with a reference to their offence in their Transfer Certificates and if required, they would be handed over to the local police. Posters are issued warning them of the far-reaching consequences of indulging in ragging. Undertakings from the senior students are taken, countersigned by their parents that they would not indulge in such activities. Counselling is given to the second year students by the Dean - Engineering and the Prof. of Students Welfare.

Departmental anti-ragging committees with staff and students as members are formed to prevent, to find out and punish the wrong-doers. The non teaching staff working in most of the service outlets and utilities and in the sports grounds in the campus and hostels are asked to be on the lookout and inform of any sign of ragging or teasing.

The affected students can report in confidence to the Chairman - Council of Wardens and to the Professor - Student Welfare.

Studying in Amma's institutions, the students have an ingrained sense of dignity, and respect for fellow students and this is responsible for the incident - free student life in our campuses.

## 24. IMPORTANT NOTES

Please go through the following general information:

1. Please ensure that you are using the correct application form intended for Amrita Entrance Examination – Engineering 2015.
2. NRI candidates shall give their address in India for correspondence.
3. Ensure that you fulfill all the eligibility criteria given in section 3 of the Information Handbook.
4. Submit only one application form before the last date prescribed and the application must be complete in all respects. Incomplete applications are liable to be rejected.
5. Application forms will be machine processed. The machine will read only fully darkened bubbles. Please see section 6 & 7 of the Information Handbook before filling the application form.
6. Options once selected in the application cannot be changed at a later date.
7. Completed application form shall be sent only to the address given in section 8 of the Information Handbook.
8. The application fee and the counselling charge are not refundable.
9. The Hon'ble courts at Coimbatore only shall have the jurisdiction to settle and decide all matters and disputes related to Amrita Entrance Examination - Engineering 2015.

## 25. CHECK LIST

Before mailing the application, please ensure that

- your name is written as per the 10<sup>th</sup> class records.
- full & correct mailing address is written. ( NRI's shall give their address in India)
- your contact phone number (land phone & mobile phone) & Email ID are written correctly.
- you have written the address of the school last attended.
- you have used black ball point pen to write and HB pencil to darken the bubbles.
- you have correctly marked your option of CBT or P&P.
- you have mentioned correctly the city code of the examination centre, first , second and third choice in the case of CBT; first and second in the case of P&P.
- you have mentioned correctly the State code from where you have completed your 12<sup>th</sup> class.
- you have affixed a recent passport size colour photograph of good quality in the space provided.
- your photograph is not attested.
- you have signed in the space provided on the first page and second page of the Application Form.
- your parent / guardian has signed the declaration.
- you have not used any pin or staple on the application.
- you have retained a photocopy of the filled-in application form and DD for future reference.
- your application is to be despatched in the pre-addressed cover intended for sending the same and is addressed to:

**The Admission Co-ordinator**  
**Amrita School of Engineering**  
**Amrita Vishwa Vidyapeetham University**  
**(P.O) Amritanagar, Ettimadai, Coimbatore – 641 112.**  
**Tamilnadu.**  
**Phone: 0422 – 2685169 / 170**

## 26. DATES TO REMEMBER

<b>Online Registration Starts</b>	-	<b>03-11-2014</b>
<b>Issue of OMR Application form begins</b>	-	<b>17-11-2014</b>
<b>Last date of issue of OMR Application form</b>	-	<b>23-03-2015</b>
<b>Last date for receiving completed applications</b> (OMR & On-line)	-	<b>25-03-2015</b>

### **Date of Entrance Examination**

<b>Computer Based Test</b>	-	<b>16th, 17th &amp; 18th April 2015</b>
<b>Paper and Pencil Based Test</b>	-	<b>25th April 2015 FN</b>

## ANNEXURE - I

### LIST OF CITIES AND CITY CODES FOR COMPUTER BASED TEST (CBT)

Candidates must opt at least one choice from cities serially numbered from 01 to 70. The remaining two choices can be any two cities numbered from 01 to 97.

State	City SI.No	City	City Code
TAMILNADU	1	Chennai	101
	2	Coimbatore	102
	3	Erode	105
	4	Hosur	106
	5	Madurai	108
	6	Nagercoil	109
	7	Namakkal	110
	8	Neyveli	111
	9	Ooty	112
	10	Puducherry	114
	11	Salem	115
	12	Thanjavur	116
	13	Tirunelveli	117
	14	Tiruppur	118
	15	Trichy	119
KERALA	16	Amritapuri (Kollam)	202
	17	Kannur	204
	18	Kochi	206
	19	Kottayam	208
	20	Kozhikode	209
	21	Palakkad	211
	22	Thiruvananthapuram	213
	23	Thrissur	214
KARNATAKA	24	Bengaluru	302
	25	Hubli	304
	26	Mangalore	305
	27	Mysore	306

**LIST OF CITIES AND CITY CODES FOR COMPUTER BASED TEST (CBT)(Contd..)**

State	City Sl.No	City	City Code
ANDHRA PRADESH	28	Anantapur	401
	29	Kakinada	403
	30	Kurnool	404
	31	Nellore	405
	32	Tirupati	406
	33	Vijayawada	407
	34	Vishakhapatnam	408
TELANGANA	35	Hyderabad	501
	36	Nizamabad	503
	37	Warangal	504
ASSAM	38	Guwahati	601
BIHAR	39	Patna	604
CHANDIGARH	40	Chandigarh	605
CHATTISGARH	41	Raipur	607
DELHI	42	Delhi	608
GUJARAT	43	Ahmedabad	610
	44	Surat	612
HARYANA	45	Gurgaon	615
	46	Hissar	616
HIMACHAL PRADESH	47	Shimla	618
JHARKHAND	48	Ranchi	622
MADHYAPRADESH	49	Bhopal	623
	50	Gwalior	624
MAHARASHTRA	51	Mumbai	627
	52	Nagpur	628
	53	Pune	630
	54	Thane	631
MEGHALAYA	55	Shillong	633
ODISHA	56	Bhubaneswar	634
PUNJAB	57	Jalandhar	637
RAJASTHAN	58	Jaipur	639
	59	Kota	641

**LIST OF CITIES AND CITY CODES FOR COMPUTER BASED TEST (CBT)(Contd..)**

State	City SI.No	City	City Code
UTTARPRADESH	60	Allahabad	643
	61	Gorakhpur	644
	62	Kanpur	645
	63	Lucknow	646
	64	Meerut	648
	65	Noida	649
	66	Varanasi	651
UTTARAKHAND	67	Dehradun	652
WEST BENGAL	68	Durgapur	655
	69	Kolkata	656
ANDAMAN & NICOBAR ISLAND	70	Port Blair	658

KARNATAKA	71	Belgaum	301
TELANGANA	72	Karimnagar	502
ASSAM	73	Silchar	602
BIHAR	74	Bhagalpur	603
CHATTISGARH	75	Bhilai	606
GOA	76	Goa	609
GUJARAT	77	Rajkot	611
	78	Vadodara	613
HARYANA	79	Faridabad	614
	80	Kurukshetra	617
JHARKHAND	81	Bokaro	619
	82	Dhanbad	620
	83	Jamshedpur	621
MADHYAPRADESH	84	Indore	625
	85	Jabalpur	626
MAHARASHTRA	86	Nashik	629
MANIPUR	87	Imphal	632

**LIST OF CITIES AND CITY CODES FOR COMPUTER BASED TEST (CBT)(Contd..)**

<b>State</b>	<b>City Sl.No</b>	<b>City</b>	<b>City Code</b>
ODISHA	88	Rourkela	635
PUNJAB	89	Amristar	636
	90	Ludhiana	638
RAJASTHAN	91	Jodhpur	640
UTTARPRADESH	92	Agra	642
	93	Mathura	647
	94	Rae Bareli	650
UTTARAKHAND	95	Roorkee	653
WEST BENGAL	96	Asansol	654
	97	Siliguri	657



## ANNEXURE - II

### LIST OF CITIES AND CITY CODES FOR PAPER & PENCIL BASED TEST (P&P)

Candidates can opt any two cities from 01 to 45 as their first and second choice.

State	City Sl.No.	City	City Code
TAMIL NADU	1	Chennai	101
	2	Coimbatore	102
	3	Cuddalore	103
	4	Dindigul	104
	5	Erode	105
	6	Hosur	106
	7	Karur	107
	8	Madurai	108
	9	Namakkal	110
	10	Pudukottai	113
	11	Puducherry	114
	12	Salem	115
	13	Tiruppur	118
	14	Trichy	119
	15	Tuticorin	120
	16	Vellore	121
KERALA	17	Alappuzha	201
	18	Amritapuri (Kollam)	202
	19	Kalpetta	203
	20	Kannur	204
	21	Kasaragod	205
	22	Kochi	206
	23	Kollam	207
	24	Kottayam	208
	25	Kozhikode	209
	26	Malappuram	210
	27	Palakkad	211
	28	Pathanamthitta	212
	29	Thiruvananthapuram	213
	30	Thrissur	214
	31	Thodhupuzha	215

**LIST OF CITIES AND CITY CODES FOR PAPER & PENCIL BASED TEST (P&P)**

State	City Sl.No.	City	City Code
KARNATAKA	32	Bengaluru	302
	33	Davangere	303
	34	Raichur	307
	35	Shimoga	308
	36	Udupi	309
ANDHRA PRADESH	37	Anantapur	401
	38	Cuddapah	402
	39	Kakinada	403
	40	Nellore	405
	41	Tirupati	406
	42	Vijayawada	407
	43	Vishakhapatnam	408
TELANGANA	44	Hyderabad	501
	45	Warangal	504

**ANNEXURE - III**  
**LIST OF STATES / UNION TERRITORIES WITH CODE NUMBER**  
(See item 5 in Application Form)

State	Code
Andhra Pradesh	01
Arunachal Pradesh	02
Assam	03
Bihar	04
Chhattisgarh	05
Goa	06
Gujarat	07
Haryana	08
Himachal Pradesh	09
Jammu and Kashmir	10
Jharkhand	11
Karnataka	12
Kerala & Mahe	13
Madhya Pradesh	14
Maharashtra	15
Manipur	16
Meghalaya	17
Mizoram	18
Nagaland	19
Orissa	20
Punjab	21
Rajasthan	22
Sikkim	23
Tamil Nadu & Puducherry	24
Telangana	25
Tripura	26
Uttar Pradesh	27
Uttaranchal	28
West Bengal	29
<b>UNION TERRITORIES</b>	
Andaman and Nicobar Islands	30
Chandigarh	31
Dadra and Nagar Haveli	32
Daman and Diu	33
Lakshadweep	34
Delhi	35
Countries other than India	40

**ANNEXURE - IV**  
**SYLLABUS FOR ENTRANCE EXAMINATION**

( See university website for model questions )

**MATHEMATICS**

**a. Complex Numbers**

Complex numbers in the form  $a+ib$  and their representation in a plane. Argand diagram. Algebra of complex numbers, Modulus and argument (or amplitude) of a complex number, square root of a complex number. Cube roots of unity, triangle inequality.

**b. Linear Inequalities**

Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line.

**c. Permutations and Combinations**

Fundamental principle of counting; Permutation as an arrangement and combination as selection, Meaning of  $P(n,r)$  and  $C(n,r)$ . Simple applications.

**d. Binomial Theorem**

Binomial theorem for positive integral indices. Pascal's triangle. General and middle terms in binomial expansions, simple applications.

**e. Sequences and Series**

Arithmetic, Geometric and Harmonic progressions. Insertion of Arithmetic, Geometric and Harmonic means between two given numbers. Relation between A.M., G.M. and H.M. Special series  $\sum n$ ,  $\sum n^2$ ,  $\sum n^3$ . Arithmetic-Geometric Series, Exponential and Logarithmic Series.

**f. Matrices and Determinants**

Determinants and matrices of order two and three, Properties of determinants. Evaluation of determinants. Addition and multiplication of matrices, adjoint and inverse of matrix. Solution of simultaneous linear equations using determinants .

**g. Quadratic Equations**

Quadratic equations in real and complex number system and their solutions. Relation between roots and co-efficients, Nature of roots, formation of quadratic equations with given roots;

**h. Relations and Functions**

Definition of a relation. Domain, codomain and range of a relation. Function as special kind of relation and their domain, codomain and range. Real valued function of a real variable. Constant, identity, polynomial, rational. Modulus, signum and greatest integer functions. Sum, Difference, product and quotient of functions. Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions. Composite functions, inverse of a function.

**i. Trigonometry**

Trigonometrical identities and equations. Inverse trigonometric functions and their properties. Properties of triangles, including centroid, incentre, circumcentre and orthocentre, solution of triangles. Heights and distances.

- j. **Measures of Central Tendency and Dispersion**  
 Calculation of Mean, Median and Mode of grouped and ungrouped data. Calculation of standard deviation, variance and mean deviation for grouped and ungrouped data.
- k. **Probability**  
 Probability of an event, addition and multiplication theorems of probability and their applications; Conditional probability; Bayes' theorem, Probability distribution of a random variate; Binomial and Poisson distributions and their properties.
- l. **Differential Calculus**  
 Polynomials, rational, trigonometric, logarithmic and exponential functions. Graphs of simple functions. Limits, Continuity; differentiation of the sum, difference, product and quotient of two functions. Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite and implicit functions; derivatives of order upto two. Applications of derivatives: Maxima and Minima of functions one variable, tangents and normals, Rolle's and Lagrange's Mean Value Theorems.
- m. **Integral Calculus**  
 Integral as an anti derivative. Fundamental integrals involving algebraic, trigonometric, exponential and logarithmic functions. Integration by substitution, by parts and by partial fractions. Integration using trigonometric identities. Integral as a limit of sum. Properties of definite integrals. Evaluation of definite integral; Determining areas of the regions bounded by simple curves.
- n. **Differential Equations**  
 Ordinary differential equations, their order and degree. Formation of differential equation. Solutions of differential equations by the method of separation of variables. Solution of Homogeneous and linear differential equations, and those of type  $d^2y/dx^2 = f(x)$ .
- o. **Two Dimensional Geometry**  
 Review of Cartesian system of rectangular co-ordinates in a plane, distance formula, area of triangle, condition for the collinearity of three points, slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axes.
- p. **The straight line and pair of straight lines**  
 Various forms of equations of a line, intersection of lines, angles between two lines, conditions for concurrence of three lines, distance of a point from a line. Equations of internal and external bisectors of angles between two lines, equation of family lines passing through the point of intersection of two lines, homogeneous equation of second degree in x and y, angle between pair of lines through the origin, combined equation of the bisectors of the angles between a pair of lines, condition for the general second degree equation to represent a pair of lines, point of intersections and angles between two lines.
- q. **Circles and Family of Circles**  
 Standard form of equation of a circle, general form of the equation of a circle, its radius and centre, equation of a circle in the parametric form, equation of a circle when the end points of a diameter are given, points of intersection of a line and circle with the centre at the origin and condition for a line to be tangent, equation of a family of circles through the intersection of two circles, condition for two intersecting circles to be orthogonal.
- r. **Conic Sections**  
 Sections of cones, equations of conic sections ( parabola, ellipse and hyperbola) in standard forms, conditions for  $y = mx+c$  to be a tangent and point(s) of tangency.

s. **Vector Algebra**

Vector and scalars, addition of two vectors, components of a vector in two dimensions and three dimensional space, scalar and vector products, scalar and vector triple product. Application of vectors to plane geometry.

t. **Three Dimensional Geometry**

Distance between two points. Direction cosines of a line joining two points. Cartesian and vector equation of a line. Coplanar and skew lines. Shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines (ii) two planes (iii) a line and a plane Distance of a point from a plane.

## PHYSICS

a. **UNITS AND DIMENSIONS**

Units for measurement, system of units, SI, fundamental and derived units, dimensions and their applications.

b. **MECHANICS**

Motion in straight line, uniform and non-uniform motion, uniformly accelerated motion and its applications Scalars and Vectors, and their properties; resolution of vectors, scalar and vector products; uniform circular motion and its applications, projectile motion Newton's Laws of motion; conservation of linear momentum and its applications, laws of friction, Concept of work, energy and power; energy-kinetic and potential; conservation of energy; different forms of energy. Elastic collisions in one and two dimensions.

Center of mass of a many particle system; center of mass of a rigid body, rotational motion and torque. Angular momentum and its conservation. Moments of inertia, parallel and perpendicular axes theorem, moment of inertia for a thin rod, ring, disc and sphere.

Gravitation: Acceleration due to gravity and its properties. One and two dimensional motion under gravity. Universal law of gravitation, planetary motion, Kepler's laws, artificial satellite-geostationary satellite, gravitational potential energy near the surface of earth, gravitational potential and escape velocity.

c. **SOLIDS AND FLUIDS**

Solids: Elastic properties, Hooke's law, Young's modulus, bulk modulus, modulus of rigidity. Liquids: Cohesion and adhesion; surface energy and surface tension; flow of fluids, Bernoulli's theorem and its applications; viscosity, Stoke's Law, terminal velocity.

d. **OSCILLATIONS AND WAVES**

Periodic motion, simple harmonic motion and its equation, oscillations of a spring and simple pendulum.

Wave motion, properties of waves, longitudinal and transverse waves, superposition of waves, Progressive and standing waves. Free and forced oscillations, resonance, vibration of strings and air columns, beats, Doppler effect.

e. **HEAT AND THERMODYNAMICS**

Thermal expansion of solids, liquids and gases and their specific heats, relationship between  $C_p$  and  $C_v$  for gases, first and second laws of thermodynamics, Carnot cycle, efficiency of heat engines. Transference of heat; thermal conductivity; black body radiations, Kirchoff's law, Wein's Law, Stefan's law of radiation and Newton's law of cooling.

f. **ELECTROSTATICS,CURRENT ELECTRICITY AND MAGNETOSTATICS**

Coloumb's law, dielectric constant, electric field, lines of force, field due to dipole , electric flux, Gauss's theorem and its applications; electric potential, potential due to a point charge; conductors and insulators, distribution of charge on conductors; capacitance, parallel plate capacitor, combination of capacitors, energy stored in a capacitor.

Electric current : Cells-primary and secondary, grouping of cells; resistance and specific resistivity and its temperature dependence. Ohm's law, Kirchoff's Law. Series and parallel circuits; Wheatstone's Bridge and potentiometer with their applications.

Heating effects of current, electric power, concept of thermoelectricity-Seebeck effect and thermocouple; chemical effect of current- Faraday's laws of electrolysis.

Magnetic effects: Oersted's experiment, Biot Savert's law, magnetic field due to straight wire, circular loop and solenoid, force on a moving charge in a uniform magnetic field(Lorentz force),forces and torques on a current carrying conductor in a magnetic field, force between current carrying wires, moving coil galvanometer and conversion to ammeter and voltmeter.

Magnetostatics: Bar magnet, magnetic field, lines of force, torque on a bar magnet in a magnetic field, earth's magnetic field; para, dia and ferro magnetism, magnetic induction, magnetic susceptibility.

g. **ELECTROMAGNETIC INDUCTION AND ELECTROMAGNETIC WAVES**

Induced e.m.f., Faraday's law, Lenz's law, self and mutual inductance; alternating currents, impedance and reactance, power in ac; circuits with L C and R series combination, resonant circuits, transformer and AC generator.

Electromagnetic waves and their characteristics; electromagnetic spectrum from gamma to radio waves.

h. **RAY AND WAVE OPTICS**

Reflection and refraction of light at plane and curved surfaces, total internal reflection; optical fiber; deviation and dispersion of light by a prism; lens formula, magnification and resolving power; microscope and telescope, Wave nature of light, interference, Young's double experiment; thin films, Newton's rings. Diffraction: diffraction due to a single slit; diffraction grating, polarization and applications.

i. **MODERN PHYSICS**

Dual nature of Radiation - De Broglie relation, photoelectric effect, Alpha particle scattering experiment, atomic masses, size of the nucleus; radioactivity, alpha, beta and gamma particles/rays. Radioactive decay law, half life and mean life of radio active nuclei; Nuclear binding energy, mass energy relationship, nuclear fission and nuclear fusion.

Energy bands in solids, conductors, insulators and semiconductors, pn junction, diode, diode as a rectifier, transistor action, transistor as an amplifier.

## CHEMISTRY

### a. BASIC CONCEPTS

Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.

### b. ATOMIC STRUCTURE, CHEMICAL BONDING AND MOLECULAR STRUCTURE

Bohr's model, de Broglie's and Heisenberg's principles, Quantum mechanical model, Orbital concept and filling up of electrons; Bond formation and bond parameters; Valence bond and molecular orbital theory; VSEPR theory; Hybridization involving s, p and d orbital; Hydrogen bond.

### c. EQUILIBRIUM AND THERMODYNAMICS

Law of chemical equilibrium and Equilibrium Constant; Homogeneous and Heterogeneous equilibria; LeChatelier's principle, Ionic equilibrium; Acids, Bases, Salts and Buffers; Solubility product;

Thermodynamic state; Enthalpy, Entropy and Gibb's free energy; Heats of reactions; Spontaneous and non-spontaneous processes.

### d. ELECTROCHEMISTRY, KINETICS AND SURFACE CHEMISTRY

Specific, molar and equivalent conductance of weak and strong electrolytes; Kohlrausch law; Electrochemical cells and Nernst equation; batteries, fuel cells and corrosion

Rate of a reaction and factors affecting the rate: Rate constant, order and molecularity, collision theory.

Physisorption and chemisorptions; colloids and emulsions; homogeneous and heterogeneous catalysis.

### e. SOLID STATE AND SOLUTIONS

Molecular, ionic, covalent and metallic solids; amorphous and crystalline solids; crystal lattices and Unit cells; packing efficiency and imperfections; electrical and magnetic properties. Normality, molarity and molality of solutions, vapour pressure of liquid solutions; ideal and non-ideal solutions, colligative properties; abnormality.

### f. HYDROGEN

Position of hydrogen in the periodic table; dihydrogen and hydrides- preparation and properties; water, hydrogen peroxide and heavy water; hydrogen as a fuel.

### g. S - BLOCK ELEMENTS

Group 1 and 2 Alkali and Alkaline earth elements; general characteristics of compounds of the elements; anomalous behavior of the first element; preparation and properties of compounds like sodium and calcium carbonates, sodium chloride, sodium hydroxide; biological importance of sodium, potassium and calcium.

### h. P - BLOCK ELEMENTS

Groups 13 to 17 elements: General aspects like electronic configuration, occurrence, oxidation states, trends in physical and chemical properties of all the families of elements; compounds of boron like borax, boron hydrides and allotropes of carbon; compounds of nitrogen and phosphorus, oxygen and sulphur; oxides and oxyacids of halogens.

### i. D, F - BLOCK ELEMENTS

Electronic configuration and general characteristics of transition metals; ionization enthalpy, ionic radii, oxidation states and magnetic properties; interstitial compounds and alloy formation; lanthanides and actinoids and their applications.



j. **CO-ORDINATION COMPOUNDS**

Werner's theory and IUPAC nomenclature of coordination compounds; coordination number and isomerism; Bonding in coordination compounds and metal carbonyls and stability; application in analytical methods, extraction of metals and biological systems.

k. **BASIC ORGANIC CHEMISTRY AND TECHNIQUES**

Tetravalence of carbon and shapes of organic compounds; electronic displacement in a covalent bond – inductive and electromeric effects, resonance and hyperconjugation; homolytic and heterolytic cleavage of covalent bond – free radicals, carbocations, carbanions electrophiles and nucleophiles; methods of purification of organic compounds; qualitative and quantitative analysis.

l. **HYDROCARBONS, HALOALKANES AND HALOARENES**

Alkanes, alkenes, alkynes and aromatic hydrocarbons; IUPAC nomenclature, isomerism; conformation of ethane, geometric isomerism, general methods of preparation and properties, free radical mechanism of halogenations, Markownikoff's addition and peroxide effect; benzene, resonance and aromaticity, substitution reactions; Nature of C-X bond in haloalkanes and haloarenes; mechanism of substitution reactions.

m. **ALCOHOLS, PHENOLS AND ETHERS**

IUPAC nomenclature, general methods of preparation, physical and chemical properties, identification of primary, secondary and tertiary alcohols, mechanism of dehydration; electrophilic substitution reactions.

n. **ALDEHYDES, KETONES, CARBOXYLIC ACIDS AND AMINES**

Nomenclature, general methods of preparation, physical and chemical properties of the group members; nucleophilic addition and its mechanism; reactivity of alpha hydrogen in aldehydes; mono and dicarboxylic acids-preparation and reactions; identification of primary, secondary and tertiary amines; preparation and reactions of diazonium salts and their importance in synthesis.

o. **POLYMERS AND BIOMOLECULES**

Natural and synthetic polymers, methods of polymerization, copolymerization, molecular weight of polymers, Polymers of commercial importance, Carbohydrates: mono, oligo and polysaccharides; Proteins Alpha amino acid, peptide linkage and polypeptides: Enzymes, Vitamins and Nucleic acids (DNA and RNA)

p. **ENVIRONMENTAL CHEMISTRY**

Air, water and soil pollution, chemical reactions in atmosphere, acid rain; ozone and its depletion; green house effect and global warming; pollution control.

q. **CHEMISTRY IN EVERYDAY LIFE**

Drugs and their interaction; chemicals as analgesics, tranquilizers, antiseptics, antibiotics, antacids and antihistamines; Chemicals in food- preservatives, artificial sweetening agents; cleansing agents – soaps and detergents.

## ANNEXURE - V

### INSTRUCTIONS ON QUESTION PAPER

# AMRITA VISHWA VIDYAPEETHAM

(University established u/s 3 of UGC Act 1956)

## Amrita Entrance Examination – Engineering 2015

### PHYSICS, CHEMISTRY & MATHEMATICS

Question Booklet <b>Version Code</b>	<b>B</b>	Question Booklet No.	<b>207994</b>	Time: <b>2½Hrs</b>
Number of Pages		Number of Questions	<b>100</b>	Max. Marks: <b>300</b>
Name of the Candidate				
Registration Number				
Signature of the Candidate				

### INSTRUCTIONS TO THE CANDIDATES

#### GENERAL

1. Any malpractice or attempt to commit malpractice in the examination hall will lead to disqualification of the candidate.
2. Candidates are not allowed to carry any textual material, printed or written bits of papers, Mathematical and Physical Tables, Electronic gadgets like tablet, calculator, cell phone, etc. into the examination hall.
3. Candidates shall possess the Amrita Entrance Examination – Engineering 2015 Hall Ticket which should be produced on demand.
4. Candidates shall occupy the respective seats bearing their registration numbers.
5. Candidates shall sign the attendance sheet available with the invigilator.
6. **Candidates are not permitted to leave the hall before the end of the examination.**
7. **Candidates are required to handover the ANSWER SHEET and the QUESTION BOOKLET to the invigilator before leaving the hall.**
8. **After submitting the answer sheet, candidates are required to affix their left thumb impression on the attendance sheet available with the invigilator.**

#### QUESTION BOOKLET

9. **DO NOT OPEN THIS SEALED BOOKLET UNTIL THE INVIGILATOR ANNOUNCES TO DO SO.**
10. **Before opening the Question Booklet**, write the Name, Registration Number and Signature using ball pen in the space provided at the top of this page.
11. **Immediately after opening the booklet**, examine whether it contains all the 100 questions in serial order. In case of unprinted, torn or missing pages, the matter should be reported to the invigilator immediately.
12. Rough work may be done on the space provided in this booklet.

(Continued on the last page)

(continued from the first page)

#### OMR ANSWER SHEET

13. Use the OMR answer sheet carefully; no spare sheet will be issued under any circumstance.
14. Do not fold or make any stray mark on the OMR sheet.
15. Use HB Pencil or Black ball point pen for shading the bubbles and ball point pen for writing.
16. In the OMR answer sheet, make the following entries
  - a. Write the Registration Number, Question Booklet Number and Question Booklet Version code using ball point pen.
  - b. Fill the ovals corresponding to the Registration Number, Question Booklet Number and Question Booklet Version Code using HB pencil / ball point pen.
  - c. Write your Name and Signature using ball point pen.
17. Rough work should not be done on the answer sheet.

#### ANSWERING AND EVALUATION

18. For each question, four answers are suggested of which only one is correct / most appropriate. Mark the correct / most appropriate answer by darkening the corresponding bubble using HB pencil or Black ball point pen.
19. In case the candidate wishes to change the choice already shaded using HB pencil, he/she may erase the marking completely and thereafter shade the alternative bubble. If ball point pen is used for shading the ovals, make sure of the answer before shading since such markings cannot be altered.
20. If more than one bubble is darkened against a question, it will be treated as an incorrect answer.
21. For each correct answer, three marks will be awarded.
22. **For each incorrect answer, one mark will be deducted from the total score.**
23. If any smudge is left on the OMR sheet, evaluation will become imperfect.

SEAL

## FEE STRUCTURE FOR B.TECH.DEGREE PROGRAMMES - 2015 ADMISSIONS

SL. NO.	HEAD	FEES (In Rupees)			
		TERM	AMRITAPURI	BENGALURU	COIMBATORE
1	Tuition Fee	Annual	1,45,500	1,49,000	1,68,000
2	University Fees (Including Exams)	Annual	6,000	6,000	6,000
3	Cautions Deposit	One time	5,000	5,000	5,000
<b>Total</b>			1,56,500	1,60,000	1,79,000

### Scholarship Scheme: Norms

01. Scholarship will be provided to 15% of the top ranking candidates, who passed the qualifying examination from Kerala, Karnataka and Tamil Nadu and admitted in the respective campuses.
02. Scholarship amount of Rs. 50,000/- per annum will be waived from the tuition fees.
03. Award of scholarship will be governed by the rules framed for the purpose.

### HOSTEL FEES

SL. NO.	HEAD	FEES (In Rupees)			
		TERM	AMRITAPURI	BENGALURU	COIMBATORE
1	Room Rent	Annual	21,000	27,500	30,000
2	Mess Charges	Annual	36,000	41,000	45,000
3	Cautions Deposit	One time	5,000	5,000	5,000

### ONE TIME COUNSELLING CHARGE

Sl. No.	HEAD	FEES -(In Rupees)		
		AMRITAPURI	BENGALURU	COIMBATORE
1	One time counselling charge (Non-refundable)	5,000	5,000	5,000