




CHOICE BASED CREDIT SYSTEM STATEMENT OF MARKS AND GRADE CARD

Folio No. : **A 029851**

| | | |
|--|---|--|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Exam April 2020 | Date of Publication 23-10-2020 |

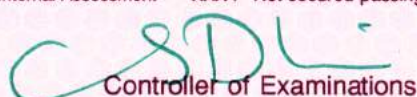
| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAXIMUM MARKS | | | MARKS SECURED | | | GRADE POINT | GRADE | RESULT |
|---|----------|--------------|--|--------|---------------|-----|-------|---------------|-----|-------|-------------|-------|--------|
| | | | | | ESE | CIA | TOTAL | ESE | CIA | TOTAL | | | |
| 3 | 6 | 17BIT6EA | Elective - III Cloud Computing | 5 | 60 | 40 | 100 | 49 | 37 | 86 | 8.6 | D+ | Pass |
| 3 | 6 | 17BIT6EB | Elective - IV Cloud Infrastructure Services | 5 | 60 | 40 | 100 | 44 | 40 | 84 | 8.4 | D+ | Pass |
| 3 | 6 | 17BIT6EP | Elective Lab :Cloud Lab | 4 | 60 | 40 | 100 | 59 | 37 | 96 | 9.6 | O+ | Pass |
| 3 | 6 | 17BCS63V | Core Project | 10 | 120 | 80 | 200 | 87 | 69 | 156 | 7.8 | D | Pass |
| 4 | 6 | 17BCS6ZD | Skill Enhancement Courses – IV Software Project Management | 4 | 60 | 40 | 100 | 31 | 35 | 66 | 6.6 | A | Pass |
| 5 | 6 | 17BGE65A | Extension Activity | 2 | 0 | 50 | 50 | 0 | 40 | 40 | 8 | D+ | Pass |
| <p>*** End of Statement ***</p> <p>Note: April 2020 Examinations held in September 2020</p>  | | | | | | | | | | | | | |

| Part | Credits Earned | GPA |
|------|----------------|-------|
| 3 | 24 | 8.392 |
| 4 | 4 | 6.600 |
| 5 | 2 | 8.000 |



Passing Minimum for UG course is 40% of Maximum (in ESE and Total separately)
Passing Minimum for PG course is 50% of Maximum (in ESE and Total separately) RA: Re-Appeal AB: Absent
ESE: End Semester Examinations CIA : Continuous Internal Assessment XXX : Not secured passing minimum

Date : 03-11-2020


Controller of Examinations


Principal



CHOICE BASED CREDIT SYSTEM STATEMENT OF MARKS AND GRADE CARD

Folio No. : **A** 024768

| | | |
|--|---|--|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Exam Nov 2019 | Date of Publication 20-12-2019 |

| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAXIMUM MARKS | | | MARKS SECURED | | | GRADE POINT | GRADE | RESULT |
|--------------------------|----------|--------------|---|--------|---------------|-----|-------|---------------|-----|-------|-------------|-------|--------|
| | | | | | ESE | CIA | TOTAL | ESE | CIA | TOTAL | | | |
| 3 | 5 | 18BCS5C6 | Core - VI - Android App Development | 5 | 60 | 40 | 100 | 36 | 33 | 69 | 6.9 | A | Pass |
| 3 | 5 | 18BCS5EA | Elective - I Data Mining | 4 | 60 | 40 | 100 | 39 | 31 | 70 | 7 | A+ | Pass |
| 3 | 5 | 18BCS5EF | Elective - II Cryptography and Network Security | 4 | 60 | 40 | 100 | 40 | 30 | 70 | 7 | A+ | Pass |
| 3 | 5 | 18BCS5CP | Core Practical - VI - Android App Development Lab | 4 | 60 | 40 | 100 | 50 | 25 | 75 | 7.5 | D | Pass |
| 3 | 5 | 17BCS53V | Core Practical - VII - Mini-project | 3 | 100 | 0 | 100 | 80 | 0 | 80 | 8 | D+ | Pass |
| 4 | 5 | 18BCSS03 | Skill Enhancement Courses - Software Engineering | 4 | 60 | 40 | 100 | 32 | 36 | 68 | 6.8 | A | Pass |
| 6 | 5 | 17BCS5VA | Value Added Course - V | 2 | 0 | 100 | 100 | 0 | 65 | 65 | 6.5 | A | Pass |
| *** End of Statement *** | | | | | | | | | | | | | |



| Part | Credits Earned | GPA |
|------|----------------|-------|
| 3 | 20 | 7.225 |
| 4 | 4 | 6.800 |
| 6 | 2 | 6.500 |



Passing minimum for UG course is 40% of Maximum (in ESE and Total separately)
Passing minimum for PG course is 50% of Maximum (in ESE and Total separately) RA: Re-Appearence AB: Absent
ESE: End Semester Examination CIA: Continuous Internal Assessment XXX: Not Secured Passing Minimum

Date : 03-09-2020

[Signature]
Controller of Examinations

[Signature]
Principal



CHOICE BASED CREDIT SYSTEM STATEMENT OF MARKS AND GRADE CARD

Folio No. : **A 024765**

| | | |
|--|---|--|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Exam April 2018 | Date of Publication 11-05-2018 |

| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAXIMUM MARKS | | | MARKS SECURED | | | GRADE POINT | GRADE | RESULT |
|--------------------------|----------|--------------|---|--------|---------------|-----|-------|---------------|-----|-------|-------------|-------|--------|
| | | | | | ESE | CIA | TOTAL | ESE | CIA | TOTAL | | | |
| 1 | 2 | 17BGE21F | French - II | 3 | 60 | 40 | 100 | 48 | 19 | 67 | 6.7 | A | Pass |
| 2 | 2 | 17BCS22E | English for Computer Science | 3 | 60 | 40 | 100 | 58 | 25 | 83 | 8.3 | D+ | Pass |
| 3 | 2 | 17BCS23A | Core - II - Java Programming - I | 4 | 60 | 40 | 100 | 54 | 15 | 69 | 6.9 | A | Pass |
| 3 | 2 | 17BCS23B | Core III - Data Structure | 4 | 60 | 40 | 100 | 36 | 12 | 48 | 4.8 | C | Pass |
| 3 | 2 | 17BCS23P | Core Practical - II - Java Programming Lab | 4 | 60 | 40 | 100 | 45 | 30 | 75 | 7.5 | D | Pass |
| 3 | 2 | 17BCS2AB | Allied - II PC & Mobile Hardware Trouble Shooting | 4 | 60 | 40 | 100 | 37 | 16 | 53 | 5.3 | B | Pass |
| 4 | 2 | 17BGE2FB | Ability Enhancement Compulsory Course-II - Human Rights | 2 | 0 | 50 | 50 | 0 | 20 | 20 | 4 | C | Pass |
| 6 | 2 | 17BCS2VA | Value Added Course - II HTML | 2 | 0 | 100 | 100 | 0 | 100 | 100 | 10 | O+ | Pass |
| *** End of Statement *** | | | | | | | | | | | | | |



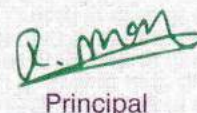
| Part | Credits Earned | GPA |
|------|----------------|--------|
| 1 | 3 | 6.700 |
| 2 | 3 | 8.300 |
| 3 | 16 | 6.125 |
| 4 | 2 | 4.000 |
| 6 | 2 | 10.000 |



Passing minimum for UG course is 40% of Maximum (in ESE and Total separately)
Passing minimum for PG course is 50% of Maximum (in ESE and Total separately) RA: Re-Appearence AB: Absent
ESE: End Semester Examination CIA: Continuous Internal Assessment XXX: Not Secured Passing Minimum

Date : 03-09-2020


Controller of Examinations


Principal



CHOICE BASED CREDIT SYSTEM STATEMENT OF MARKS AND GRADE CARD

Folio No. : **A** 024766

| | | |
|--|---|--|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Exam Nov 2018 | Date of Publication 12-12-2018 |

| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAXIMUM MARKS | | | MARKS SECURED | | | GRADE POINT | GRADE | RESULT |
|--------------------------|----------|--------------|---|--------|---------------|-----|-------|---------------|-----|-------|-------------|-------|--------|
| | | | | | ESE | CIA | TOTAL | ESE | CIA | TOTAL | | | |
| 3 | 3 | 17BCS33A | Core - IV - Web Technology | 4 | 60 | 40 | 100 | 24 | 25 | 49 | 4.9 | C | Pass |
| 3 | 3 | 17BCS33P | Core Practical - III - Web Technology Lab | 4 | 60 | 40 | 100 | 40 | 24 | 64 | 6.4 | A | Pass |
| 3 | 3 | 17BCS3AC | Allied - III Quantitative and Aptitude | 4 | 60 | 40 | 100 | 47 | 25 | 72 | 7.2 | A+ | Pass |
| 3 | 3 | 17BCS33V | Core Practical - IV - Industrial Training Report | 2 | 50 | 0 | 50 | 30 | 0 | 30 | 6 | A | Pass |
| 4 | 3 | 17BCS3ZA | Skill Enhancement Courses - I Database Management - SQL / PLSQL | 4 | 60 | 40 | 100 | 24 | 24 | 48 | 4.8 | C | Pass |
| 4 | 3 | 17BGE3FC | Ability Enhancement Compulsory Course-III Communicative English-I | 2 | 0 | 50 | 50 | 0 | 29 | 29 | 5.8 | B | Pass |
| 6 | 3 | 17BCS3VA | Value Added Course - III Multimedia | 2 | 0 | 100 | 100 | 0 | 40 | 40 | 4 | C | Pass |
| *** End of Statement *** | | | | | | | | | | | | | |



Part Credits Earned GPA

| | | |
|---|----|-------|
| 3 | 14 | 6.143 |
| 4 | 6 | 5.133 |
| 6 | 2 | 4.000 |



Passing minimum for UG course is 40% of Maximum (in ESE and Total separately)
Passing minimum for PG course is 50% of Maximum (in ESE and Total separately) RA: Re-Appearence AB: Absent
ESE: End Semester Examination CIA: Continuous Internal Assessment XXX: Not Secured Passing Minimum

Date : 03-09-2020

Controller of Examinations

Principal

R. Man



CHOICE BASED CREDIT SYSTEM STATEMENT OF MARKS AND GRADE CARD

Folio No. : **A 024767**

| | | |
|--|---|--|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Exam April 2019 | Date of Publication 15-05-2019 |

| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAXIMUM MARKS | | | MARKS SECURED | | | GRADE POINT | GRADE | RESULT |
|--------------------------|----------|--------------|---|--------|---------------|-----|-------|---------------|-----|-------|-------------|-------|--------|
| | | | | | ESE | CIA | TOTAL | ESE | CIA | TOTAL | | | |
| 3 | 4 | 17BCS43A | Core - V - Shell Programming | 4 | 60 | 40 | 100 | 32 | 11 | 43 | 4.3 | C | Pass |
| 3 | 4 | 17BCS43P | Core Practical - V - Shell Programming Lab | 4 | 60 | 40 | 100 | 31 | 10 | 41 | 4.1 | C | Pass |
| 3 | 4 | 17BCS4AD | Allied - IV Entrepreneurship Development | 4 | 60 | 40 | 100 | 33 | 25 | 58 | 5.8 | B | Pass |
| 4 | 4 | 17BCS4ZB | Skill Enhancement Courses - II Computer Graphics and Animation | 4 | 60 | 40 | 100 | 25 | 15 | 40 | 4 | C | Pass |
| 4 | 4 | 17BCS4ZP | Skill Lab - I Computer Graphics and Animation | 4 | 60 | 40 | 100 | 51 | 23 | 74 | 7.4 | A+ | Pass |
| 4 | 4 | 17BGE4FD | Ability Enhancement Compulsory Course-IV Communicative English - II | 2 | 0 | 50 | 50 | 0 | 25 | 25 | 5 | B | Pass |
| 6 | 4 | 17BCS4VA | Value Added Course - IV Multimedia-II | 2 | 0 | 100 | 100 | 0 | 69 | 69 | 6.9 | A | Pass |
| 6 | 4 | 17BEN4IK | Inter Department Learning - II The Art of Speaking in English | 2 | 100 | 0 | 100 | 45 | 0 | 45 | 4.5 | C | Pass |
| *** End of Statement *** | | | | | | | | | | | | | |



| Part | Credits Earned | GPA |
|------|----------------|-------|
| 3 | 12 | 4.733 |
| 4 | 10 | 5.560 |
| 6 | 4 | 5.700 |



Passing minimum for UG course is 40% of Maximum (in ESE and Total separately)
Passing minimum for PG course is 50% of Maximum (in ESE and Total separately) RA: Re-Appearence AB: Absent
ESE: End Semester Examination CIA: Continuous Internal Assessment XXX: Not Secured Passing Minimum

Date : 03-09-2020

[Signature]
Controller of Examinations

[Signature]
Principal



CHOICE BASED CREDIT SYSTEM STATEMENT OF MARKS AND GRADE CARD

Folio No. : **A** 024764

| | | |
|--|---|--|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Exam Nov 2017 | Date of Publication 14-12-2017 |

| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAXIMUM MARKS | | | MARKS SECURED | | | GRADE POINT | GRADE | RESULT |
|--------------------------|----------|--------------|---|--------|---------------|-----|-------|---------------|-----|-------|-------------|-------|--------|
| | | | | | ESE | CIA | TOTAL | ESE | CIA | TOTAL | | | |
| 1 | 1 | 17BGE11F | French - I | 3 | 60 | 40 | 100 | 37 | 31 | 68 | 6.8 | A | Pass |
| 2 | 1 | 17BGE12E | English for Communication | 3 | 60 | 40 | 100 | 26 | 22 | 48 | 4.8 | C | Pass |
| 3 | 1 | 17BCS13A | Core - I - Problem Solving techniques using C | 4 | 60 | 40 | 100 | 31 | 22 | 53 | 5.3 | B | Pass |
| 3 | 1 | 17BCS13P | Core Practical - I - C Programming Lab | 4 | 60 | 40 | 100 | 30 | 36 | 66 | 6.6 | A | Pass |
| 3 | 1 | 17BCS1AA | Allied - I Mathematics for Computer Science | 4 | 60 | 40 | 100 | 29 | 23 | 52 | 5.2 | B | Pass |
| 4 | 1 | 17BGE1FA | Ability Enhancement Compulsory Course-I - Environmental Studies | 2 | 0 | 50 | 50 | 0 | 30 | 30 | 6 | A | Pass |
| 6 | 1 | 17BCS1VA | Value Added Course - I MS Office Automation(MS Word, MS Excel, MS Powerpoint) | 2 | 0 | 100 | 100 | 0 | 87 | 87 | 8.7 | D+ | Pass |
| *** End of Statement *** | | | | | | | | | | | | | |




| Part | Credits Earned | GPA |
|------|----------------|-------|
| 1 | 3 | 6.800 |
| 2 | 3 | 4.800 |
| 3 | 12 | 5.700 |
| 4 | 2 | 6.000 |
| 6 | 2 | 8.700 |

Passing minimum for UG course is 40% of Maximum (in ESE and Total separately)
Passing minimum for PG course is 50% of Maximum (in ESE and Total separately) RA: Re-Appearence AB: Absent
ESE: End Semester Examination CIA: Continuous Internal Assessment XXX: Not Secured Passing Minimum

Date : 03-09-2020


Controller of Examinations


Principal



RATHINAM

RATHINAM COLLEGE OF ARTS AND SCIENCE

(An Autonomous College affiliated to Bharathiar University, Coimbatore - 641046)
Re-Accredited by NAAC, Approved by AICTE & Recognized by UGC under 2(f) & 12B
Eachanari, Coimbatore - 641 021, Tamil Nadu, India www.rathinamcollege.com



CHOICE BASED CREDIT SYSTEM
CONSOLIDATED STATEMENT OF MARKS

Folio No. : **C 003440**

| | | |
|--|--|------------------------------------|
| Name of the Examinee ADJAVON DAVID WINSTON | Date of Birth 10-02-1993 | Register Number 17BCS127 |
| Degree & Branch of Study B.Sc Computer Science | Month & Year of Last Appearance April 2020 | |

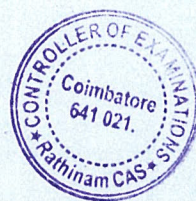
| PART | SEMESTER | SUBJECT CODE | SUBJECT | CREDIT | MAX MARKS | AWARDED | GRADE POINT | GRADE | MONTH & YEAR |
|------|----------|--------------|--|--------|-----------|---------|-------------|-------|--------------|
| 1 | 1 | 17BGE11F | French - I | 3 | 100 | 68 | 6.8 | A | Nov 2017 |
| 2 | 1 | 17BGE12E | English for Communication | 3 | 100 | 48 | 4.8 | C | Nov 2017 |
| 3 | 1 | 17BCS13A | Core - I - Problem Solving techniques using C | 4 | 100 | 53 | 5.3 | B | Nov 2017 |
| 3 | 1 | 17BCS13P | Core Practical - I - C Programming Lab | 4 | 100 | 66 | 6.6 | A | Nov 2017 |
| 3 | 1 | 17BCS1AA | Allied - I Mathematics for Computer Science | 4 | 100 | 52 | 5.2 | B | Nov 2017 |
| 4 | 1 | 17BGE1FA | Ability Enhancement Compulsory Course-I - Environmental Studies | 2 | 50 | 30 | 6 | A | Nov 2017 |
| 6 | 1 | 17BCS1VA | Value Added Course - I MS Office Automation(MS Word, MS Excel, MS Powerp | 2 | 100 | 87 | 8.7 | D+ | Nov 2017 |
| 1 | 2 | 17BGE21F | French - II | 3 | 100 | 67 | 6.7 | A | April 2018 |
| 2 | 2 | 17BCS22E | English for Computer Science | 3 | 100 | 83 | 8.3 | D+ | April 2018 |
| 3 | 2 | 17BCS23A | Core - II - Java Programming - I | 4 | 100 | 69 | 6.9 | A | April 2018 |
| 3 | 2 | 17BCS23B | Core III - Data Structure | 4 | 100 | 48 | 4.8 | C | April 2018 |
| 3 | 2 | 17BCS23P | Core Practical - II - Java Programming Lab | 4 | 100 | 75 | 7.5 | D | April 2018 |
| 3 | 2 | 17BCS2AB | Allied - II PC & Mobile Hardware Trouble Shooting | 4 | 100 | 53 | 5.3 | B | April 2018 |
| 4 | 2 | 17BGE2FB | Ability Enhancement Compulsory Course-II - Human Rights | 2 | 50 | 20 | 4 | C | April 2018 |
| 6 | 2 | 17BCS2VA | Value Added Course - II HTML | 2 | 100 | 100 | 10 | O+ | April 2018 |
| 3 | 3 | 17BCS33A | Core - IV - Web Technology | 4 | 100 | 49 | 4.9 | C | Nov 2018 |
| 3 | 3 | 17BCS33P | Core Practical - III - Web Technology Lab | 4 | 100 | 64 | 6.4 | A | Nov 2018 |
| 3 | 3 | 17BCS3AC | Allied - III Quantitative and Aptitude | 4 | 100 | 72 | 7.2 | A+ | Nov 2018 |
| 3 | 3 | 17BCS33V | Core Practical - IV - Industrial Training Report | 2 | 50 | 30 | 6 | A | Nov 2018 |
| 4 | 3 | 17BCS3ZA | Skill Enhancement Courses - I Database Management - SQL / PLSQL | 4 | 100 | 48 | 4.8 | C | Nov 2018 |
| 4 | 3 | 17BGE3FC | Ability Enhancement Compulsory Course-III Communicative English-I | 2 | 50 | 29 | 5.8 | B | Nov 2018 |
| 6 | 3 | 17BCS3VA | Value Added Course - III Multimedia | 2 | 100 | 40 | 4 | C | Nov 2018 |
| 3 | 4 | 17BCS43A | Core - V - Shell Programming | 4 | 100 | 43 | 4.3 | C | April 2019 |
| 3 | 4 | 17BCS43P | Core Practical - V - Shell Programming Lab | 4 | 100 | 41 | 4.1 | C | April 2019 |
| 3 | 4 | 17BCS4AD | Allied - IV Entrepreneurship Development | 4 | 100 | 58 | 5.8 | B | April 2019 |
| 4 | 4 | 17BCS4ZB | Skill Enhancement Courses - II Computer Graphics and Animation | 4 | 100 | 40 | 4 | C | April 2019 |
| 4 | 4 | 17BCS4ZP | Skill Lab - I Computer Graphics and Animation | 4 | 100 | 74 | 7.4 | A+ | April 2019 |
| 4 | 4 | 17BGE4FD | Ability Enhancement Compulsory Course-IV Communicative English -II | 2 | 50 | 25 | 5 | B | April 2019 |
| 6 | 4 | 17BCS4VA | Value Added Course - IV Multimedia-II | 2 | 100 | 69 | 6.9 | A | April 2019 |
| 6 | 4 | 17BEN4IK | Inter Department Learning - II The Art of Speaking in English | 2 | 100 | 45 | 4.5 | C | April 2019 |
| 3 | 5 | 18BCS5C6 | Core - VI - Android App Development | 5 | 100 | 69 | 6.9 | A | Nov 2019 |
| 3 | 5 | 18BCS5EA | Elective - I Data Mining | 4 | 100 | 70 | 7 | A+ | Nov 2019 |
| 3 | 5 | 18BCS5EF | Elective - II Cryptography and Network Security | 4 | 100 | 70 | 7 | A+ | Nov 2019 |
| 3 | 5 | 18BCS5CP | Core Practical - VI - Android App Development Lab | 4 | 100 | 75 | 7.5 | D | Nov 2019 |
| 3 | 5 | 17BCS53V | Core Practical - VII - Mini-project | 3 | 100 | 80 | 8 | D+ | Nov 2019 |
| 4 | 5 | 18BCSS03 | Skill Enhancement Courses - Software Engineering | 4 | 100 | 68 | 6.8 | A | Nov 2019 |
| 6 | 5 | 17BCS5VA | Value Added Course - V | 2 | 100 | 65 | 6.5 | A | Nov 2019 |
| 3 | 6 | 17BIT6EA | Elective - III Cloud Computing | 5 | 100 | 86 | 8.6 | D+ | April 2020 |
| 3 | 6 | 17BIT6EB | Elective - IV Cloud Infrastructure Services | 5 | 100 | 84 | 8.4 | D+ | April 2020 |
| 3 | 6 | 17BIT6EP | Elective Lab :Cloud Lab | 4 | 100 | 96 | 9.6 | O+ | April 2020 |
| 3 | 6 | 17BCS63V | Core Project | 10 | 200 | 156 | 7.8 | D | April 2020 |
| 4 | 6 | 17BCS6ZD | Skill Enhancement Courses - IV Software Project Management | 4 | 100 | 66 | 6.6 | A | April 2020 |
| 5 | 6 | 17BGE65A | Extension Activity | 2 | 50 | 40 | 8 | D+ | April 2020 |

*** End of Statement ***

Note: April 2020 Examinations held in September 2020



| Part | Credits Earned | CGPA | Grade | Classification |
|------|----------------|-------|-------|----------------|
| 1 | 6 | 6.750 | A+ | First Class |
| 2 | 6 | 6.550 | A+ | First Class |
| 3 | 98 | 6.685 | A+ | First Class |
| 4 | 28 | 5.714 | B+ | --- |
| 5 | 2 | 8.000 | D+ | --- |
| 6 | 12 | 6.767 | A+ | --- |



Date: 11-11-2020

[Signature]
Controller of Examinations

[Signature]
Principal