D 92911–N

(Pages : 2)

Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course—B.Sc. LRP

A 12—RESEARCH METHODOLOGY

Time : Two Hours and a Half

Maximum : 80 Marks

Section A

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. What is meant by data analysis ?
2. Write a note on Google scholar.
3. What is ISSN Number ?
4. Define plagiarism.
5. What is meant by a protocol ?
6. What is Key words ?
7. Write a note on Science citation index.
8. What is an abstract ?
9. Differentiate Reference and Bibliography.
10. What is PubMed.
11. Differentiate Magazines and Journals.
12. Differentiate Reprints and Pdf.
13. Write a note on Peer reviewed journals.
14. Differentiate Header and footer.
15. What is a newsletter ?

(10 × 3 = 30 marks)

Section B

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Write an account on selection of research topics and its significance.
17. Explain the procedure for writing a project proposal.
18. Write an account various protocols and methods for different research works.
19. Explain the importance of results and discussion in thesis writing.
20. Write an account on review of literature and its significance.
21. Explain the methods of data presentation in thesis.
22. Briefly explain the importance of summary and conclusions.
23. Briefly explain the significance of INFLIBNET.

(5 × 6 = 30 marks)

Section C

Answer any **two** *question.*
Each question carries 10 *marks.*

24. Explain the concept and importance of Summer schools training institutes.
25. Write an account on structure and components of Thesis.
26. Explain various literature collection methods. Briefly mention seven different approaches.
27. Explain the different steps in the preparation of a manuscript for publishing in a journal.

(2 × 10 = 20 marks)

D 92911-M (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CBCSS—UG)

Common Course

A 12—INFORMATICS AND EMERGING TECHNOLOGIES

(2019 Admissions)

Time : Two Hours and a Half Maximum : 80 Marks

Section A (Short Answers)

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. Give the role of main memory (RAM) in a computer.
2. Give any *two* functions of an Operating system.
3. Differentiate between Digital and Analog systems.
4. Identify two applications of smart phones.
5. What is a LAN ?
6. How is a mobile operating system different from a PC/Laptop operating system ?
7. What is a secondary storage device ?
8. Give the basic principle of optical fibre.
9. Give any *one* scenario where holography is used to enhance security.
10. What is a 'social network' ?
11. Define digital signature.
12. Give the scope of cyber forensics.
13. What do you mean by biometrics ?
14. What is a smart card ?
15. Explain the term 'E-Commerce'.

(10 × 3 = 30 marks)

Turn over

Section B (Paragraph)

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Write a note on scientific databases.
17. Give an overview of evolution of internet.
18. Compare GSM and CDMA.
19. Briefly explain Holography.
20. Discuss any two applications of optical fibre.
21. List the functions of cybercrime cell.
22. Discuss security issues in social media.
23. Write a note on multimodal biometrics.

(5 × 6 = 30 marks)

Section C (Essays)

Answer any **two** *questions.*
Each question carries 10 *marks.*

24. Discuss the features of Microwave LAN, Radio LAN, Infrared LAN and WLL technologies.
25. Discuss in detail applications of LASER in different domain.
26. Discuss aspects of security issues in Banking, online shopping and e-mail. Suggest measures to carry out secure online shopping.
27. Discuss in detail any *four* biometric techniques used for authentication.

(2 × 10 = 20 marks)

D 92911–L

(Pages : 2)

Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course—B.Sc. LRP

A 11—BIO-DIVERSITY—SCOPE AND RELEVANCE

Time : Two Hours and a Half

Maximum : 80 Marks

Section A

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. Define Bio-diversity.
2. What is IUCN Red list categories ?
3. Define species diversity.
4. Write a note on different plant sources of novel enzymes.
5. What is hot spots ?
6. Write a note on species extinction.
7. What is immunosuppressive agents ?
8. What is antiviral agents ?
9. What is species extinction ?
10. What is antibiotics ?
11. What is therapeutic agents ?
12. What is eco-system diversity ?
13. Write a note on importance and role of 'World Environment Day'.
14. Write a note on national parks.
15. Write an account on *in-situ* and *ex-situ* conservation method.

(10 × 3 = 30 marks)

Section B

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Explain the values and uses of biodiversity.
17. Briefly explain wild-life sanctuaries and its mention its significance.
18. Write a note on importance of biodiversity.
19. What are the conservation strategies of biodiversity.
20. Explain the importance and roles of botanical gardens.
21. Briefly explain the magnitude of fungal diversity.
22. Write an account on microbial culture collection and its importance.
23. Write an account on bio-diversity and climate change.

(5 × 6 = 30 marks)

Section C

Answer any **two** *question.*
Each question carries 10 *marks.*

24. Explain the concept of intervention and monitoring methods of biodiversity.
25. Write an account on Agro-biodiversity with special mention on wild, cultivated and domesticated plants and animals.
26. Explain various Bio-prospecting methods by using different plant sources.
27. Write an account on various components of biodiversity.

(2 × 10 = 20 marks)

D 92911–J

(Pages : 2)

Name.....

Reg. No.....

THIRD SEMESTER B.A./B.Sc. DEGREE EXAMINATION
NOVEMBER 2020

(CBCSS—UG)

Common Course [B.Sc. L.R.P. (Alternate Pattern)]

A 12—GENERAL INFORMATICS AND INSTRUMENTATION

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

Section A

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. ECC RAM.
2. Bus.
3. Hybrid TV Tuner Cards.
4. Adware.
5. Phishing.
6. E-Governance.
7. MOLEX Connector.
8. Hacktivism.
9. SaaS Cloud Model.
10. Digital Divide.
11. BRNET.
12. SDRAM.
13. EDI.
14. Public Domain Software.
15. USFF Computer Case.

(10 × 3 = 30 marks)

Turn over

Section B

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Distinguish between hacking and ethical hacking.
17. Write a paragraph about INFLIBNET.
18. Write an account on intellectual property rights.
19. What are the key approaches that are followed as part of green computing ?
20. What are the different ways to deploy cloud services ?
21. Write an account on ROM-BIOS.
22. What are the 'Ten Commandments of Computer Ethics' according to the Computer Ethics Institute ?
23. Write in detail about DNA computing.

(5 × 6 = 30 marks)

Section C

Answer any **two** *question.*
Each question carries 10 *marks.*

24. What is cyber addiction ? Explain its symptoms and risk factors.
25. What is cloud computing ? Explain its advantages.
26. Write an essay about major types of mobile computing systems.
27. Classify computer hard disk drives, according to their interfaces.

(2 × 10 = 20 marks)

D 92911-F

(Pages : 2)

Name.....

Reg. No.....

THIRD SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CBCSS—UG)

Common Course

A 11—BASIC MATHEMATICS FOR MEDIA ARTS

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

Section A

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. Area.
2. Parallelogram.
3. Cone.
4. Right angled triangle.
5. Pi.
6. Circumference.
7. Mean.
8. Diameter.
9. Percentage.
10. Median.
11. Central tendencies.
12. Equilateral triangle.
13. Polygon.
14. Harmonic mean.
15. Ascending.

(10 × 3 = 30 marks)

Section B

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Find the central tendencies for given series :

    3, 9, 3, 5, 12, 10, 18, 4, 7, 19, 21.

17. What is statistical enquiry circle ?

18. Find the area and perimeter of a rectangle with length 4 cm and width 6 cm.

19. Differentiate descriptive and inferential statistics.

Turn over

20. Find the surface area cone in which diameter of base is 6 cm and its slant height is 8 cm.

21. Differentiate isosceles triangles and equilateral triangles.

22. Find the volume of a sphere with diameter 6 cm.

23. Draw the table and find cumulative frequency for the following data :

Marks	Frequency
0-10	5
10-20	8
20-30	15
30-40	16
40-50	6

(5 × 6 = 30 marks)

Section C

Answer any **two** *questions.*
Each question carries 10 *marks.*

24. Find the surface area and volume of a cube with side length 5 cm.

25. Find the volume and surface area of a sphere with diameter 12 cm.

26. Explain :

    a) Arithmetic, Geometric and Harmonic mean.

    b) Scope of statistics.

27. Find the quartile deviation :

Marks	Frequency
20-30	4
30-40	12
40-50	18
50-60	28
60-70	19
70-80	14
80-90	5

(2 × 10 = 20 marks)

D 92910–B

(Pages : 3)

Name.....

Reg. No.....

THIRD SEMESTER B.A./B.Sc. (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A11—BASIC NUMERICAL SKILLS

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

Section A (Short Answers)

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. The sum of three numbers in AP is – 3 and their product is 8. Find the numbers.
2. What is an index number ?
3. Find the power set of A = $\{a, b, c\}$.
4. Find the value of the determinant $\begin{vmatrix} 2 & 0 & 1 \\ 0 & 1 & 1 \\ 2 & 1 & 2 \end{vmatrix}$.
5. Differentiate between discrete and continuous frequency distributions ?
6. Explain Kurtosis.
7. What do you understand by classificationof data ?
8. Find the mean of the following data :

   4, 45, 60, 20, 83, 19, 26, 11, 27, 12, 52.
9. If the 8^{th} term of an AP is zero, prove that its 28^{th} term is double the 18^{th} term.
10. What is analysis of time series
11. Solve $x^2 - 5x + 4 = 0$ by using quadratic formula.
12. Differentiate Geometric and Harmonic Mean.

13. What is a pie diagram ?

14. Explain Skewness.

15. Represent the following frequency table by histogram.

Marks:	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Number of students :	20	20	30	20	50

(10 × 3 = 30 marks)

Section B (Paragraph)

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Find the sum of first 22 terms of the sequence 5, 10, 15, 20, ———.

17. Find the central tendencies for the given series :

3, 9, 3, 5, 12, 10, 18, 4, 7, 19, 21.

18. If A = {1, 2, 3} and B = {a, b}, find A × B and B × A. Are they equal ?

19. Find AB, Where $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$.

20. Find the adjoint of the matrix $\begin{bmatrix} 1 & 1 & 2 \\ 0 & 2 & 3 \\ 0 & 0 & 1 \end{bmatrix}$.

21. Give three yearly moving averages for the following series :

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Production (lakh tons)	17.2	17.3	17.7	18.9	19.2	19.3	18.1	20.2	25.3	24.9

22. Find the sum of first 10 terms of GP, whose 3rd term is 12 and 8th term is 384.

23. What are the different aspects to be considered in planning a statistical enquiry ?

(5 × 6 = 30 marks)

Section C (Essay)

Answer any **two** *question.*
Each question carries 10 *marks.*

24. Explain :

    (a) Arithmetic, Geometric and Harmonic mean.

    (b) Scope of statistics.

25. Find the quartile deviation for the following data :

Marks	*Frequency*
0 – 5	4
5 – 10	5
10 – 15	6
15 – 20	10
20 – 25	11
25 – 30	9
30 – 35	4
35 – 40	1

26. Find the sum of n terms of the series 5 + 55 + 555 + 5555 + ...

27. Find the inverse of the matrix $\begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$.

(2 × 10 = 20 marks)

D 91674-A

(Pages : 4)

Name.....

Reg. No.....

THIRD SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Common Course

A 12—GENERAL INFORMATICS

(2017 Admissions)

(Multiple Choice Questions for SDE Candidates)

Time : 15 Minutes **Total No. of Questions : 20** **Maximum : 20 Marks**

INSTRUCTIONS TO THE CANDIDATE

1. This Question Paper carries Multiple Choice Questions from 1 to 20.
2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.
3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.
4. The MCQ question paper will be supplied after the completion of the descriptive examination.

A 12—GENERAL INFORMATICS

(Multiple Choice Questions for SDE Candidates)

1. Which of the following is not an output device ?

   (A) Printer.
   (B) Hard drive.
   (C) Monitor.
   (D) Speakers.

2. Which of the following devices is considered the brain of the computer ?

   (A) Read only memory.
   (B) Central processing unit.
   (C) Random access memory.
   (D) Motherboard.

3. The most common computer pointing device is :

   (A) Your finger.
   (B) A mouse.
   (C) A trackball.
   (D) None of the above.

4. ———— developed the integrated circuits.

   (A) Kim Philby.
   (B) Jack Philby.
   (C) John Neumann.
   (D) Thomas Watson.

5. USB means ————.

   (A) Universal Serial Bus.
   (B) University Sector Bus.
   (C) Unique Serial Bus.
   (D) None of these.

6. LAN stands for ————.

   (A) Local Area Network.
   (B) Loyal Area Network.
   (C) Large Area Network.
   (D) None of these.

7. ———— is the primary large printed circuit board within a personal computer.

   (A) Motherboard.
   (B) Main memory.
   (C) Magnetic disk.
   (D) None of these.

8. CRT means ————.

(A) Cathode Ray Tube.
(B) Central Ray Tube.
(C) Cathode Ray Tray.
(D) None of these.

9. Which of the following is suitable for networking in two adjacent buildings ?

(A) WAN.
(B) LAN.
(C) MAN.
(D) VAN.

10. Ethernet networks transmit data in small units. These units are called ————.

(A) Baud.
(B) Frames.
(C) Data Bundles.
(D) None of these.

11. Which must be a valid name of a website ?

(A) Web.india.com.
(B) www.roseypublications.com.
(C) rosey@yahoo.co.in.
(D) None of these.

12. The primary disadvantage to DSL internet access is the quality and effectiveness of service :

(A) Are affected by the number of users on the same DSL line at any time.
(B) Depend on your proximity to a phone company central office.
(C) Can be affected by adverse weather conditions.
(D) Depend on the internet service provider you select.

13. ———— integrates communications, data management, and security services to allow business applications within different organizations to automatically interchange information.

(A) E-Commerce.
(B) E-Governance.
(C) E-Banking.
(D) None of the above.

14. Nanotechnology is the science of things on the order of :

(A) Inches.
(B) Milometers.
(C) Nanometers.
(D) Nanobytes.

15. The five steps, input, processing, output, storage and retrieval, and distribution and communication are all part of :

(A) The information super highway.
(B) The internet.
(C) The information processing cycle.
(D) None of the above.

D 91674 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER B.A./B.Sc. DEGREE EXAMINATION, NOVEMBER 2020

(CUCBCSS—UG)

Common Course

A 12—GENERAL INFORMATICS

(2017 Admissions)

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

I. Choose the correct answer :

1 Which of the following is not one of the four major functions of computer ?

a) Output. b) Storage.

c) Processing. d) Calculation.

2 An Ethernet port is used for connecting your computer to :

a) A network. b) A printer.

c) A monitor. d) A digital camera.

3 On the keyboard, the key you press to finalize a command or entry is :

a) Enter. b) Control.

c) Escape. d) All of the above.

4 Which of the following period is the second generation of computing ?

a) 1945-55. b) 1956-63.

c) 1964-1971. d) None of the above.

5 One cannot write new data in this type of memory :

a) RAM. b) ROM.

c) CPU. d) None of these.

II. Fill in the blanks :

6 Mouse was invented by _____ in 1963.

7 CRT means _____.

8 Linux is a ———— Operating system.

9 The device that tracks movement is ————.

10 ERP means ————.

(10 × 1 = 10 marks)

Part B

Answer any **eight** *questions.*
Each question carries 2 *marks.*

11 What is LAN ?

12 What is Star and Tree topology ?

13 What is HTML ?

14 What is UNIX ?

15 What is G2B interaction ?

16 Explain RFID.

17 Explain SMART CARD.

18 Explain Copyright.

19 Explain INFLIBNET.

20 What is Phishing ?

(8 × 2 = 16 marks)

Part C

Answer any **six** *questions.*
Each question carries 4 *marks.*

21 What are the major features of new generation personal computers ?

22 What is internet ? What are its major uses ?

23 What are the components of information technology ?

24 Explain some of the benefits of e-governance ?

25 Explain Electronic Data Interchange. What are some of its benefits ?

26 What is e-waste and green computing ?

27 What is GNOME ?

28 Compare Spyware and Malware.

(6 × 4 = 24 m

Part D

Answer any **two** *questions.*
Each question carries 15 *marks.*

29. What is Computer Network ? What are the types ? What are its components ?

30. What are the applications of IT in health care ? Explain with some examples.

31. What is LINUX ? What are its advantages ? What are its disadvantages ?

(2 × 15 = 30 marks)

D 91673 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A12—GENERAL INFORMATICS

(2014 Admissions)

Time : Three Hours Maximum : 80 Marks

Part I

Answer **all** *questions.*
Each question carries 1 *mark.*

I. Choose the correct answer :

1 URL stands for :

a) Uniform Resource Link. b) Uniform Resource Locator.

c) Uniform Reference Link. d) Unique Reference Locator.

2 Speech recognition software is an example of :

a) Application software. b) Operating system.

c) Antivirus software. d) None of these.

3 Example of academic network is :

a) NICNET. b) BRNET.

c) INFLIBNET. d) All the above.

4 ECS means :

a) Electronic Customer Service. b) Electronic File Protection.

c) Electronic Fund Transfer. d) None of these.

5 Cyber Extortion is a form of :

a) Cyber defamation. b) Cyber terrorism.

c) Cyber stalking. d) Cyber space.

Fill in the blanks :

6 Using of Bio computer to perform calculations is known as _____.

7 HTML stands for _____.

8 Malware includes viruses and _____.

9 1 MByte equals to _____ Kbyte.

10 _____ is an example of presentation software.

(10 × 1 = 10 marks)

Part II

Answer any **eight** *questions in two* **or** *three sentences.*
Each question carries 2 *marks.*

11 What do you mean by Artificial Intelligence ?

12 Define Informatics.

13 What is cloud computing ?

14 What do you mean by FTP ?

15 What is digital divide ?

16 What is open source software ?

17 What do you mean by Firewall ?

18 What is cyber warfare ?

19 What is social networking ?

20 What is Gopher ?

(8 × 2 = 16 marks)

Part III

Answer any **six** *questions in about* 200 *words.*
Each question carries 4 *marks.*

21 Briefly explain the functions of INFLIBNET ?

22 What is ATM card ? What are the functions ?

23 What is knowledge repository, what are the features ?

24 What is ISP ? What are the different types of ISP ?

25 What are the different elements of Linux ?

26 Explain the components of Green Computing.

27 What is Intellectual Property Crime ? What are the types ?

28 Differentiate between Data and Information.

(6 × 4 = 24 marks)

Part IV (Essay Questions)

Answer any **two** *questions in about* 800 *words.*
Each question carries 15 *marks.*

29 What is network Topology ? What are the different types of network topologies ?

30 Discuss the role of I.T. in Business and Industry.

31 What is cyber crime ? Explain the different types of cyber crimes.

(2 × 15 = 30 marks)

D 91672-A

(Pages : 4)

Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A11—BASIC NUMERICAL SKILLS

(2017 Admissions)

(Multiple Choice Questions for SDE Candidates)

Time : 15 Minutes	Total No. of Questions : 20	Maximum : 20 Marks

INSTRUCTIONS TO THE CANDIDATE

1. This Question Paper carries Multiple Choice Questions from 1 to 20.
2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.
3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.
4. The MCQ question paper will be supplied after the completion of the descriptive examination.

A11—BASIC NUMERICAL SKILLS

(Multiple Choice Questions for SDE Candidates)

1. A set with no elements is a :

   (A) Null set. (B) Finite set.

   (C) Infinite set. (D) None.

2. Two set A and B are said to be equal if they have exactly the same elements and we write it.

   (A) $A \neq B$. (B) $A = B$.

   (C) $A \in B$. (D) None.

3. In plane geometry, the set consists of all points in a plane is an eg. For

   (A) $\cap$. (B) $\cup$

   (C) $\in$. (D) ϕ.

4. In set builder form $\{X : X \in A \text{ or } X \in B\}$ denotes :

   (A) $A \cup A$. (B) $A \cap A$.

   (C) $A \phi A$. (D) None.

5. If $A \cap B = \phi$ means :

   (A) A and B are union. (B) A and B are disjoint.

   (C) A and B are intersected. (D) None.

6. The expression $b^2 - 4ac$ is called _____ of the quadratic eqn.

   (A) Discriminant. (B) Roots.

   (C) Characteristics. (D) Solution.

7. _____ satisfies the eqn $x + y + 1 = 0$.

   (A) $(x = 0, y = 0)$. (B) $(x = 1, y = -2)$.

   (C) $(x = 0, y = 1)$. (D) $(x = -2, y = 2)$.

8. The sum of an in finite G.P. is $\frac{a}{1-r}$, where 'r' is :

(A) Numerically less than 1.

(B) Equal to 1.

(C) ± 1.

(D) Any value.

9. Sum of n terms of a G.P. is given by $a\frac{r^n-1}{r-1}$, where 'r' is :

(A) Greater than 1.

(B) Equal to 1.

(C) Less than 1.

(D) Numerically greater than 1.

10. Statistics is applied in :

(A) Economics.

(B) Business management.

(C) Commerce and industry.

(D) All these.

11. Statistic deals with :

(A) Qualitative information.

(B) Quantitative information.

(C) Both.

(D) None.

12. Length of a class is :

(A) The difference between the UCB and LCB of that class.

(B) The difference between the UCL and LCL of that class.

(C) (A) or (B).

(D) Both (A) and (D).

13. Histogram is a :

(A) Graph.

(B) Diagram.

(C) Collection of bars.

(D) Pictogram.

14. In direct personal investigation, the investigator should be :

(A) Biased.

(B) Tactful.

(C) Optimistic.

(D) All these.

15. For drawing histogram the data should be :

(A) Discrete series. (B) Continuous distribution.

(C) Individual series. (D) Any one of these.

16. A single value which can represent the whole set of data is called :

(A) Set. (B) Average.

(C) Interest. (D) Matrices.

17. Moving average method of fitting trend in a time series data removes the effect of :

(A) Long term movements. (B) Short term movements.

(C) Cyclic Variations. (D) Irregular variations.

18. Co-efficient of standard deviation is :

(A) SD / Mediam. (B) SD / Mean.

(C) SD / Mode. (D) AM / SD.

19. ———— is called positional of measure.

(A) Mean. (B) Median.

(C) Mode. (D) Harmonic Mean.

20. Kelley's co-efficient of skewness is based on :

(A) Mean. (B) Quartiles.

(C) Percentiles. (D) None of these.

D 91672 (Pages : 4) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A11—BASIC NUMERICAL SKILLS

(2017 Admissions)

Time : Three Hours Maximum : 80 Marks

Part I

Answer **all** *questions.*
Each question carries 1 *mark.*

1. The set of cubes of natural nos is ————————.

   a) Finite set. b) Infinite set.

   c) Null set. d) Equal set.

2. The number of all possible matrices of order 3 × 3 with each entry 0 or 1 is ————————.

   a) 27. b) 18

   c) 81. d) 512.

3. The system of equations $x + y = 3$ and $2x + 2y = 6$ are ————————.

   a) Consistent. b) Inconsistent.

   c) Consistent and dependent. d) Dependent.

4. The nature of roots of the equations $x^2 - 4x + 4$ is ————————.

   a) Imaginary. b) Rational.

   c) Equal and rational. d) Irrational and unequal.

5. The 9^{th} term of the sequence 3,6,12 ..... is :

   a) 256. b) 128.

   c) 64. d) 768.

6. The simple interest on Rs. 68,000 at $16\frac{3}{2}\%$ per annum for 9 months is _____.

a) 7,500.
b) 8,500.
c) 9,500
d) 8,000.

7. Statistics measures _____.

a) Certainity.
b) Uncertainity.
c) Data.
d) None.

8. Bar diagram is a _____ dimensional diagram.

a) Two
b) Three.
c) One.
d) None.

9. _____ is better suited to open end series.

a) Mean.
b) Median.
c) Mode.
d) None.

10. If $N = 10, \sum x = 60 \sum x^2 = 1000$ the standard deviation is _____.

a) 100.
b) 6.
c) 12.
d) 8.

(10 × 1 = 10 marks)

Part II (Short Answer Questions)

Answer any **eight** *questions.*
Each question carries 2 marks.

11. Define null set and singleton set ?

12. Define square matrix and give example ?

13. Solve $x + y = 7$ and $x - y = 6$.

14. Solve $\frac{2}{x} + \frac{x}{2} = 2$.

15. Determine k, if $k + 2, 4k - 6, 3k - 2$ are 3 consecutive terms of AP.

16. On what sum of money will compound interest for 2 years of 5 % year amount to Rs. 164 ?

17. Limitation of Statistics.

18. What is pictogram and Cartogram ?

19. Find the geometric mean of 85, 15, 500, 250, 70, 75, 45, 8, 40, 36

20. Why Fisher index number is called ideal ?

(8 × 2 = 16 marks)

Part III (Short Essays)

Answer any **six** *questions.*
Each question carries 4 marks.

21. For matrix $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ prove that $A^3 - 6A^2 + 7A + 2I = 0$.

22. How many terms of the AP $-6, -\frac{11}{2}, -5 \ldots\ldots\ldots\ldots$ are needed to give the sum -25.

23. Find the positive value of 'k' if one root of $x^2 - kx + 243 = 0$ is thrice the other

24. Compare standard deviation and mean deviation.

25. Solve $(x+3)(x+6)+(x+6)(x+9)+(x+9)(x+3)=0$.

26. Draw ogive for the following data :

Mid x	:	5	10	15	20	25	30
Frequency	:	10	12	85	100	80	13

27. What are the steps in the construction of cost of living index number ?

28. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$; $A = \{1, 2, 3, 4,\}$; $B = \{2, 4, 6, 8\}$; and $C = \{3, 4, 5, 6\}$.

Find (i) A' ; (ii) B' ; (iii) $(A \cup C)'$; and (iv) $(A \cup B)'$.

(6 × 4 = 24 marks)

Turn over

Part IV (Long Essays)

Answer any **two** *questions.*
Each question carries 15 *marks.*

29. Solve the system of equation using matrix method $x + y + z = 6$; $y + 3z = 11$; $x + z = 2y$.

30. Find a 4 yearly moving average and the centered 4 year moving average from the following data :

Year	:	2000	2001	2002	2003	2004	2005	2006	2007
Output	:	301	454	393	414	424	464	466	492

31. The scores of 2 batsman Lara and Sachin in 10 innings during a certain seasonare :

Lara	:	32	28	47	63	71	39	10	60	96	14
Sachin		19	31	48	33	67	90	10	62	40	80

Find which of the two batsman, Lara or Sachin is more consistent in scoring ?

(2 × 15 = 30 marks)

D 91671-A (Pages : 4) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A11—BASIC NUMERICAL SKILLS

(2014 Admissions)

(Multiple Choice Questions for SDE Candidates)

Time : 15 Minutes	Total No. of Questions : 20	Maximum : 20 Marks

INSTRUCTIONS TO THE CANDIDATE

1. This Question Paper carries Multiple Choice Questions from 1 to 20.
2. The candidate should check that the question paper supplied to him/her contains all the 20 questions in serial order.
3. Each question is provided with choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and enter it in the main answer-book.
4. The MCQ question paper will be supplied after the completion of the descriptive examination.

A11—BASIC NUMERICAL SKILLS

(Multiple Choice Questions for SDE Candidates)

1. In the following state whether A = B :

   (A) $A = \{4, 8, 12, 16\}, B = \{8, 4, 16, 18\}$.

   (B) $A = \{x : x \text{ is a multiple of } 10\}$
   $B = \{10, 15, 20, 25.....\}$.

   (C) $A = \{a, b, c, d\}, B = \{d, c, b, a\}$.

   (D) None.

2. A set 'A' is said to be a subset of a set B if every element of A is :

   (A) Also an element of A.

   (B) Also an element of B.

   (C) Not an element of B.

   (D) Not an element of A.

3. Value of the determinate $\begin{bmatrix} 2 & 1 & 3 \\ 4 & 2 & 6 \\ 6 & 3 & 9 \end{bmatrix}$ is :

   (A) 0.

   (B) Positive integer.

   (C) Negative integer.

   (D) Not obtainable.

4. A matrix with equal number of rows and colume is called :

   (A) Square matrix.

   (B) Column.

   (C) Row.

   (D) None.

5. If all elements in the matrix are zero then it is :

   (A) Diagonal matrix.

   (B) Square matrix.

   (C) Identity matrix.

   (D) Zero matrix.

6. A (B + C) = AB + AC is a :

   (A) Associative law.

   (B) Cumulative law.

   (C) Distributive law.

   (D) Corresponding law.

7. The solution of the equation $4 = 2/3\ x$ is _____.

   (A) 6.

   (B) 12.

   (C) 8.

   (D) 16.

8. Equation $ax^2 + b = 0$:

(A) Pure quadratic equation. (B) General quadratic equation.

(C) Not a quadratic equation. (D) None.

9. A series obtained by adding a constant number to its preceding terms is :

(A) GP. (B) AP.

(C) GP or AP. (D) None.

10. Sequences following specific patterns are called :

(A) Progressions. (B) Finite sequence.

(C) Infinite sequence. (D) None.

11. tn in AP is :

(A) $a + (n-1)\,2d$. (B) $a + (n-1)\,d$.

(C) $a + (d-1)\,n$. (D) None.

12. Find the 7^{th} term of series 1, 4, 7 ————————.

(A) 22. (B) 19.

(C) 16. (D) 25.

13. d of the A.P. 4, – 8, – 20 ————————.

(A) – 4. (B) 12.

(C) – 12. (D) – 8.

14. Find x if the number x, 7, 28 from a GP :

(A) 4. (B) 0.

(C) 7/4. (D) 4/7.

15. Find the common ratio of the following 9, 6, 4 :

(A) 3. (B) 2.

(C) 2/3. (D) None.

16. The sum at the end of 2 years for 1000 at 10 % p.a. compounded yearly :

(A) 100. (B) 210.

(C) 1100. (D) 1210.

17. Simple interest for a sum of Rs. 500 for 2 year at the rate of 8 % p.a. :

(A) 580. (B) 420.

(C) 80. (D) 16.

18. ———————— is not dimensional diagram.

(A) Cubes. (B) Rectangles.

(C) Pictograms. (D) Circles.

19. Frequency distribution is :

(A) A table. (B) A variable.

(C) Total Frequency. (D) Class Intervals.

20. Length of a class is :

(A) The difference between the UCB and LCB of that class.

(B) The difference between the UCL and LCL of that class.

(C) (A) or (B).

(D) Both (A) and (D).

D 91671

(Pages : 4)

Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS–UG) DEGREE EXAMINATION NOVEMBER 2020

Common Course

A11—BASIC NUMERICAL SKILLS

(2014 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part I

Answer **all** *questions.*
Each question carries 1 *mark.*

Choose the correct answer :

1. An association of an unique real number with a square matrix is known as :
   (a) Determinant. (b) Transpose.
   (c) Inverse. (d) Index.
2. Laspeyer's index formula use the weights of the ————.
   (a) Base year. (b) Current year.
   (c) Previous year. (d) None of these.
3. Which one of the following is not uniquely defined ?
   (a) Mean. (b) Median.
   (c) Mode. (d) All of these.
4. Compound interest of Rs. 25,000 at the rate of interest 12% p.a for 5 years is
   (a) 12000. (b) 44058.
   (c) 15000. (d) 19058.
5. Geometric mean of 8, 4, 2 is :
   (a) 8. (b) 2.
   (c) 4. (d) None.

Fill in the blanks :

6. Histogram is a ————.
7. ———— is the value of the variable corresponding to the highest frequency.
8. When A = {a, b}, its power set has ———— elements.

9. A time series is a set of values arranged in _____ order.

10. If mean is 100 and standard deviation is 15 then co-efficient of variation is _____.

(10 × 1 = 10 marks)

Part II

Answer any **eight** *questions.*
Each question carries 2 *marks.*

11. Solve $\frac{15}{x+4} = \frac{19}{x-3}$.

12. Find the 15^{th} and 20^{th} terms in the series 2, 8, 14, 20 _____.

13. Calculate the amount invested when it gives a simple interest Rs. 15,000 for a period of 2.5 years at 12 % interest per annum.

14. What is an element ?

15. Find the transpose of the matrix $A = \begin{pmatrix} 2 & 6 & 4 \\ 5 & 3 & 0 \\ 1 & 9 & 7 \end{pmatrix}$.

16. What is secular trend ?

17. Find the co-efficient of range for the following values :

25, 32, 85, 32, 42, 10, 20, 18, 28.

18. Find the Harmonic mean from the following data :

Size	6	10	14	18
f	20	40	30	10

19. Find the median for the following values :

4, 45, 60, 20, 83, 19, 26, 11, 27, 12, 52.

20. What is common ratio ?

(8 × 2 = 16 marks)

Part III

Answer any **six** *questions.*
Each question carries 4 marks.

21. What is Statistics and explain the features ?

22. Find the product of matrices :

(i) $\begin{pmatrix} 1 & 3 & 2 \\ 0 & 2 & 1 \\ 0 & 5 & 3 \end{pmatrix}$ and $\begin{pmatrix} 3 & 1 & 2 \\ 4 & 2 & 3 \\ 4 & -1 & 1 \end{pmatrix}$.

(ii) $\begin{pmatrix} 2 & 3 & 4 \\ -1 & 2 & -5 \end{pmatrix}$ and $\begin{pmatrix} 1 & 2 \\ 3 & -4 \\ -5 & 6 \end{pmatrix}$.

23. If A = {1, 2, 3}, B = {3, 4, 5}, C ={1, 3, 5), prove that $A-(B\cup C)=(A-B)\cap(A-C)$.

24. Calculate the total interest on Rs. 500 for 73 days, Rs. 720 for 14 weeks and on Rs. 900 for 3 months, all at 6% per annum.

25. Find the Geometric mean from the following data :

Size	5	8	10	12
Frequency	2	3	4	1

26. Solve $xy+x+y=27, \frac{1}{x}+\frac{1}{y}=\frac{1}{2}$.

27. Find the sum of all natural numbers between 500 and 600 which are divisible by 9.

28. What are the different types of index numbers ?

(6 × 4 = 24 marks)

Part IV (Essay Questions)

Answer any **two** *questions.*
Each question carries 15 *marks.*

29. The savings of X increases each month by Rs. 50 more than the previous month. If his total savings for 2 years amounted to Rs. 25,800. Find out his savings for the first month.

30. Find the missing frequency if arithmetic mean is 28. Also find the median :

Marks	0–10	10–20	20–30	30–40	40–50	50–60
No of students	12	18	27	?	17	6

31. From the following indices calculate the weighted cost of living index numbers for the year 2014, 2015 and 2016 :

Items	Weight	Indices			
		2013	2014	2015	2016
Food	50	100	110	115	120
Clothing	30	100	100	110	105
Housing	20	100	95	120	104
Fuel	15	10	105	108	106
Miscellaneous	5	100	102	112	110

(2 × 15 = 30 marks)