44001/44601/45001/A0010/45201

Reg. No. | | | | | | | | |

I Semester B.Sc. Degree (CBCS) Examination, March/April - 2021

ENGLISH BASIC

(Regular/New)

Time : 3 Hours **Maximum Marks : 80**

Text: English Gems

I. Answer the following questions in a word, a phrase or a sentence each : **(10×1=10)**

1) Why did the last leaf not Fall?

2) Who is Nepalese liason officer?

3) What is Bijamitra?

4) Who is a rival of chaplin?

5) What is the name of Jack Coogan's Son?

6) How many roads diverged in the wood?

7) Who is the author of the poem "Still I Rise"?

8) What is the theme of the poem 'A Prayer For My Daughter'?

9) What is the significance of the poem "How Did You Die"?

10) What counts in the poem 'How Did You Die'?

II. Explain the following statements with reference to the context selecting one from prose and one from poetry. **(2×5=10)**

1. 'What have old Ivy leaves to do with your getting well'?

2. "If not you, oh God, who will help us"?

3. An intellectual hatred is the worst so let her think opinions are accursed.

4. Two roads diverged in a yellow wood, And sorry I could not travel both.

III. a) Narrate the scene of the Kid with the policeman and how Jackie was asked to play it? **(10)**

(OR)

b) How is ZBNF useful for farmers?

P.T.O.

IV. a) Critically appreciate the poem "The Road Not Taken". **(10)**

(OR)

b) How does Maya Angelou protest in her poem against the whites?

V. Write short note on any **Two** of the following choosing one from prose and one from poetry. **(2×5=10)**

1) Johnsy's Illness.
2) The four wheels of ZBNF.
3) The Road Not Taken.
4) Inspiration in How Did You Die?

VI. A) Use the following words in Sentences as directed. **(5×1=5)**

1) Police as a noun.
2) Obedient as an adjective.
3) Blew as a verb.
4) Timidly as an adverb.
5) Yesterday as an adverb.

B) Fill in the **blanks** with suitable articles. **(5×1=5)**

1) Rama was born in ---------- U.K.
2) That invention has won ---------- Nobel prize.
3) He got admission in ---------- Institution.
4) She studies in ---------- University.
5) She goes to temple in ---------- morning.

C) Fill in the **blanks** with suitable prepositions. **(5×1=5)**

1) Ravi got the train _____ 6 O' Clock.
2) You are _____ Fasting today.
3) He gets his salary _____ time.
4) The invited us _____ dinner.
5) He does not like most of reality shows _____ television.

VII. A) Give the **synonyms** of following words : **(5×1=5)**

1) Cry.
2) Eager.
3) Explain.
4) Funny.
5) Hurry.

B) Give the **antonyms** of the following words : **(5×1=5)**

1) Include.
2) Marvelous.
3) Professional.
4) Powerful.
5) Rigid.

C) Draft a copy of Self - Introduction highlighting your academic achievements.**(5×1=5)**

35112/42101/42801/A120/A010

Reg. No. | | | | | | | | |

I Semester B.Sc. Degree Examination, March/April - 2021

ENGLISH BASIC

Vibrant English

(Repeater)

Time : 3 Hours **Maximum Marks : 80**

I. Answer the following questions in a word, a phrase or a sentence: **(10×1=10)**

1. Who is the author of Science and Religion?
2. On what basis is Indian civilizational heritage built?
3. Who in the story is a student of Confucius?
4. Where was the Portrait of grandfather hung?
5. Who wrote the poem "No Second Troy"?
6. Who is the author of the poem 'Delhi'?
7. What is the Woman'sTaiment compared to?
8. Who is compared to 'terrible fish'?
9. Who filled the days of the poet with nursery?
10. What were the blossoms born to be?

II. Explain the following with reference to the context choosing one from prose and one from poetry. **(2×5=10)**

1. Oh God, destroy the 'me' in 'we' and stand 'thou' in my stead.
2. All religions emphasize the importance of prayer.
3. It's a cemetery of stones.

   I see every where.
4. Her girdles and her fillets gleam.

   Like changing fires on Sunset seas;

P.T.O.

III. a) How does Khushwant Singh portray his grandmother. (1×10=10)

(OR)

b) Discuss the ending of the story "The coffee house in Surat".

IV. a) How is the true picture of woman presented in the poem Mirror. (1×10=10)

(OR)

b) Critically appreciate the poem 'No Second Troy'?

V. Write short notes on any two of the following (one from prose and one from poetry) (2×5=10)

1) Good Manners.
2) Blossom flowers.
3) Kalam's Idea of developed nation.
4) The Pardah Nashin.

VI. A) Fill in the blanks with suitable articles/prepositions. (5×1=5)

1. IISC is ..... institution known for its research contribution.
2. Tara studies in ..... university.
3. She prays in ..... morning every day.
4. The man travelled ..... the world.
5. Pradeep arrived ..... two O'clock.

B) Change the following sentences as directed. (5×1=5)

1) Rajan is too proud to beg.(Remove too ..... to)
2) No sooner had she finished a project than She started the next.(Use as soon .....as)
3) If you work hard, you will get first class.(Use unless)
4) Kittur Channamma was a great queen.(Make it exclamatory)
5) Very few countries in the world as large as the USA.

C) Write a report on your study tour. (1×5=5)

VII. A. Draft a copy of 'Self Introduction'. (1×5=5)

B. Prepare a draft of welcome speech. (1×5=5)

C. Write a dialogue between 'bank manager and a student who wishes to open an SB Account.

(1×5=5)

44005/44605/A0050

Reg. No. | | | | | | | | |

I Semester B.Sc./B.C.A. Degree Examination, March/April - 2021

HINDI (BASIC)

1. गद्य फुलवारी
2. पारिभाषिक शब्दावली
3. हिन्दी भाषा के विविध रुप

PAPER: AECC

(Fresh-CBCS Syllabus)

Time : 3 Hours **Maximum Marks : 80**

I. किन्हीं दस प्रश्नों के सही उत्तर लिखिए। **(10×1=10)**

1. महात्मा गांधी जी का निधन कब हुआ?
   - अ) 30/01/1948
   - ब) 31/01/1948
   - क) 29/01/1948
2. माधवराव सप्रे जी का जन्म कब हुआ?
   - अ) 1871
   - ब) 1870
   - क) 1880
3. महादेवी वर्मा जी का जन्म कहाँ हुआ?
   - अ) इलाहाबाद
   - ब) फर्रुखाबाद
   - क) अहमदाबाद
4. 'बहु की विदा' एकाकी किस कुप्रथा पर केंद्रित है?
   - अ) बालविवाह
   - ब) विधवा विवाह
   - क) दहेज प्रथा
5. 'हरिशंकर परसाई' व्दारा रचित रचना हैं।
   - अ) सती
   - आ) अध्यक्ष महोदय
   - इ) उखड़े खम्भे

P.T.O.

6. शरद जोशी जी को कौनसा सरकारी पुरस्कार मिला है?

   अ) पद्मश्री

   ब) पद्मविभूषण

   क) पद्मभूषण

7. जी.जे हरिजीत जी का जन्म कब हुआ?

   अ) 26/07/1938

   ब) 26/07/1948

   क) 26/07/1928

8. प्रतिभा कटियार जी का जन्म कहाँ हुआ?

   अ) नागपुर

   ब) जौनपुर

   क) कानपुर

9. सबिया के पति का नाम क्या है?

   अ) गेंदा

   ब) मैकू

   क) सत्यवान

10. 14 सितम्बर 1949 मे 'हिन्दी' को संघ की ------ के रुप में प्रतिष्ठा मिली।

   अ) राष्ट्रभाषा

   ब) राजभाषा

   क) लोकभाषा

11. 'अष्टम अनुसूची' में कुल कितनी भाषाँए मान्यता प्राप्त है?

   अ) 14

   ब) 22

   क) 28

12. राजभाषा हिन्दी के स्वरुप का फॉर्मूला किसने पेश किया?

   अ) एन गोपाल स्वामी अय्यगांर

   ब) पं.जवाहरलाल नेहरु

   क) लालबहादुर शास्त्री

II. किन्हीं दो का संन्दर्भ सहित अर्थ स्पष्ट कीजिए:- **(2×7=14)**

1. "ईश्वर ऐसी सुबुद्धि दे कि तुम मेल से रह सको"
2. "कहा है तो खम्भो पर टाँगा ही जाएगा। थोडा समय लगेगा।"
3. "सती, सती तुम आ गई? मैं जानता था कि तुम जरुर आओगी"
4. "समदंर के गाँव मे..... नारियल के पेडों की छाँव में।"

III. किसी एक प्रश्न का उत्तर लिखिए। **(1×14=14)**

1. 'बहु की विदा' देहजप्रथा पर केन्द्रित इस मार्मिक एकांकी की समीक्षा कीजिए।
2. 'सती' एकांकी का सारांश अपने शब्दों में लिखिए।

IV. किन्हीं दो पर टिप्पणी लिखिए:- **(2×7=14)**

1. प्रमोद
2. सबिया
3. महात्मा गांधी
4. अध्यक्ष महोदय

V. किसी एक प्रश्न का उत्तर लिखिए। **(1×10=10)**

1. राजभाषा का अर्थ तथा विशेषताएँ लिखिए।
2. सम्पर्क भाषा पर एक लेख लिखिए।

VI. किन्हीं दो पर टिप्पणी लिखिए। **(2×5=10)**

1. राष्ट्रभाषा
2. मानक भाषा
3. अष्टम अनुसूची

P.T.O.

VII. किन्हीं आठ शब्दों का हिंदी में अनुवाद कीजिए। **(8×1=8)**

1.	Annual	6.	Division
2.	Secretary	7.	Enquiry
3.	Officer	8.	Tender
4.	Ambassador	9.	Nomination
5.	Expert	10.	Audit

44024/A0240

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I Semester SQL B.Sc. 5 Degree Examination, March/April - 2021

CHEMISTRY

(CBCS Scheme Regular)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates :

1) All questions are compulsary
2) Draw neat diagrams and give equations wherever necessary.

I. Answer any **TEN** of the following questions. **(10×2=20)**

1) State Heisenberg uncertainty principle.
2) Write de Broglie's relation and explain the terms involved in it.
3) Write the electronic configuration of Cu [At.No.29].
4) Calculate bond order in NO molecule.
5) What is covalent bond? Give an example.
6) State Fajan's rule.
7) Draw the resonance structures of phenol.
8) What is inductive effect? Give an example.
9) State Huckel's rule for atomicity.
10) What is solvent extraction? Give an example
11) Assign E-Z notations for Butenedioic acid.
12) Explain sublimation.

II. Answer the following questions. **(3×5=15)**

a) Write a note on quantum numbers.

b) Explain the shapes of S, P and d atomic orbitals.

c) Explain Bohr's model of atom and mention its limitations.

(OR)

d) Discuss hydrogen atomic spectra.

P.T.O.

III. Answer the following questions. **(3×5=15)**

a) Explain 'Born - Haber' cycle for the formation of sodium chloride.

b) Explain the tetrahedral shape of H_2O molecule on the basis of VSEPR and hybridisation.

c) Mention salient features of MOT?

(OR)

d) Give the comparison of VBT and MOT.

IV. Answer the following questions. **(3×5=15)**

a) What are Carbonations? Explain the structure and stability of carbonations.

b) How do you prepare alkenes by

i) dehydration of alcohols ii) dihedro halogenations of alkyl halides.

c) What is Ozonolysis? Give its mechanism with respect to 2 - methyl - 2 - butane.

(OR)

d) What are denies? Explain the preparation of 1, 3 - butadiene.

V. Answer the following questions. **(3×5=15)**

a) Explain purification of liquids by 'distillation under reduced pressure' method.

b) Write the salient features of Baeyer's strain theory. Calculate angle strain in cyclopropane and cyclobutanes.

c) Explain in detail the rules for assigning R and S notations.

(OR)

d) Explain the conformational analysis with reference to n - butane. Mention the most stable one.

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I Semester B.Sc. 3/4 Degree Examination, March/April - 2021

CHEMISTRY (OPTIONAL)

Paper: I

(Repeater)

(Old syllabus)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates : *1) **All** questions are compulsory.*
2) Answer all the questions in the same answer book.
3) Draw neat diagrams and give equations wherver necessary.

SECTION - A

I. Answer Any **Ten** of the following. **(10×2=20)**

1) a) State two postulates of Bohr's Theory.

b) Explain Jonic bond with example.

c) How many significant figures does each of the following numbers have?

i) 7.80×10^{10} ii) 457.96.

d) Define normality.

e) Define sublimation.

f) Name the four types electronic transitions of *Uv* - spectroscopy.

g) What are azeotropic mixtures? Give an example

h) Define degree of hydrolysis.

i) Explain the term geometrical isomerisum with one example.

j) State Nernst distribution law.

k) Write the electronic configuration of copper (At.No.2g).

l) What are Andrew's isotherms?

SECTION - B

II. Answer any **Four** of the following. **(4×5=20)**

2) Explain the formation of H_2 molecule on the basis of valence Bond Theory.

3) What are quantum numbers? Write the signifance of any two quantum numbers.

4) Define complexometric titrations. Explain in brief the estimation of zink using EDTA.

5) Explain the conformational analysis of ethane molecule.

P.T.O.

6) Explain the following terms.
   a) Chromophores b) Bathochromic shift.

7) Define critical solution temperature (CST). Describe the Nicotine - water system with neat diagram.

SECTION - C

III. Answer any **Four** questions. Each carries **Ten** marks. **(4×10=40)**

8) a) Explain Bohr - sommerfeld model of an a torn.
   b) Write a note on errors in quantitative analysis.

9) a) Explain the postulates of Baeyr's strain theory for cycloalkanes.
   b) Flow do you determine the configuration of Maleic acid and Fumaric acid by chemical method (Anhydride formation method).

10) a) Explain optical isomerism in lactic acid and give one example for Meso - Compound.
   b) Explain steam distillation in purification of organic compounds.

11) a) State the law of corresponding states and derive reduced equation of state from Vanderwaal's equation.
   b) Explain the following terms with example.
      i) Critical temperature ii) Critical volume iii) Critical pressure.

12) a) Calculate the PH of a solution of ammonium acetate Given that $Ka=1.75\times10^{-3}$ and $Kb = 1.8\times10^{-5}$
   b) Explain U ν- spectroscopy and mention its applications.

44035/A0350

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I Semester (SQL) B.Sc./B.Sc. 5 Degree Examination, March/April - 2021

PHYSICS (OPTIONAL)

(CBCS - Syllabus w.e.f 2020-21)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates :

1) Calculators can be used to calculate Problems.

2) Write intermediate steps during Problem solving.

Answer any **ten** questions of the following. **(10×2=20)**

1. i) Give any two distinctions between elastic and inelastic collision.

ii) What is torque? Write S.I. unit of torque.

iii) A one Kg mass is whirled round in a circle at the end of a string 40×10^{-2}m long and the other end held in the hand. If the mass makes 5 revolutions per second, What is its angular momentum?

iv) Explain the terms GPS and NavIC

v) State the theorem of parallel axis w.r.t moment of inertia.

vi) A bar Pendulum of mass 1.2 kg and moment of inertia about Centre of gravity 75×10^{-3} kg m^2 Find radius of gyration.

vii) Define Poisson's ratio.

viii) What is torsional Pendulum?

ix) A bar is bent into an arc of radius 3m. it's graphical moment of inertia is 3×10^{-3}kg m^2. find the bending moment g the bar if Young's modulus of the bar is 1011 N1m^2.

x) Write relativistic formula for the mass of the body.

xi) What is the objective of Michelson Morley experiment?

xii) Calculate energy of rest mass of electron, Given rest mass of electron, is 9.109×10^{-31}kg.

Answer question No **2** or **3**.

2. a) Two balls of different masses have same kinetic energy. Show that heaver ball has greater momentum that lighter ball. **(5)**

b) Derive expressions for final velocities in care of inelastic collision in i) Laboratory frame of reference and ii) centre of mass frame of reference **(10)**

[P.T.O.

(OR)

3. a) A ball of 0.1 kg makes an elastic collision with a ball of unknown mass initially at rest. If the 0.1 kg ball rebounds at $\frac{1}{3}$rd of its original speed, What is the, mass of other ball? **(5)**

b) State the principle of rocket. Hence derive the expression for the velocity of single state rocket. **(10)**

Answer question No **4** or **5**.

4. a) Escape velocity of the earth is 11.2 km/s. Find the escape velocity of the planet whose radius is twice and mass is thrice to that of the Earth. **(5)**

b) State keplers laws of motion and prove kepler's second law of planetory motion. **(10)**

(OR)

5. a) A rectangular plate of mass 0.7 kg has length 25 cm and breadth 1.8 cm. Find its moment of inertia and radius of gyration about centre of gravity and perpendicular to the plane. **(5)**

b) Give the theory of compound pendulum. Explain the term length of equivalent simple pendulum. **(8+2)**

Answer question No **6** or **7**.

6. a) The ratio of radii of two wires of same material is 2:1. If these wires are stretched by equal force find the ratio of stresses produced in them. **(5)**

b) Derive the relation between three elastic Constants y, K and η. **(10)**

(OR)

7. a) A uniform bar of cross section 120 cm long rests on two knife edges at its two ends. When it is centrally loaded with weight of 3 kg. it is depressed through a distance of 1.5 cm. calculate the critical load. **(5)**

b) Give the theory of Cantilever and hence obtain expression for depression produced at free loaded end. **(10)**

Answer question No **8** or **9**.

8. a) How fast would a rocket have to go relative to an Observer for its length to be contracted to 75% of its length at rest? **(5)**

b) State the fundamental Postulates of special theory of relativity. Hence derive Lorenty transformation equations. **(2+8)**

(OR)

9. a) Two space ships A and B are moving in opposite direction. each with a speed of 0.9 c Find the relative velocity of B with respect to A. **(5)**

b) Derive Einstein's Mass-Energy relation. **(10)**

35135/42135/A350

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I Semester B.Sc. 3 Degree Examination, March/April - 2021

PHYSICS (OPTIONAL)

(Repeaters)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates :

1) Use calculators for calculation.
2) Write intermediate Steps.

PART - A

1. Answer any **TEN** of the following. **(10×2=20)**

a) Show the graphical representation of SHM for velocity varies with time.

b) Define moment of inertia.

c) Name the SI unit of angular momentum.

d) What is the principle of rocket?

e) Give an expression for moment of inertia of a circular disc about its diameter.

f) Define coefficient of viscosity of the liquid.

g) What is a light Cantilever?

h) Define modulus of rigidity.

i) What is the effect of impurity on surface Tension?

j) Write an expression for excess of pressure inside the air bubble and soap bubble.

k) Calculate the moment of inertia of a flywheel of mass 60kg and radius 0.2m.

l) Calculate the bending moment of a bar of Young's modulus $20\times10^{10}Nm^{-2}$ geometrical moment of inertia $4\times10^{-3}kgm^2$ and bending radius 2m.

PART - B

Answer any **FOUR** of the following: **(4×5=20)**

2. State and explain the law of conservation of linear momentum for a system of particles.
3. Derive an expression for the time period of oscillations of light spiral spring.
4. Define three modulli of elasticity. Mention the relation between them.
5. Calculate the moment of inertia and radius of gyration of a circular disc of mass 1 kg and diameter 2m about an axis passes through its centre and perpendicular to its plane.

P.T.O.

6. Calculate the depth of water at which an air bubble of radius 4×10^{-4}m may remains in equilibrium. Surface tension of water $=70\times10^{-3}$N/m.

7. A rocket from rest with exhaust gases having velocity 1.6 km/s. Find the ratio of its initial mass to the mass, when its velocity reaches 10 km/s.

PART - C

Answer any **FOUR** of the following. **(4×10=40)**

8. Define SHM. Derive an expression for the resultant motion of composition of two rectangular SHM's having the same period. **(2+8)**

9. Define orbital velocity. Obtain an expression for orbital velocity of a satellite. State the conditions for closed and open orbits. **(2+6+2)**

10. What is a flywheel? With necessary theory and neat diagram describe the method of determining moment of inertia of the flywheel. **(2+8)**

11. Derive Poiseulle's formula for the flow of viscous fluid through a narrow tube.

12. Describe with relvent theory, Quinke's method of determining the surface tension of mercury. **(5+5)**

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I Semester B.Sc. 5 Degree Examination, March/April - 2021

MATHEMATICS (OPTIONAL)

Algebra & Calculus - I

Paper : MATDSCT 1.1

(Regular) (w.e.f 2020-21)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates :

1) Question paper contains 3 Parts namely A, B and C.
2) Answer all the questions.

PART - A

Answer any **TEN** of the following: **(10×2=20)**

1. a) Define symmetric and skew-symmetric determinants.

b) Define reciprocal determinant and give an example.

c) Write the condition for consistency and inconsistency of system of linear no homogeneous equation.

d) Prove that $a+\frac{1}{a}\leq 2 \ \forall a>0$ in R.

e) Discuss the continuity of $f(x)=\begin{cases}\frac{2}{5-x} & for \quad x<3\\ 5-x & for \quad x\geq 3\end{cases}$ at $x=3$.

f) State Borel covering theorem.

g) Evaluate $\lim_{x\to 0}[\operatorname{cosec} x-\cot x]$.

h) Find the nth derivate of $\frac{1}{ax+b}$.

i) Find the nth derivative of $\sin x.\cos 2x$

j) State Rolles theorem.

k) Find the value of C, for $f(x)=x(x-1)(x-2)$ in $[0,4]$ by using Lagrange's mean value theorem.

l) Expand $\sin x$ by Maclaurins theorem.

P.T.O.

PART - B

Answer any **FOUR** of the following. **(4×5=20)**

2. Prove that $\begin{vmatrix} 1^2 & 2^2 & 3^2 & 4^2 \\ 2^2 & 3^2 & 4^2 & 5^2 \\ 3^2 & 4^2 & 5^2 & 6^2 \\ 4^2 & 5^2 & 6^2 & 7^2 \end{vmatrix} = 0$.

3. State and Prove Archemedian property of Real numbers.

4. If $\lim_{x\to a} f(x) = l$ and $\lim_{x\to a} g(x) = m$ then prove that $\lim_{x\to a}[f(x)+g(x)] = l+m$.

5. State and Prove Intermediate value theorem.

6. Find the nth derivative of $e^{ax}\sin(bx+c)$ and evaluate $e^{2x}\sin x$.

7. State and Prove Cauchy's mean value theorem.

PART - C

Answer any **FOUR** of the following. **(4×10=40)**

8. a) Prove that the rank of the matrix does not alter by inter changing any two rows of the matrix.

   b) Find the rank of matrix $A = \begin{bmatrix} 1 & 1 & -1 & 1 \\ 1 & 3 & 2 & 1 \\ 2 & 0 & 3 & 2 \\ 3 & 3 & 3 & 3 \end{bmatrix}$ by reducing it to normal form.

9. a) Prove that $|x+y| \le |x|+|y| \quad \forall x, y \in R$.

   b) Examine the continuity of $f(x) = x.\dfrac{e^{\frac{1}{x}} - e^{-\frac{1}{x}}}{e^{\frac{1}{x}} + e^{-\frac{1}{x}}}$ when $x \neq 0$

   $= 0$ when $x = 0$ at x=0.

10. a) Define uniform continuity and Prove that every uniform continuous function on $[a,b]$ is continuous.

b) Evaluate $\lim_{x\to 0}\left[\frac{\sin 3x - a\sin x}{x^3}\right]$ is finite. Find the value of a.

11. a) State and prove Leibnitz's theorem for function for nth derivative of product of two functions.

b) If $y = a\cos(\log x) + b\sin(\log x)$ then Show that $x^2 y_{n+2} + (2n+1)xy_{n+1} + (n^2+1)y_n = 0$.

12. a) State and prove Taylor's theorem with Schlomilch and Roche form of remainder.

b) Expand $\tan x$ by using Maclarian's Series up to the terms containing x^5.

35133/42133/A330

Reg. No. | | | | | | | | |

I Semester B.Sc. 3/4 Degree Examination, March - 2021

(New Syllabus w.e.f. 2014-15)

MATHEMATICS (OPTIONAL)

Paper - I : Differential Calculus

(Repeater)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates :

1) Question paper contains 3 parts namely A,B,C.
2) Answer all questions.

PART - A

I. Answer any **TEN** of the Following questions. **(10×2=20)**

1. a) State multiplicative law and trichotomy law.

b) Prove that $|xy| = |x||y| \forall x, y \in R$.

c) If $f(x) = \begin{cases} 1+x, & when \ x \leq 2 \\ 5-x, & when \ x > 2 \end{cases}$ show that $f(x)$ is continuous at x=2.

d) Define uniform continuity.

e) Find the n^{th} derivative of e^{ax}.

f) Find n^{th} derivative of $\log(2x-1)$.

g) If $y = \sin 5x . \sin x$ then find y_n.

h) State Lagrange's mean value theorem.

i) Find C, for the Rolle's theorem if $f(x) = x(x-1)$ in $[2,3]$.

j) Expand e^{-x} by using Maclaurin's series.

k) Evaluate $\lim_{x \to 0} \frac{1-\cos x}{x}$.

l) Evaluate $\lim_{x \to 1} X^{\frac{1}{1-x}}$.

P.T.O.

PART - B

II. Answer any **four** of the following questions. **(4×5=20)**

2) State and prove Archimedean property for real numbers.

3) Examine the continuity of $f(x)=\begin{cases} x.\sin\frac{1}{x}, & x\neq 0 \\ 0, & x=0 \end{cases}$ at $x=0$.

4) Find the n^{th} derivative of $e^{ax}.\cos(bx+c)$.

5) Verify the Lagrange's mean value theorem for the function $f(x)=x^2-6x+8$ in the $[2,4]$.

6) State and prove Rolle's theorem.

7) Evaluate

i) $\lim_{x\to 0}\frac{1-\cos x}{\log(1+x)}$.

ii) $\lim_{x\to 0}\frac{\cos ecx}{\log x}$.

PART - C

III. Answer any **four** full questions of the following. **(4×10=40)**

8) a) Prove that $|x+y|\leq|x|+|y|$

b) Prove that $\frac{a+b+c+d}{4}\geq\sqrt[4]{abcd}\,\forall a,b,c,d\in R.$

9) a) If $\lim_{x\to a}f(x)=l$, $\lim_{x\to a}g(x)=m$, then prove that $\lim_{x\to a}[f(x)-g(x)]=l-m$.

b) Prove that every continuous function in $[a,b]$ is bounded in the interval.

10) a) State and prove Leibnitz's theorem for n^{th} derivative of a product of two functions.

b) If $\cos^{-1}\left(\frac{y}{b}\right)=\log\left(\frac{x}{n}\right)^n$ then show that $x^2yn+2^{+(2n+1)xy_{n+1}}+2n^2yn=0$.

11) a) State and prove Taylor's theorem with Scholmich and Rouche's form of reminder.

b) Obtain by Maclaurin's theorem the first five terms in the expansion of $\log(1+\sin x)$.

12) a) If $\lim_{x\to 0}\frac{\sin 3x-a\sin x}{x^3}$ is finite. Find the values of a and the limit.

b) Evaluate $\lim_{x\to 0}\left[\frac{1}{x^2}-\frac{1}{x\cot x}\right]$.

10951/A910

Reg. No. | | | | | | | | | |

I Semester All UG Courses Degree (CBCS) Examination March/April - 2021

INDIAN CONSTITUTION

Ability Enhancement Compulsory Course

(Regular)

Time : 2 Hours **Maximum Marks : 40**

Instructions to Candidates:

Students should answer Part-I and II

PART-I

ಭಾಗ - I

Answer any Four of the following, each question carrying 2 marks. (4×2=8)

1. Write the meaning of constitution.

   ಸಂವಿಧಾನದ ಅರ್ಥ ಬರೆಯಿರಿ.

2. List the fundamental rights given by the constitution.

   ಸಂವಿಧಾನವು ಕೊಟ್ಟಿರುವ ಮೂಲಭೂತ ಹಕ್ಕುಗಳನ್ನು ಪಟ್ಟಿಮಾಡಿರಿ.

3. Name the methods of amendment procedure of the constitution.

   ಸಂವಿಧಾನದ ತಿದ್ದುಪಡಿ ಮಾಡುವ ವಿಧಾನಗಳನ್ನು ಹೆಸರಿಸಿರಿ.

4. Who is the nominal and real executive head of the union government ?

   ಕೇಂದ್ರ ಸರಕಾರದ ನಾಮಮಾತ್ರ ಮತ್ತು ನೈಜ ಕಾರ್ಯಾಂಗದ ಮುಖ್ಯಸ್ಥರು ಯಾರು ?

5. Who is the ex-officio chairman of the Rajyasabha ?

   ರಾಜ್ಯಸಭೆಯ ಅಧ್ಯಕ್ಷಾಧಿಕಾರಿ ಯಾರು ?

6. Name the types of Emergency.

   ತುರ್ತುಪರಿಸ್ಥಿತಿಯ ವಿಧಗಳನ್ನು ಹೆಸರಿಸಿರಿ.

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PART-II

ಭಾಗ - II

Answer any Two of the following, each question carrying 16 marks.(2×16=32)

7. Analyse the salient features of the Indian Constitution.

   ಭಾರತ ಸಂವಿಧಾನದ ಪ್ರಮುಖ ಲಕ್ಷಣಗಳನ್ನು ವಿಶ್ಲೇಷಿಸಿರಿ.

8. Discuss the Directive Principles of State Policy.

   ರಾಜ್ಯನೀತಿಯ ನಿರ್ದೇಶಕ ತತ್ವಗಳನ್ನು ಚರ್ಚಿಸಿರಿ.

9. Explain the powers and functions of the Prime Minister.

   ಪ್ರಧಾನ ಮಂತ್ರಿಯ ಅಧಿಕಾರ ಮತ್ತು ಕಾರ್ಯಗಳನ್ನು ವಿವರಿಸಿರಿ.

10. Discuss the structure, powers and functions of the Lok-Sabha.

    ಲೋಕಸಭೆಯ ರಚನೆ, ಅಧಿಕಾರ ಮತ್ತು ಕಾರ್ಯಗಳನ್ನು ಚರ್ಚಿಸಿರಿ.