III Semester B.Sc./B.C.A. Degree Examination, April/May - 2021

ಕನ್ನಡ ಬೇಸಿಕ್

11743

III : ಸಂಕ್ರಾಂತಿ ನಾಟಕ ಮತ್ತು ಕರ್ವಾಲೋ ಕಾದಂಬರಿ

(CBCS)

Time : 3 Hours

Maximum Marks : 70

ಅಭ್ಯರ್ಥಿಗಳಿಗೆ ಸೂಚನೆ :
ಭಾಷೆ ಹಾಗೂ ಬರಹದ ಶುದ್ಧಿಗೆ ಗಮನ ಕೊಡಲಾಗುವುದು.

1. (a) ಸಾಂಸ್ಕೃತಿಕ ಮುಖಾಮುಖಿ ಎಂಬುದನ್ನು 'ಸಂಕ್ರಾಂತಿ' ನಾಟಕದ ವಸ್ತು–ವಿಷಯದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಚರ್ಚಿಸಿರಿ. 10

ಅಥವಾ

(b) ರುದ್ರನ ತಲೆದಂಡ ನೀಡುವುದು ಬಿಜ್ಜಳ ರಾಜನಿಗೆ ಅನಿವಾರ್ಯವಾದದ್ದು ಏಕೆ ? ಎಂಬುದನ್ನು ವಿವರಿಸಿರಿ.

2. (a) ಬಿಜ್ಜಳನು ಬಸವಣ್ಣನವರ ನೀತಿ–ಬೊಧನೆಗಳನ್ನು ಒಪ್ಪದಿರಲು ಕಾರಣಗಳೇನು ಎಂಬುದನ್ನು ವಿವರಿಸಿರಿ. 10

ಅಥವಾ

(b) ನಿಸ್ವಾರ್ಥ ಪ್ರೀತಿಯ ಬಂಧುತ್ವವು ಜಾತಿ ಸಾಮರಸ್ಯದ ಪ್ರತೀಕವಾಗಿದೆ ಎಂಬುದನ್ನು 'ಸಂಕ್ರಾಂತಿ' ನಾಟಕದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ವಿಶ್ಲೇಷಿಸಿರಿ.

3. (a) ವೈಜ್ಞಾನಿಕ ಸಂಶೋಧನೆ ಹಾಗೂ ಮನೋಧರ್ಮದ ನೆಲೆಗಳನ್ನು 'ಕರ್ವಾಲೋ' ಕಾದಂಬರಿಯ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಬರೆಯಿರಿ. 10

ಅಥವಾ

(b) ಕರ್ವಾಲೋನ ಸಂಶೋಧನೆಯಲ್ಲಿ ಮಂದಣ್ಣನ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿರಿ.

4. (a) ಕರ್ವಾಲೋ ಕಾದಂಬರಿಯಲ್ಲಿನ ಜೇನಿನ ಬಗೆಗಿನ ವಿವರಗಳನ್ನು ಚಿತ್ರಿಸಿ ಬರೆಯಿರಿ. 10

ಅಥವಾ

(b) ಕೆ.ಪಿ. ತೇಜಸ್ವಿಯವರು ಕರ್ವಾಲೋ ಕಾದಂಬರಿಯಲ್ಲಿ ಹಾರುವ ಓತಿಯನ್ನು ಚಿತ್ರಿಸಿದ ಬಗೆಯನ್ನು ವಿವರಿಸಿರಿ.

P.T.O.

5. (a) ಹಬ್ಬದ ಸಂಭ್ರಮದ ವಾತಾವರಣದಲ್ಲಿ ಸೂತಕದ ಛಾಯೆ ಮೂಡಿದ್ದನ್ನು 'ಸಂಕ್ರಾಂತಿ' ನಾಟಕದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ವಿವರಿಸಿರಿ. 5

ಅಥವಾ

(b) ರುದ್ರನ ತಲೆದಂಡದಲ್ಲಿ ಬಸವಣ್ಣನವರ ನಿಲುವುಗಳೇನು ವಿವರಿಸಿರಿ.

6. (a) ಕರ್ವಾಲೋ ಕಾದಂಬರಿಯಲ್ಲಿ ಆಗಷ್ಟ್ 15 ರಂದು ಜೇನುಹುಳುಗಳನ್ನು ಎಬ್ಬಿಸಿದ ಅವಾಂತರವನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 5

ಅಥವಾ

(b) ಮಂದಣ್ಣನನ್ನು ಬಂಧಿಸಿದ್ದು ಏಕೆ ಮತ್ತು ಅವನನ್ನು ಬಿಡಿಸಿಕೊಂಡು ಬಂದವರು ಯಾರು ?

7. ಈ ಕೆಳಗಿನ **ಯಾವುದಾದರೂ ನಾಲ್ಕಕ್ಕೆ** ಮಾತ್ರ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ. **4x5=20**

(a) ಎಂಗ್ಟ

(b) ಪ್ಯಾರ

(c) ಕೆವಿ

(d) ಕೆಂಚ

(e) ಬಿರಿಯಾನಿ ಕರಿಯಪ್ಪ

(f) ಬಿಜ್ಜಳ

(g) ಸಂಕ್ರಾಂತಿಯ ದಿನ

(h) ಉಮಾ

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No. of Printed Pages : 2

35301

III Semester B.A./B.Sc./B.Com./B.S.W./B.B.M./G.M.T./B.C.A. Degree Examination, April/May - 2021

BASIC ENGLISH (CBCS 2016-17) (NEW)

Basic English

10113

Time : 3 Hours

Maximum Marks : 70

Texts :

(1) A Book of Plays

(2) Language Component

I. Annotate **any two** of the following : **2x5=10**

(a) Perhaps it wasn't so surprising...after ten years. We were always very much alike.

(b) Come back from those steps; no one has leave to pass down them tonight.

(c) Good heavens! And how much do you earn ?

(d) How! I am speaking of the meadows lying between your birch woods and my brick-earth.

II. Write short notes on **any two** of the following : **2x5=10**

(a) Cassio

(b) Wesserkopf

(c) Aunt Jane

(d) Natalia

III. Answer **any two** of the following : **2x13=26**

(a) What is the theme of the Play in 'The Rising of the Moon' ?

(b) Bring out the humour in the Play "A Marriage Proposal".

(c) What is the effect of having Emilia Play such an important role after the murder ? Why is she now standing upto Othello and her husband ? What is her reward ?

(d) Write a critical review of the Play "The Never-Never Nest".

P.T.O

3x8=24

IV. Language component.

(a) Write a job application along with resume for the Post of Manager in Hyundai Motors, Hospet.

(b) Write a complaint letter to the Municipal Commissioner, Ballari about inadequate water facility in your area.

(c) Write a news report about Environmental Awareness Programme conducted in your college.

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No. of Printed Pages : 2

36312

III Semester B.Sc./B.C.A./B.F.T./B.Sc. (GMT) Degree Examination,
April/May - 2021

12159

BASIC ENGLISH (CBCS-2017-18) (NEW)

III : Basic English

Time : 3 Hours

Maximum Marks : 70

Instructions :

Texts : *(1) Othello - W. Shakespeare.*

(2) Communication and Analysis Skills-Ashan Academy.

I. Annotate **any two** of the following : **2x6=12**

(a) My lord is fall'n into an
epilepsy.
This is his second fit; he
had one yesterday.

(b) O mistress, villainy hath
made mocks with love!
My husband say that she
was false!

(c) This did I fear, But he had
no weapon;
For he was great of heart.

II. Write short notes on **any two** of the following : **2x6=12**

(a) Iago

(b) Bianca

(c) Roderigo

III. Answer **any one** of the following : **1x10=10**

(a) Othello is often called a tragic hero. Discuss his heroic qualities as well as his flaws which lead to his demise.

(b) How does Desdemona answer Othello's accusations ?

P.T.O.

IV. Answer **any six** of the following : 6x6=36

(a) Write a telephone conversation between a patient suffering from tooth ache and the hospital receptionist to book a prior appointment to consult the Dentist.

(b) Write a group discussion between four students about Covid-19 Pandemic.

(c) Write an E-mail to bharattextiles@gmail.com ordering 100 T-Shirts for N.S.S. volunteers of your college.

(d) Draft a Resume for the post of Manager at Krishna Food Products, Ballari.

(e) What do you mean by a Job interview ? What are the preparations to be made for a Job interview ?

(f) What are the qualities of a good speech ?

(g) Write a covering letter for a Job application to Krishna Food Products, Ballari.

(h) Define Debate. What are the effective ways in preparing for a debate ?

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No. of Printed Pages : 2

39303

III Semester B.Sc./BCA Degree Examination, April/May - 2021

HINDI (BASIC)

III : Study of Indian Language

(CBCS)

10175

Maximum Marks : 70

Time : 3 Hours

सूचना : लिखावट शुद्ध और देवनागरी लिपि में हों।

पठित् पुस्तकें : (1) कामना
(2) व्यवसायिक संप्रेषण

1. **किन्हीं दो** की संदर्भ सहित व्याख्या कीजिए। 2x7=14

(a) जिस दिन तूने उस चमकीली वस्तु के लिए हाथ पसारा, उसी दिन इस देश की दुर्दशा का प्रारंभ होगा।

(b) परंतु अब तो तुम इस द्वीप की रानी हो। रानी को क्या ब्याह करके किसी बंधन में पड़ना चाहिये ?

(c) इस देश से खूब सोना घर भेजा गया है। वहाँ नये-नये सौंदर्य-साधन बनाये जा रहे हैं। रानी लाल रक्त गिराने से पीला सोना मिलने लगा। कैसा अच्छा खेल है।

2. **किन्हीं दो** प्रश्नों के उत्तर लिखिए। 2x10=20

(a) जयशंकर प्रसाद जी ने कामना नाटक में भारतीय प्राचीन संस्कृति को पतनशील होने के कारणों को कैसे दर्शाया है ?

(b) कामना नाटक के उद्देश्य को स्पष्ट कीजिए।

(c) विवेक पात्र का चरित्र चित्रण अपने वाक्य में लिखिए।

3. **किन्हीं दो** प्रश्नों का उत्तर लिखिए। 2x10=20

(a) व्यवसायिक पत्र के प्रमुख कार्यों पर प्रकाश डालिए।

(b) संप्रेषण की परिभाषा करते हुए, उसके प्रकारों पर विस्तार से लिखिए।

(c) पत्र किसे कहते हैं ? उसके कितने प्रकार हैं स्पष्ट कीजिए।

P.T.O.

4. **किन्हीं दो** पत्रों को लिखिए। 2x5=10

(a) आप 'विजय वाणी' पत्रिका के ग्राहक बनना चाहते हैं। चंदे की रकम भेजते हुए विक्रय व्यवस्थापक कोप्पल को एक पत्र लिखिए।

(b) तुलसीदास रचित रामचरितमानस के दो ग्रंथ मंगवाते हुए वाणी प्रकाशन, नई दिल्ली को एक पत्र लिखिए।

(c) केनरा बैंक में आप नया खाता खुलवाने के लिए मुख्य प्रबंधाधिकारी को एक पत्र लिखिए।

5. **किन्हीं दो** प्रश्नों के उत्तर लिखिए। 2x3=6

(a) प्रत्यय की परिभाषा देते हुए चार प्रत्ययों को लिखिए।

(b) वचन किसे कहते हैं? उसके प्रकारों पर प्रकाश डालिए।

(c) उपसर्ग किसे कहते हैं? संक्षिप्त में वर्णन कीजिए।

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No. of Printed Pages : 3

36321

III Semester B.Sc. Degree Examination, April/May - 2021

PHYSICS - III

Electricity, Vector Analysis & Electromagnetic Theory

11573

(CBCS)

Time : 3 Hours

Maximum Marks : 70

Instructions : *(i) Answer all questions from Section - A, any five from Section - B and any three from Section - C.*

(ii) Write answers to Section - A questions in first two pages only.

SECTION - A

I. Answer the following : **15x1=15**

1. Give an example for Non-sinusoidal A.C.
2. What are electrical filters ?
3. What is a Watt meter ?
4. Why it is desirable to have high value of power factor ?
5. What happens to the frequency of oscillations in a L-C circuit when capacitor is filled with dielectric ?
6. Why the plane of Helmoltz Coil must be made parallel to the magnetic meridian ?
7. When is the power transferred to the load maximum ?
8. Mention the value of curl of the gradient of a scalar function.
9. Write one use of vector product in physics.
10. State Biot's Savart's law.
11. What is displacement current ?
12. Give one physical significance of Poynting theorem.
13. What is Dipoly movement ?
14. Define dipole moment.
15. Is it possible to have a pure magnetic wave propagating in empty space ?

P.T.O.

SECTION - B

5x5=25

II. Answer any five of the following.

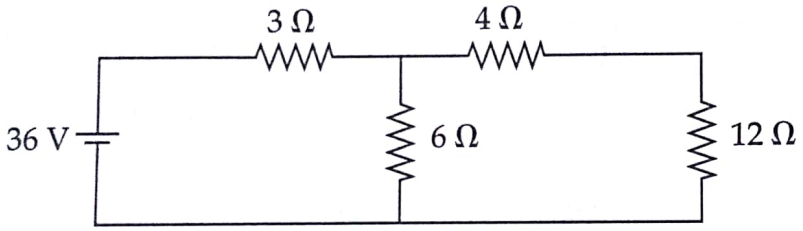
16. Define the term average value and rms value of an a.c. current and obtain the expression for rms value of a.c. current.

17. Define inductance and capacitance. Mention their S.I. units. Write equations for energy stored in capacitor and Inductor.

18. Distinguish between Dead beat Galvanometer and Ballistic Galvanometer.

19. State and prove Maximum Power Transfer Theorem.

20. Using Thevenin's theorem, calculate the current flowing through 12 Ω resistor in the circuit shown below.



21. State and explain Gauss divergence theorem and Stokes theorem.

22. Explain the production of E.M. waves by Hertz experiment.

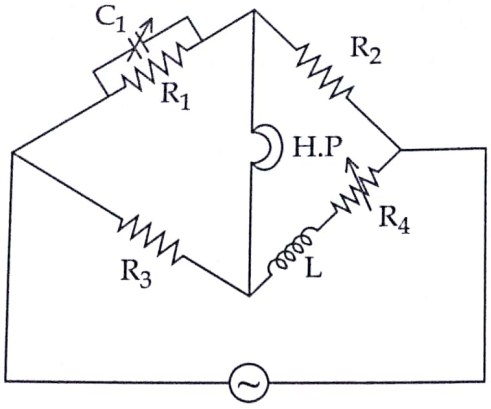
SECTION - C

III. Answer any three of the following. 3x10=30

23. (a) Obtain an expression for impedance and current for an a.c. circuit consisting of LCR in series. Bring out the concept of Resonance. 6+4

(b) A condenser of capacity 1μF is allowed to discharge through inductance of 1 mH and resistance of 20 Ω in parallel, calculate the frequency of oscillations.

24. (a) Find the balance conditions for the bridge shown in the following figure. 6+4



(b) Calculate the impedance of the Choke required to operate on a 20 W - 100 V bulb on 220 V - 50 Hz mains.

25. (a) Explain construction and working of CRO. Mention any two applications of CRO. 7+3

(b) A region is specified by the potential function $V = 3x + 2y + 1z$. Find the expression for potential gradient and intensity.

26. (a) State and explain Ampere's circuital law. Write it's differential form. 7+3

(b) The current sensitivity of a B.G is 2.2×10^{-9} amperes for a deflection of 1 mm on a scale kept at a distance of 1 m. Calculate the charge sensitivity of the galvanometer if time period of the coil is 6.2 seconds.

27. (a) Set up Electromagnetic waves for E in an homogeneous isotropic free space from Maxwell's equations. 6+4

(b) Mention the dimensions of $\frac{1}{\sqrt{\mu_0 \varepsilon_0}}$ and calculate it's value.

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No. of Printed Pages : 2

36325

III Semester B.Sc. Degree Examination, April / May - 2021

ZOOLOGY

10581

Z.3 - Economic Zoology & Histology

(CBCS)

Time : 3 Hours

Maximum Marks : 70

Instructions : *(1) Answer all questions.*

(2) Draw labelled diagrams wherever necessary.

SECTION - A

Answer **any five** of the following in **one** or **two** sentences each. 5x2=10

1. What is Integrated Fish Culture ? Give example.
2. What is Broiler ? Give two examples of Indigenous breeds of fowls.
3. Expand NCD and MOET.
4. Define Ericulture. Mention scientific name and host plant of Erisilkworm.
5. What is Bee-venom ? Write the scientific name of Honey bee.
6. Mention the structural and functional units of Exocrine and Endocrine part of the Pancreas.
7. Define :
   (a) Nephron (b) Glisson's Capsule

SECTION - B

(A) Answer **any four** of the following. 4x5=20

8. Explain the steps involved in fresh water Prawn Culture.
9. Briefly explain management of fowls in cage system.

P.T.O.

10. Give an account of any two of the buffalo breeds and add a note on composition of milk.

11. Explain non-mulbery silkworm and silk.

12. Write a note on composition, uses and importance of Honey and Bee wax.

(B) Answer **any two** of the following. 2x5=10

13. Write a note on Endocrine part of Pancreas.

14. With a labelled diagram explain histology of Adrenal Gland.

15. Sketch and label T.S. of Kidney and add a note on its medulla.

SECTION - C

(A) Answer **any two** of the following. 2x10=20

16. Discuss the Scope and Management of Poultry farming.

17. Substantiate "Sericulture is a highly developed cottage Industry" and add a note on significance of sericulture and its byproducts.

18. With a neat labelled diagram explain :
    (a) Mouth parts of Honey bee
    (b) Sting apparatus of Honey bee

(B) Answer **any one** of the following. 1x10=10

19. With a neat labelled diagram explain T.S. of Small Intestine.

20. Explain histological details of Tongue with diagram.

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No. of Printed Pages : 2

36324

III Semester B.Sc. Degree Examination, April/May - 2021

BOTANY - III

Plant Histology, Plant Anatomy, Embryology of Angiosperms, Palynology

(CBCS)

10563

Time : 3 Hours

Maximum Marks : 70

Instruction : *Answer all questions. Draw the diagrams wherever necessary.*

SECTION - A

1x15=15

I. Answer **all** questions.

1. What is procambium ?
2. Name the living mechanical tissue.
3. What is Chlorenchyma ?
4. Give an example of Outer Cambium and Inner Cambium.
5. What is isobilateral leaf ? Give an example.
6. What is the function of Arenchyma ?
7. What is Heart Wood ?
8. Define the term Megasporangium.
9. What is cleistogamy ?
10. Define the term cleavage Polyembryony.
11. What is parthenocarpy ?
12. Define the term periderm.
13. Which type of tissue is responsible for secondary growth ?
14. Define "Palynology".
15. Define anemophily.

P.T.O.

SECTION - B

II. Answer **any five** of the following. 5x5=25

16. Write the types of Collenchyma with diagrams.
17. Describe the T.S. of Dicot root with diagrams.
18. Explain the Aerenchyma and its significance.
19. Explain with neat labelled diagram of anomalous Bougain Villea Stem (T.S.)
20. Write short notes of "B.G.L. Swamy".
21. Draw and label T.S. of matured anther.
22. Explain "Sporopollenin".

SECTION - C

III. Answer **any three** of the following. 3x10=30

23. Write the characteristics of Meristematic tissue and explain the types.
24. Explain with neat labelled diagram of Bicollateral Vascular bundle with example.
25. Explain the Bisporic development of embryo sac with neat labelled diagrams.
26. Write the contrivances of cross pollination.
27. Explain the Vascular tissues with neat labelled diagrams.

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No. of Printed Pages : 2

30323

III Semester B.Sc. Degree Examination, April/May - 2021

MATHEMATICS - V

301 : Algebra - III

11665

(NEW)

Time : 3 Hours

Maximum Marks : 60

Instruction : Answer all Sections.

SECTION - A

Answer **any ten** of the following. 10x2=20

1. Define Ring with zero divisors and without zero devisors.
2. In a Ring (R, +, *), prove that $a(-b)=(-a)b=-(ab) \forall a, b \in R$.
3. Show that the intersection of any two subrings of a ring R is again a subring of R.
4. Define Ideal of a commutative ring and give example.
5. If (z, +, *) be a ring of integers and (2z, +, *) be a ring of Even integers * defined by $a*b=ab/2$ then $f: z \to 2z$ defined $f(x)=2x$, $x \in z$, prove that it is homomorphism.
6. Show that an integral domain with six elements does not exist.
7. Show that in an integral domain the non-zero elements form a semigroup with respect to Multiplication.
8. Define a Vector Space and give an example.
9. Is the subset $W=\{(x_1\ x_2\ \ x_3);\ x_1^2+x_2^2+x_3^2 \leq 0\}$ of $V_3(R)$ is a subspace of $V_3(R)$?
10. State Rank-Nullity Theorem.
11. Determine whether the set {(1, 2, 1) (3, 4, −7), (3, 1, 5)} is a basis of $V_3(R)$.
12. If $T: V_2(R) - V_2(R)$ is defined by $T(x, y)=[3x+2y, 3x-4y]$ verify whether T is a Linear Transformation.

P.T.O.

SECTION - B

3x5=15

Answer **any three** of the following :

13. The Ring (z_n, t_n, x_n) is a integral domain and hence a field iff 'n' is a prime integer.

14. Prove that set of all matrices of the form $\begin{pmatrix} a & b \\ 0 & 0 \end{pmatrix}$ where a, b ϵ Z is a right ideal of the ring 2×2 matrices over z but it is not a Left ideal.

15. If 'f' is a homorphism of a ring 'R' into a ring 'R' with ker f then prove that ker f is an ideal of 'R'.

16. Find all the principal ideals of the ring R = {0, 1, 2, 3, 4, 5} w.r. to addition modulo 6 and multiplication modulo 6.

SECTION - C

3x5=15

Answer **any three** of the following.

17. The union of two subspaces of a vector space V over a field F is a subspace iff one is contained in the other.

18. Prove that (3, −7, 6) is the span of the vectors (1, −3, 2), (2, 4, 1) & (1, 1, 1).

19. Let V be a vector space over the field F, S and T be two non-empty subsets of V then show that.
    (i) $S \subseteq T \Rightarrow L(S) \subseteq L(T)$.
    (ii) $L(S) = S$ iff S is a subgroup of V.

20. Define Basis and Dimension of V(F). Determine whether the set {(1, 1, 2), (1, 2, 5), (5, 3, 4)} is a basis of $V_3(R)$.

SECTION - D

2x5=10

Answer **any two** of the following.

21. Define Linear Transformation and find Linear transformation $T : V_3(R) \rightarrow V_2(R)$ such that T(1, 0, 0) = (−1, 0), T(0, 1, 0) = (1, 1) and T(0, 0, 1) = (0, −1).

22. Find the matrix of the Linear transformation $T : V_2(R) \rightarrow V_3(R)$ defined by $T(x, y) = (x+y, 3x-y)$ with respect to relative basis $B_1 = \{(1, 1), (3, 1)\}$ & $\{B_2 = (1, 1, 1)$ $(1, 1, 0)$ $(1, 0, 0)\}$

23. Let $T : V \rightarrow W$ be a Linear transformation defined by $T(x, y, z) = (x+y, x-y, 2x+z)$, Find Range, null space, Rank, nullity and hence verify the Rank - nullity Theorem.

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III Semester B.Sc. Degree Examination, April / May - 2021

MATHEMATICS - VI

11625

3.2 : Differential Equations - I

(New)

Maximum Marks : 60

Time : 3 Hours

Instruction : *Answer all the Sections.*

SECTION - A

10x2=20

Answer **any ten** of the following.

1. Find the order and the degree of the equation.

$$y=x\frac{dy}{dx}+a\sqrt{1+\left(\frac{dy}{dx}\right)^2}$$

2. Solve : $\frac{dy}{dx}=\sqrt{\frac{(1-y^2)}{(1-x^2)}}$

3. Show that the equation $(e^y+1)\cos x\,dx+(e^y.\sin x)dy=0$ is exact and hence solve.

4. Solve : $(D^3+1)y=0$

5. Evaluate : $\frac{1}{(D^2+4)}\cos 2x$

6. Find the general solution of the equation $(a^2-x^2)p^2+2xyp+b^2-y^2=0$.

7. Find the orthogonal trajectories of the family of parabola $y^2=4ax$.

8. Define Linear differential equation of first order and write it in the standard form.

9. Solve : $p^2-13p+42=0$.

10. Find the part of complementary function of $x^2y''-(x^2+2x)y'+(x+2)y=0$.

11. Show that the equation $(ax-bx^2)y''+2ay'+2by=x$ is exact.

12. Solve : $4x^2\frac{d^2y}{dx^2}+4x\frac{dy}{dx}-y=0$

P.T.O

SECTION - B

3x5=15

Answer any three of the following.

13. Determine suitable integrating factor and solve : $(x^2+y^2+x)dx+xy\ dy=0$.

14. Solve : $\frac{dy}{dx}=\frac{x+y-2}{y-x-4}$

15. Solve the equation for x

$y=2px+y^2p^3$.

16. Find the general solution of the equation $(px-y)(py+x)=a^2p$ by using transformation $x^2=u$ and $y^2=v$.

17. Find the orthogonal trajectories of the family of curves $\frac{x^2}{a^2}+\frac{y^2}{b^2+\lambda}=1$, where λ is the parameter.

SECTION - C

3x5=15

Answer any three of the following.

18. Solve : $(D+2)(D-1)^2y=e^{-2x}+2\sinh x$

19. Solve : $(2x-1)^3\frac{d^3y}{dx^3}+(2x-1)\frac{dy}{dx}-2y=0$

20. Solve the simultaneous equations $\frac{dx}{dt}+x=y+e^t, \frac{dy}{dt}+y=x+e^t$.

21. Verify the condition of integrability and solve $yz\log z\,dx-zx\log z\,dy+xy\,dz=0$.

22. Solve : $\frac{dx}{x(y^2+z)}=\frac{dy}{-y(x^2+z)}=\frac{dz}{z(x^2-y^2)}$

SECTION - D

2x5=10

Answer **any two** of the following.

23. Solve $\frac{d^2y}{dx^2}-(\cot x)\frac{dy}{dx}-(1-\cot x)y=e^x \sin x$ by finding the complementary function.

24. Solve $\frac{d^2y}{dx^2}-2\tan x\frac{dy}{dx}+5y=(\sec x)e^x$ by reducing it to normal form.

25. Solve $(1+x^2)^2\frac{d^2y}{dx^2}+2x(1+x^2)\frac{dy}{dx}+y=0$ by changing the independent variable.

26. Show that the equation $x^2(1+x)\frac{d^2y}{dx^2}+2x(2+3x)\frac{dy}{dx}+2(1+3x)y=0$ is exact and solve it.

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III Semester B.Sc. Degree Examination, April/May - 2021

CHEMISTRY

11914

III : (CBCS)

Time : 3 Hours

Maximum Marks : 70

Instructions : (i) *Section - A contains questions from Inorganic, organic and physical chemistry.*

(ii) *Section - B contains questions from Inorganic; Section - C contains questions from organic and Section - D contains questions from physical chemistry.*

(iii) *Answer all the four Sections A, B, C and D.*

SECTION - A

Answer **any ten** of the following questions. **10x1=10**

1. Give an electronic configuration of Cu. 1

2. Which transition element of second group has maximum oxidation state ? 1

3. Why zn^{+2} is colourless ? 1

4. Define base according to Lewis concept. 1

5. Give an example for geminial dihalides. 1

6. What are alkenyl halides ? 1

7. Write HY2 reaction. 1

8. Which is stronger ? 1

   (a) α-chloropropionic acid

   (b) β-chloropropionic acid

9. Write Wien's equation for black body radiation. 1

10. Define spontaneous process. 1

11. What is residual entropy ? 1

12. Define second law of thermodynamics. 1

P.T.O.

SECTION - B

Answer **any two** of the following questions. 2x10=20

13. (a) Explain the oxidation states of second and third transition metal elements. 6
    (b) Describe the catalytic properties of transition elements. 4

14. (a) Write a note on Lanthanides Contraction. 6
    (b) Compare the properties of lanthanides with actinides. 4

15. (a) How HSAB principle is used in determining the solubility of the complexes and course of reaction ? Explain with examples. 6
    Which reaction proceeds to right ?
    (i) $BeI_2 + HgF_2 \rightarrow BeF_2 + HgI_2$
    (ii) $CdCl_2 + H_2S \rightarrow 2HCl + CdS$
    (b) Write a note on symbiosis. 4

SECTION - C

Answer **any two** of the following questions. 2x10=20

16. (a) Explain the mechanism and formation of t-butyl alcohol from t-butyl bromide. 6
    (b) Discuss the preparation of aryl halides from phenols and diazonium salts. 4

17. (a) How phenol is prepared from Dow and Cumene process ? 6
    (b) Explain the isomerism in monohydric alcohols upto C_5. 4

18. (a) Explain the acidity of carboxylic acids and effect of substituents on acidity of carboxylic acids. 6
    (b) Give any three methods of preparations of carboxylic acids. 4

SECTION - D

Answer **any two** of the following questions. 2x10=20

19. (a) Write postulates of quantum mechanics. 6
    (b) Explain De-Broglie hypothesis. 4

20. (a) Derive Gibb's-Helmholtz equation. 6
    (b) Define third law of thermodynamics and explain the Nernst heat theorem. 4

21. (a) Derive the Langmuir's monolayer adsorption isotherm. 6
    (b) How the distribution law is modified, when solute undergo dissociation in one of the solvent ? 4

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III Semester B.Com/B.A./BBA/BBM/B.Sc./BSW (Non-Computer) Degree Examination, April/May - 2021

COMPUTER SCIENCE

21204

3.3 - Fundamentals of Computers & MS-Office

(CBCS)

Time : 3 Hours | Maximum Marks : 70

SECTION - A

Answer **any ten** questions. Each question carries 2 marks. **10x2=20**

1. What is Computer ?
2. Expand ALU.
3. Name the different types of Mouse.
4. Define system software.
5. What is desktop ?
6. Expand MS-DOS.
7. Define my Computer.
8. What is folder ?
9. What is Ms-word ?
10. Write short cut keys to bold and paste the selected text.
11. Define spreadsheet.
12. What is slide ?

P.T.O.

SECTION - B

Answer **any four** questions. Each question carries 5 marks. **4x5=20**

13. What is memory ? Write the different types of memory.

14. Write the features of mini Computer.

15. Write the advantages of high level language.

16. What is window ? Write any two features of windows.

17. Define alignment. Write the different types of alignment.

18. What is formula in Ms-excel ? Write the different types of formulas.

SECTION - C

Answer **any three** questions. Each question carries 10 marks. **3x10=30**

19. With block diagram of Computer explain input and output devices.

20. What is translator ? Explain different types of translators.

21. Explain any five options of start menu.

22. Explain mail merge in Ms-word.

23. With example explain any five functions of Ms-excel.

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