36302

III Semester B.Sc./B.C.A. Degree Examination, November/December 2019

KANNADA BASIC

Paper I – ಸಂಕ್ರಾಂತಿ ಮತ್ತು ಕರ್ವಾಲೋ

(CBCS – New)

Time : 3 Hours Max. Marks : 70

ಸೂಚನೆ : ಭಾಷೆ ಹಾಗೂ ಬರಹದ ಶುದ್ಧಿಗೆ ಗಮನ ಕೊಡಲಾಗುವುದು.

1. (a) ಸಂಕ್ರಾಂತಿ ಹಬ್ಬದ ಸಂಭ್ರಮ ಸುಳ್ಳಾಗಿ ದುರಂತ ಕಾಣಲು ಕಾರಣವೇನು?

ಅಥವಾ

(b) ಉಜ್ಜ ಯಾರು? ಅವನು ಶರಣನಾಗಲಿಲ್ಲ. ಏಕೆ? **(10)**

2. (a) ಬಿಜ್ಜಳ ಹಾಗೂ ಬಸವಣ್ಣ ಇವರ ವಾಗ್ವಾದದ ಮುಖ್ಯಾಂಶಗಳನ್ನು ಬರೆಯಿರಿ.

ಅಥವಾ

(b) ಉಷಾಳಿಗೆ ನಿರಾಸೆ ಮೂಡಲು ಕಾರಣವೇನು? **(10)**

3. (a) ಕರ್ವಾಲೋ ಯಾರು? ಅವರ ಸಂಶೋಧನೆ ಫಲಕೊಟ್ಟಿತೆ?

ಅಥವಾ

(b) ಮಂದಣ್ಣ ಅರೆಸ್ಟ್ ಆದದ್ದು ಏಕೆ? ಅವನನ್ನು ಯಾರು ಬಿಡುಗಡೆಗೊಳಿಸಿದರು? **(10)**

4. (a) ಮಂದಣ್ಣ ಹಾರುವ ಓತಿಯನ್ನು ಕಂಡುಹಿಡಿಯಲು ಯಾವ ಸಹಾಯಗಳನ್ನು ಮಾಡಿದನು?

ಅಥವಾ

(b) ಮಂದಣ್ಣನ ಮೇರೇಜು ಏಕೆ ತಡವಾಗಿತ್ತು? ಹೇಗೆ ಮುಗಿಯಿತು? **(10)**

5. (a) ರುದ್ರನು ಬಸವಣ್ಣನವರು ಮಾಡಿದ ಬೋಧನೆಗಳಿಂದ ತನ್ನ ಸಮಾಜದಲ್ಲಿ ಪರಿವರ್ತನೆ ತರಲು ಸಫಲನಾದನೆ?

ಅಥವಾ

(b) ಸಂಕ್ರಾಂತಿ ನಾಟಕದಲ್ಲಿ ಎರಡೂ ಗುಂಪುಗಳಲ್ಲಿ ಕಾಣುವ ಆತಂಕ ಹಾಗೂ ಆಕ್ರೋಶಗಳ ಬಗ್ಗೆ ಬರೆಯಿರಿ. **(5)**

6. (a) ಮಂದಣ್ಣನಿಗೆ ಚೀನಿನ ಬಗ್ಗೆ ಇದ್ದ ಜ್ಞಾನವನ್ನು ವಿವರಿಸಿ.

ಅಥವಾ

(b) ಈಚಲು ಕಾಡಿನಲ್ಲಿ ಸಂಶೋಧಕರ ತಂಡವು ಎದುರಿಸಿದ ಸಮಸ್ಯೆಗಳು ಯಾವುವು? **(5)**

7. ಈ ಕೆಳಗಿನ **ಯಾವುದೇ ನಾಲ್ಕಕ್ಕೆ** ಮಾತ್ರ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ : **(4 × 5 = 20)**

(a) ಪ್ಯಾರ

(b) ಉಮಾ ರಮಾ ಸುಮಾ

(c) ಮೌ ಮೌ ಬೀ

(d) ಕೆಂಚ

(e) ಬಿರ್ಯಾನಿ ಕರಿಯಪ್ಪ

(f) ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ

(g) ಅಗ್ನಿ ರಾಜನ ಕತೆ

(h) ಬಿಜ್ಜಳನಿಗೆ ಬಿದ್ದಕನಸು

20301

III Semester B.A./B.Sc./B.Com./B.B.M./B.S.W./G.M.T./B.C.A. Degree Examination, November/December 2019

BASIC ENGLISH

English — III

(New)

Texts : *1) A book of plays.*
2) Language component.

Time : 3 Hours Max. Marks : 80

I. A. Annotate **any two** of the following : **(2 × 6 = 12)**

(a) Then you must speak
Of one that loved not wisely, but too well.

(b) It's those that are down that would be up and those that are up that would be down, if it wasn't for us.

(c) It was only the principle of the thing – the property isn't worth much to me, but the principle is worth a great deal.

(d) But that's absurd! How can you pay seven pounds eight and eight pence out of six pounds?

B. Write short notes on **any two** of the following : **(2 × 6 = 12)**

(a) Mark Tallis.

(b) Tschubukov.

(c) Emilia.

(d) Wasserkopf's reasons for coming back to school.

2. Answer **any two** of the following : **(2 × 16 = 32)**

(a) What is the motivation for the Sergeant to pursue the fugitive?

(b) How did the Reunion end?

(c) What does Cassio tell Othello about the handkerchief?

(d) How does the Mathematics teacher trick Wasserkopf?

3. Language component : **(3 × 8 = 24)**

(a) Write an application for the job of a Receptionist at Berger Paints, Mumbai.

(b) Write a letter of complaint to the District Commissioner about the problem of air pollution caused by a factory in your area.

(c) Write a newspaper report about the program on Health Awareness program to prevent Dengue and Malaria conducted by your college.

36312

III Semester B.Sc./B.C.A./B.F.T./G.M.T. Degree Examination, November/December 2019

BASIC ENGLISH

English — III

(CBCS 2017-18) (New)

Texts : *1) Othello – W. Shakespeare.*

2) Communication and Analysis Skills – Ashan Academy.

Time : 3 Hours Max. Marks : 70

1. Annotate **any two** of the following : **(2 × 6 = 12)**

   (a) But I will wear my heart upon my sleeve
   For daws to peck at : I am not what I am

   (b) She lov'd me for the dangers I had pass'd
   And I lov'd her that she did pity them.

   (c) If virtue no delighted beauty lack,
   Your son-in-law is far more fair than black.

2. Write short notes on **any two** of the following : **(2 × 6 = 12)**

   (a) The handkerchief.

   (b) Desdemona.

   (c) The Duke.

3. Answer **any one** of the following : **(1 × 10 = 10)**

   (a) How do both Roderigo and Cassio get involved with Iago's plans to harm Othello?

   (b) The main theme of Othello is jealousy. Discuss.

4. Answer **any six** of the following : **(6 × 6 = 36)**

   (a) Write a Telephone conversation between Basavaraj, Secretary, Students Union of XYZ College, Gadag, and Krishna Rao, Director, Rao Academy, Bengaluru, inviting him as a speaker to give a talk on 'How to prepare for competitive exams'.

   (b) Write a group discussion between five youngsters about the new traffic rules.

(c) Write an email to vthreebags@gmail.com ordering for 500 college bags to be distributed for students of your college.

(d) Write a Resume for the post of Office Accountant at Manjunatha Sponge Iron Company, Toranagal.

(e) What are the most essential things to keep in mind while preparing for a job interview?

(f) Write a speech on the importance of ban on plastic.

(g) Write a covering letter for a job application to Manjunatha Sponge Iron Company, Toranagal.

(h) What are the points to be kept in mind while preparing for a debate?

35301

III Semester B.A./B.Sc./B.Com./B.B.M./B.S.W./G.M.T./B.C.A. Degree Examination, November/December 2019

BASIC ENGLISH

English — III

(New) (CBCS 2016-17)

Texts : *1) A book of plays.*

2) Language component.

Time : 3 Hours Max. Marks : 70

1. A. Annotate **any two** of the following : **(2 × 5 = 10)**

(a) Then you must speak
Of one that loved not wisely, but too well.

(b) It's those that are down that would be up and those that are up that would be down, if it wasn't for us.

(c) It was only the principle of the thing – the property isn't worth much to me, but the principle is worth a great deal.

(d) But that's absurd! How can you pay seven pounds eight and eight pence out of six pounds?

B. Write short notes on **any two** of the following : **(2 × 5 = 10)**

(a) Mark Tallis.

(b) Tschubukov.

(c) Emilia.

(d) Wasserkopf's reasons for coming back to school.

2. Answer **any two** of the following : **(2 × 13 = 26)**

(a) What is the motivation for the Sergeant to pursue the fugitive?

(b) How did the Reunion end?

(c) What does Cassio tell Othello about the handkerchief?

(d) How does the Mathematics teacher trick Wasserkopf?

3. Language component : **(3 × 8 = 24)**

(a) Write an application for the job of a Receptionist at Berger Paints, Mumbai.

(b) Write a letter of complaint to the District Commissioner about the problem of air pollution caused by a factory in your area.

(c) Write a newspaper report about the program on health awareness to prevent Dengue and Malaria conducted by your college.

39303

III Semester B.C.A./B.Sc. Degree Examination, November/December 2019

BASIC HINDI

Paper III – Study of Indian Language (CBCS)

Time : 3 Hours Max. Marks : 70

सूचना : लिखावट शुद्ध और देवनागरी लिपि में हों ।

पठित पुस्तकें : 1. कामना नाटक, 2. व्यवसायिक संप्रेषण

1. किन्हीं **दो** की संदर्भ सहीत व्याख्या कीजिए । **(2 × 7 = 14)**

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

   (b) लीला! सावधान हो, हमारे द्वीप में लोहे का उपयोग सृष्टी की रक्षा के लिए है । उसे संहार केलिए मत बना ।

   (c) जितने भूले-भटके होंगे, वे इन्हीं पागलों के पीछे चलें गे । हम अपने फूलों के द्वीप से काँटों को चुन कर बाहर निकाल लेंगे ।

2. किन्हीं **दो** प्रश्नों के उत्तर लिखिए । **(2 × 10 = 20)**

   (a) 'कामना' नाटक में विंबित समस्याओं के बारे में विस्तार से लिखिए ।

   (b) 'जयशंकर प्रसाद' जी अपने नाटक के माध्यम से हमें क्या संदेश देना चाहते है ।

   (c) अनेकता में एकता का भाव 'कामना' में कैसे प्रकट हुआ है समझाइए ।

3. किन्हीं **दो** प्रश्नों के उत्तर लिखिए । **(2 × 10 = 20)**

   (a) संप्रेषण क्या है ? उसके प्रकारों पर चरर्चा कीजिए ।

   (b) व्यवसायिक पत्रों के कार्योंपर प्रकाश जालिए ।

   (c) पत्र का महत्व और उसके भेदों पर विस्तार से लिखिए ।

4. किन्हीं **दो** पत्रों को लिखिए । (2 × 5 = 10)

(a) अपने मोहल्ले में पेयजल संकट के निवारण हेतु जलप्राधिकार अधिकारी को पत्र लिखिए ।

(b) सिंडिकेट बैंक में आप नया खाता खुलवा ने केलिये मुख्य प्रबंधधिकारी को एक पत्र लिखिए ।

(c) अपने जन्मदिवस के कार्यक्रम में बुलाते हुए अपने मित्र को एक पत्र लिखिए ।

5. किन्ही **दो** पर टिप्पणी लिखिए । (2 × 3 = 6)

(a) उपसर्ग

(b) प्रत्यय

(c) लिंग

36321

III Semester B.Sc. Degree Examination, November/December 2019

PHYSICS

Paper III – Electricity, Vector Analysis and Electromagnetic Theory

(CBCS)

Time : 3 Hours Max. Marks : 70

Instructions :

1) *Answer* ***all*** *questions from Section A* ***any five*** *from Section B and* ***any three*** *from Section C.*

2) *Write answers to Section A questions in first two pages only.*

SECTION – A

I. Answer the following : **(15 × 1 = 15)**

1. Define the term RMS value of a.c.
2. Define Wattless current.
3. What is a 'CHOKE'?
4. Write the equation related to power rating in a resistor.
5. State Kirchoff's voltage law.
6. Mention the physical significance of gradient of a vector.
7. Define dipole moment associated with an electric dipole.
8. State Lenz's law.
9. Evaluate $\text{div}(2x^2\,\hat{i} - xyz\,\hat{j} - 3yz^2\,\hat{k})$.
10. Write Poisson's equation.
11. What is meant by displacement current?
12. State Stoke's theorem.

13. Write one application of Ballistic galvanometer.

14. State Gauss law in electrostatics.

15. What is the velocity of Electromagnetic waves in vaccum?

SECTION – B

II. Answer **any five** of the following : **(5 × 5 = 25)**

16. Derive an expression for current and impedance for a.c. containing LCR series circuit using *j* notation.

17. Define resistance and impedance. Give any three comparison between inductive reactance and capacitive reactance.

18. State and prove Maximum power transfer theorem.

19. Give the theory of moving coil galvanometer.

20. Show that $curl\,(grad\,\phi) = 0$.

21. Explain the procedure for finding Norton's equivalent circuit.

22. Describe Hertz experiment to produce electromagnetic waves.

SECTION – C

III. Answer **any three** of the following : **(3 × 10 = 30)**

23. (a) Explain with necessary theory for the determination of self inductance of a coil using Anderson's bridge.

(b) An inductance of 10 mH and resistance of 100 Ω are connected in series to a 220 V – 50 Hz a.c. mains calculate the value and phase of the current. **(5 + 5)**

24. (a) Explain the working of a R-C low pass filter. Derive an expression for cut off frequency. Mention any one use of low pass filter.

(b) In an R-C low pass filter circuit, capacitance of capacitor 0.04 μF and resistance 1 kΩ are used. Calculate the cut off frequency. **(7 + 3)**

25. (a) Explain the construction and working of a CRO.

(b) How voltage and current frequency are measured using CRO? **(7 + 3)**

26. (a) State and explain Ampere's circuital law.

(b) A Helmholtz galvanometer has coils of circumference 0.49 m each and number of turns 50 calculate the current through the coils which produces a deflection of 45°. **(5 + 5)**

27. (a) Write Maxwell's equations in differential form in free space.

(b) Explain physical significance of Maxwell's equations.

(c) Write a note on Poynting vector. **(2 + 4 + 4)**

24321

III Semester B.Sc. Degree Examination, November/December 2019

PHYSICS

Paper III – Electricity, Vector Analysis and Electromagnetic Theory

(New)

Time : 3 Hours Max. Marks : 80

Instructions :

1) *Answer **all** questions from Section A **any five** from Section B and **any four** from Section C.*

2) *Write answers to Section A questions in first two pages only.*

SECTION – A

I. Answer the following : **(15 × 1 = 15)**

1. Define reactance of an Inductor.

2. Name the colour code of the resistor having $2200 \pm 10\%$.

3. Define Impedance.

4. What is Wattless current?

5. An voltmeter reads10 V what will be rms voltage?

6. Define *Q*-factor of LCR circuit.

7. Define Electrostatic Sensitivity.

8. Mention the value of curl of the gradient of a scalar.

9. Evaluate $div(2x^2\,\hat{i} - xyz\,\hat{j} - 3yz\,\hat{k})$.

10. State Kirchoff's voltage law.

11. Define neutral temperature.

12. What is magnetic dipole?

13. State Ampere's circuital law.

14. What is dipole moment?

15. What is displacement current?

SECTION – B

II. Answer **any five** of the following : **(5 × 5 = 25)**

16. Obtain an expression for impedance of an R-C series circuit using *j*-notation.

17. Derive an expression for self inductance of a coil using Maxwell's bridge.

18. Derive an expression for cut of frequency of a high pass filter.

19. Explain the working of a Helmholtz Galvanometer.

20. Write a note on thermopile.

21. Explain how thermo emf varies with temperature.

22. Construct simple analog multimeter.

SECTION – C

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

23. (a) Obtain an expression for power in an R-C series circuit.

(b) A series LCR circuit consists of $R = 50\,\Omega$, $L = 50\,\text{mH}$ and $C = 0.1\,\mu\text{F}$. If the applied emf is 220 V find (i) Resonant frequency (ii) Quality factor (iii) Bandwidth. **(5 + 5)**

24. (a) Explain the construction and working of CRO.

(b) Explain how voltage and current frequency, phase are measured using C.R.O. **(5 + 5)**

25. (a) Define divergence and curl of a vector. Explain their physical significance.

(b) Show that $curl\ F = grad\ div\ F - \nabla^2 \cdot F$. **(5 + 5)**

26. (a) Deduce the equation for the propagation of plane electromagnetic waves in free space.

(b) Write a note on Poynting vector. **(5 + 5)**

27. (a) Explain the procedure for finding Norton's equivalent.

(b) State and explain Maximum power transfer theorem. **(5 + 5)**

28. (a) Write Maxwell's equations in space and explain their physical significance.

(b) Describe Hertz experiment to produce electromagnetic waves. **(5 + 5)**

30323

III Semester B.Sc. Degree Examination, November/December 2019

MATHEMATICS

Paper V & (3.1) – Algebra – III

(New)

Time : 3 Hours Max. Marks : 60

Instructions : *Answer* ***all*** *the Sections.*

SECTION – A

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

1. Define a Ring and give example.
2. State all invertible elements in the ring $M_2(\tau)$.
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 $(Z, +, \bullet)$ be a ring of integers and $(2Z, +, *)$ be a ring of even integers $*$ defined by $a * b = \frac{ab}{2}$ then $f : Z \to 2Z$ defined $f(x) = 2x \ \forall \ x \in Z$.
6. If $f : R \to R'$ is an isomorphism of rings then prove that isomorphic image of a commutative ring is a commutative ring.
7. Define vector space and give an example.
8. Show that the subset $W = \{x_1, x_2, x_3 \ / \ x_1 + x_2 + x_3 = 0\}$ of the vector space $V_3(R)$ is a subspace of $V_3(R)$.
9. Show that the vectors $e_1 = (1, 0, 0 \ldots 0)$, $e_2 = (0, 1, 0, \ldots 0)$, $e_3 = (0, 0, 1 \ldots 0)$, $\ldots e_n(0, 0, 0, \ldots 1)$ of the vector space $V(R)$ are linear independent.
10. Find the linear transformation $f : R^2 \to R^2$ such that $f(1, 0) = (1, 1)$ and $f(0, 1) = (-1, 2)$.

11. If $T : V_3(R) \to V_3(R)$ is defined by, $T(x_1, x_2, x_3) = (0, x_2, x_3)$ show that T is a linear transformation.

12. Define Rank of linear transformation and nullity of linear transformation.

SECTION – B

Answer **any three** of the following : **(3 × 5 = 15)**

13. The ring $(Z_n, +_n, \times_n)$ is a integral domain and hence a field iff 'n' is a prime integer.

14. A non-empty subset S of a ring is a subring of R iff

$a \in S, b \in S \Rightarrow a - b \in S$ and

$a \in S, b \in S \Rightarrow ab \in S$.

15. The homomorphism f of ring R onto a ring R' is a isomorphic iff $\ker f = (0)$.

16. Let f is a homomorphism of R into R' then $f(0) = 0'$ and $f(-a) = -f(a)$ $\forall\ a \in R$ where $0'$ is the zero of R'.

SECTION – C

Answer **any three** of the following : **(3 × 5 = 15)**

17. A non-empty subspace W of an vector space V is a subspace of V iff W is closed under vector addition and scalar multiplication.

18. Determine whether the polynomial $3x^2 + x - 5$ is the linear span of the $S = \{x^3, x^2 + 2x, x^2 + 2, -1 - x\}$ of the vector space of all polynomials over the field R.

19. Let V be an vector space over a field F then

(a) A set of vectors of V containing the zero vector is linearly dependent.

(b) Every non-empty subset of a linearly independent set of vectors of V is linearly independent.

20. Show that the set $S = \left\{\begin{pmatrix}1 & 0\\0 & 0\end{pmatrix}, \begin{pmatrix}0 & 1\\0 & 0\end{pmatrix}, \begin{pmatrix}0 & 0\\1 & 0\end{pmatrix}, \begin{pmatrix}0 & 0\\0 & 1\end{pmatrix}\right\}$ form a basis of the vector space V of all 2×2 matrices over R.

SECTION – D

Answer **any two** of the following : **(2 × 5 = 10)**

21. Find the linear transformation $T : R^2 \to R^3$ such that $T(1, 1) = (0, 1, 2)$ and $T(-1, 1) = (2, 1, 0)$.

22. Find the matrix of the linear transformation $T : V_2(R) \to V_3(R)$ defined by $T(x, y) = (2y - x, y, 3y - 3x)$ relative basis $B_1 = \{(1, 1) (-1, 1)\}$ and $B_2 = \{(1, 1, 1)\} (1, -1, 1) (0, 0, 1)\}$.

23. State and prove Rank-Nullity theorem.

30353

Third Semester B.Sc. Degree Examination, November/December 2019

MATHEMATICS

Paper 3.2 – Differential Equations – I

(New)

Time : 3 Hours Max. Marks : 60

Instructions : *Answer* ***all*** *Sections.*

SECTION – A

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

1. Verify that $y = a\cos x + b\sin x$ is the solution of the equation $\frac{d^2y}{dx^2} + y = 0$.

2. Form the differential equation of family of curves $y = e^{mx}$ where 'm is arbitrary constant.

3. Solve: $(x^2 + 1)\frac{dy}{dx} = 1$

4. Show that the equation $(x^2 - ay)\,dx + (y^2 - ax)\,dy = 0$ is exact and hence solve it.

5. Solve: $(2D^2 + D + 2)\,y = 0$.

6. Evaluate: $\frac{1}{D^2 + 4}\sin 2x$.

7. Solve: $(D^2 + 3D - 4)\,y = 12e^{2x}$.

8. Find the orthogonal trajectories of the family of Astroids $x^{2/3} + y^{2/3} = a^{2/3}$.

9. Solve: $p^2 - 5p - 6 = 0$

10. Find the General solution of the equation $(x-1)^2 p^2 - 2xyp + y^2 - 1 = 0$.

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

12. Solve : $\frac{dx}{y^2} = \frac{dy}{x^2} = \frac{dz}{x^2y^2z^2}$.

SECTION – B

Answer **any three** of the following : **(3 × 5 = 15)**

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

14. Determine the suitable integrating factor and solve the equation $xy\,dx - (x^2 + 2y^2)\,dy = 0$.

15. Solve the equation for y: $y = x + 2\tan^{-1} p$.

16. Find the general and singular solution of $(p-1)e^{3x} + p^3e^{2y} = 0$ by using the substitution $u = e^x$ and $v = e^y$.

17. Find the orthogonal trajectories of the family of curves $r^n = a^n \cos n\theta$.

SECTION – C

Answer **any three** of the following : **(3 × 5 = 15)**

18. Solve: $(D^2 - 6D + 9)y = e^{3x}(x^2 + 7x + 5)$.

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

20. Solve the Simultaneous equations $D^2x - 3x - y = e^t$ and $Dy - 2x = 0$.

21. Verify the condition of integrability and solve

$yz \log z\ dx - zx \log z\ dy + xy\ dz = 0$.

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

SECTION – D

Solve **any two** of the following : **(2 × 5 = 10)**

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: $x\frac{d^2y}{dx^2} - \frac{dy}{dx} + 4x^3y = x^5$ by changing the independent variable.

25. Solve: $x^2\frac{d^2y}{dx^2} - 2x(1+x)\frac{dy}{dx} + 2(1+x)y = x^3 \ (x > 0)$ by changing dependent variable.

26. Show that the equation $(2x^2 + 3x)y'' + (6x + 3)y' + 2y = (x + 1)e^x$ is exact and solve it.

36324

III Semester B.Sc. Degree Examination,
November/December 2019

BOTANY

Paper III – Histology, Anatomy, Embryology and Palynology

(CBCS)

Time : 3 Hours Max. Marks : 70

Instructions :

1) *Answer **all** the questions.*
2) *Draw diagrams wherever necessary.*

SECTION – A

I. Answer the following : **(15 × 1 = 15)**

1. What is Microsporogenesis?
2. Who proposed Histogen theory?
3. What is Dendro chronology?
4. Define anatropus ovule.
5. Name the dead mechanical tissue.
6. What are motor cells?
7. What is palynology?
8. Define the term Tyloses.
9. Define anemophily.
10. What are Meristems?
11. What is Endarc xylem?
12. What is amphicribal type of vascular bundle?
13. What is parthenocarpy?
14. What is tapetum?
15. Define the term periblem.

SECTION – B

II. Answer **any five** of the following : **(5 × 5 = 25)**

16. Explain the tunica-carpus theory with diagram.

17. Describe the monocot stem with diagram.

18. Write the contributions of P. Maheshwari.

19. Explain T.S. of anther with diagram.

20. What are Sclereids? Explain the kinds of sclereids based on shape.

21. Define ovule. Explain the types of ovules.

22. Explain the morphology of pollen grains.

SECTION – C

III. Answer **any three** of the following : **(3 × 10 = 30)**

23. What are complex permanent tissues? Explain elements of xylem with diagram.

24. Describe the internal structure of cucurbita stem with a neat labeled diagram.

25. What is Endosperm? Explain the different kinds of endosperm.

26. Describe the different types of vascular bundles with diagrams.

27. What is Self pollination? Explain the sensor and lever mechanism in pollination.

36325

III Semester B.Sc. Degree Examination, November/December 2019

ZOOLOGY

Paper Z 3 – Economic Zoology and Histology

(CBCS)

Time : 3 Hours Max. Marks : 70

Instructions :

1) *Answer **all** Sections.*
2) *Draw a labelled diagrams wherever necessary.*

SECTION – A

Answer **any five** of the following : **(5 × 2 = 10)**

1. Mention any four diseases of Poultry.
2. Mention the structural and functional unit of kidney. Which part of the nephron bear brush bordered epithelium?
3. Define Moriculture. Name any two important varieties of mulberry plants.
4. What do you mean by apiculture? Who is regarded as father of bee keeping?
5. What is Polyculture? Name any two examples of carp fishes.
6. What is histology? Mention the type of muscle found in tongue.
7. Expand MOET and IVF.

SECTION – B

A. Answer **any four** of the following : **(4 × 5 = 20)**

8. Write a short note on the economic importance of Catla Catla and Labeo rohitha.
9. Explain briefly about the types of non-mulberry silkworms. Add a note on the significance of sericulture and its by products.
10. Write a short on the nutritive value of fowl's egg.
11. Sketch and label the mouth parts of Honey bee.
12. Explain briefly about the medicinal value of honey.

B. Answer **any two** of the following : **(2 × 5 = 10)**

13. Write a note on histological details of hepatic lobule.

14. With a labeled diagram of T.S. of Human Pancreas and elaborate about pancreatic acinus.

15. Draw a labeled diagram of T.S. of human avary and elaborate about Graffian follicle.

SECTION – C

A. Answer **any two** of the following : **(2 × 10 = 20)**

16. Explain the sting apparatus of the honey bee with a labeled diagram.

17. Explain the classification of cattle breeds based on their utility. Add a note on any two exotic breeds of cattle.

18. Describe the life cycle of silk moth with a neat labeled diagram.

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

19. Describe the histology of small intestine with a neat labeled diagram.

20. Explain in detail the histology of mammalian testis.

36322

III Semester B.Sc. Degree Examination, November/December 2019

Paper III – CHEMISTRY

(CBCS - New)

Time : 3 Hours Max. Marks : 70

Instructions :

1) *Section A contains questions from Inorganic Chemistry, Organic Chemistry and Physical Chemistry.*
2) *Section B contains questions from Inorganic Chemistry.*
   Section C contains questions from Organic Chemistry.
   Section D contains questions from Physical Chemistry.
3) *Answer **all** Sections.*

SECTION – A

Answer **any ten** of the following : **(10 × 1 = 10)**

1. Why Zn^{2+} is colourless?
2. Which transition element of first series has the highest oxidation state?
3. What is the oxidation state of uranium in UO_2^{2+} ?
4. Define Usonovich concept of an acid.
5. Give an example for germinal dihalide.
6. What is the IUPAC name of iso-butyl alcohol?
7. Give an example for trihydric phenol.
8. Arrange the following in the decreasing order of acidity:
   (a) $(CH_3)_3 - C - COOH$
   (b) $(CH_3)_2 - CH - CH_2COOH$
   (c) $CH_3(CH_3)_3 - COOH$
9. Write Wien's equation for black body radiation.

10. Define second law of thermodynamics.

11. What is adsorption?

12. Write Nernst distribution law for molecular association.

SECTION – B

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

13. (a) Explain the oxidation states of second and third transition metal elements. **(6)**

    (b) Explain the trends in ionization energies of the first transition series. Why the third ionization energies of chromium and copper are higher than other elements? **(4)**

14. (a) Discuss the ion exchange method of separation of lanthanides. **(6)**

    (b) Explain ionic radii of actinides and actinide contraction. **(4)**

15. (a) How HSAB principle is used in determining the stability of the complexes and course of reaction? Explain with examples. Which reaction proceeds to right? **(6)**

    (i) $BeI_2 + HgF_2 \rightarrow BeF_2 + HgI_2$

    (ii) $CdCl_2 + H_2S \rightarrow 2HCl + CdS$.

    (b) Define symbiosis and explain with examples. **(4)**

SECTION – C

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

16. (a) (i) How methyl bromide converted into methyl alcohol? Give the mechanism.

    (ii) How 1-Bromopropane is converted into propane? Give the mechanism. **(6)**

    (b) Explain the mechanism of E_1 reaction taking t-butyl bromide. **(4)**

17. (a) How phenol is prepared from Dow and Cumene process? **(6)**

    (b) Discuss the mechanism of pinacol-pinacolone reaction. **(4)**

18. (a) Give any two preparations and properties of (i) Acetyl chloride (ii) Acetamide. **(6)**

    (b) Give any three preparations of monocarboxylic acid. **(4)**

SECTION – D

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

19. (a) Derive Schrodinger's wave equation. **(6)**

(b) Explain Heisenberg's uncertainty principle. **(4)**

20. (a) Derive Gibb's-Helmholtz equation. **(6)**

(b) State and explain Carnot's theorem. **(4)**

21. (a) Derive Langmuir's adsorption isotherm. **(6)**

(b) Derive an expression for molecular association of the solute in one of the solvent. **(4)**

10918

III Semester B.A./B.Com./B.Sc.(Non-Computer)/B.B.A. Degree Examination, November/December 2019

COMPUTER SCIENCE

Paper 3.3 — Fundamentals of Computer and Ms-Office

(CBCS)

Time : 3 Hours Max. Marks : 70

SECTION – A

I. Answer **any ten** questions. Each question carries **2** marks : **(10 × 2 = 20)**

1. Define Computer.
2. Name any two output devices.
3. Expand EDVAC.
4. What is Software?
5. Name types of Computer Languages.
6. Define Windows.
7. What is Recycle Bin?
8. What is Mail Merge?
9. Write shortcut keys for cut and paste.
10. What is Worksheet?
11. Define Chart.
12. What is MS Power Point?

SECTION – B

II. Answer **any four** questions. Each question carries **5** marks : **(4 × 5 = 20)**

13. What are the characteristics of computer?
14. Write the types of Operating System.
15. What is Folder? Write the procedure of creating Folder.
16. Write steps to save the document in MS Word.
17. Explain any three types of charts in MS Excel.
18. How do you apply slide transition effect?

SECTION – C

III. Answer **any three** questions. Each question carries **10** marks : **(3 × 10 = 30)**

19. Explain fundamental block diagram of computer.

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

21. How do you print a document in MS Word? Explain.

22. Explain any five functions of MS Excel with syntax and example.

23. Explain different types of MS Power Point Views.
