

2. Assess the importance of the literary source for the construction of Ancient Indian History. 12½
3. Describe the sequence and technological developments of Paleolithic Age of India. 12½
4. Review the regional and Chronological distribution of Mesolithic Settlements. 12½
5. Write in detail about the life of the people in the Neolithic age. 12½
6. Highlight the main features of the Chalcolithic Culture. 12½
7. Give an account of the Origin and town planning of Harappan Civilization. 12½
8. Throw light on the society and religious belief during Later-Vedic Age. 12½
9. Trace the development of art during the Sangam Age. 12½

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Write short notes on any *four* of the following : 7½×4
 - a) Relevance of the study of Ancient Indian history.
 - b) The Numismatic Source.
 - c) Economy in Mesolithic Age.
 - d) Patterns of Exchange in Chalcolithic Age.
 - e) Causes of decline of the Harappan Civilization.
 - f) Religious belief and Practices the Harappan People.
 - g) Sabha and Samiti
 - h) Administration of Tamilkan.

2. Give an account of the multiplication of bacteriophage. 9
3. Describe the genetic recombination in Bacteria. 9
4. Describe the range of thallus structure in Algae. 9
5. Describe the sexual reproduction in Algae. 9
6. Describe the thallus organization and reproduction in Volvox. 9
7. Give an account of the structure and reproduction in Vaucheria. 9
8. Describe the sexual reproduction in polysiphonia. 9
9. Discuss the various economic uses of Algae. 9

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer **five** questions including Q.No.1
which is compulsory

1. Write notes on any **four** of the following : 6 × 4
 - a) Biological characteristics of Virus.
 - b) TMV
 - c) Heterocyst
 - d) Sexual reproduction in Chara
 - e) Asexual reproduction in Ectocarpus
 - f) Structure of Bacterial cell
 - g) Nutritional types of Bacteria
 - h) Economic importance of Bacteria.

3. How does ambiguity in the use of word arise ?
Explain the different kinds of such ambiguity. 12½
4. What is Definition ? Distinguish between defining characteristics and accompany characteristics. 12½
5. Explain the informative and the emotive uses of language. 12½
6. Discuss in detail about Sentence and Proposition. 12½
7. Explain what is Analysis of Logical Proposition. 12½
8. State and explain 'Identity and Contradiction'. Are they fundamental laws of thought ? 12½
9. Explain the nature and characteristics of Inductive reasoning. 12½

V-302-0.5

**2018**

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Write notes on any *four* of the following : 7½ × 4
 - a) Vagueness
 - b) Persuasive definition
 - c) Ideational view's of meaning
 - d) Directive use of language
 - e) Synthetic proposition
 - f) Excluded middle
 - g) Nature of Definition
 - h) Deductive reasoning.
2. State with examples the meaning of the word "Meaning". 12½

V-302

[Turn Over

- g) Briefly point out everyday changes in consciousness.
- h) Describe the structure and function of a neuron.
2. What is Psychology ? Describe Psychology as scientific discipline. 9
3. Discuss elaborately the Psychodynamic and cognitive perspective in Psychology. 9
4. Discuss the merits and demerits of case history and correlation methods. 9
5. Describe the structure and functions of Central Nervous System. 9
6. Describe the structure and functions of Autonomic Nervous System. 9
7. Elaborate in details about hypnosis and meditation as expanded states of consciousness. 9

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer **five** questions including Q.No.1 which is compulsory

1. Answer any **four** of the following : 6 × 4
- a) Discuss elaborately the Socio-Cultural and behavioural perspective of Psychology.
- b) Discuss different roots of Psychology.
- c) Explain the concept
- i) Introspective report
- ii) Variables.
- d) With a suitable diagram, describe in details, how nerve impulses conducted through synapses.
- e) Discuss the advantages and disadvantages of survey method.
- f) Discuss the merits and demerits of experimental method.

2. Define Sociology and discuss its nature. 12½
3. What is Culture ? Analyse the characteristics of culture. 12½
4. Define Socialization and discuss in brief the various agencies of socialization. 12½
5. Discuss briefly the relationship between Individual and society. 12½
6. Critically examine fundamentalist theory of Social stratification. 12½
7. Bring out the differences between Primary group and secondary group. 12½
8. Define Social Control and analyse its informal agencies. 12½
9. What is social processes ? Explain how conflict acts as a social process ? 12½

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* of the following : 7½ × 4
 - a) Bring out the relationship between sociology and Anthropology.
 - b) Discuss the emergence of Sociology.
 - c) What is Community Sentiment ?
 - d) Bring out the differences between Folkways and mores.
 - e) Analyse Cooley's looking glass self.
 - f) What is Reference group ?
 - g) Bring out the differences between caste and class.
 - h) Differentiate between accommodation and assimilation.

ज) बिहारी का रीतियुग में क्या महत्व है ? संक्षेप में विवेचन कीजिए ।

2. किन्हीं चार के उत्तर दीजिए : $12\frac{1}{2} \times 4$

क) हिंदी साहित्य के आदिकाल की सामान्य प्रवृत्तियों का आलोचनात्मक विश्लेषण कीजिए ।

ख) हिंदी के आदिकालीन साहित्य में पृथ्वीराज रासो का स्थान और महत्व प्रतिपादन कीजिए ।

ग) भक्ति काल की प्रमुख प्रवृत्तियों पर प्रकाश डालिए ।

घ) भक्तिकाल की सामाजिक और राजनैतिक पृष्ठभूमि पर चर्चा कीजिए ।

ङ) निर्गुण संत कवियों में कबीर दास का स्थान निरूपण कीजिए ।

च) सगुण भक्ति धारा का सामान्य परिचय देते हुए कृष्ण भक्ति शाखा की प्रमुख विशेषताओं को उल्लेख कीजिए ।

छ) रीति काल के नामकरण के औचित्य पर प्रकाश डालते हुए इस काल की प्रमुख प्रवृत्तियों को संक्षेप में लिखिए ।

ज) रीतिबद्ध और रीतिमुक्त काव्यधाराओं में साम्य-वैषम्य निरूपित कीजिए ।

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. किन्हीं चार प्रश्नों के संक्षिप्त उत्तर दीजिए : $7\frac{1}{2} \times 4$

क) सिद्ध साहित्य का सामान्य परिचय देते हुए उसकी प्रमुख विशेषताओं को स्पष्ट कीजिए ।

ख) रासो परंपरा में 'बीसल देव रासो' का स्थान और महत्व पर संक्षेप में लिखिए ।

ग) निर्गुण और सगुण भक्तिधारा में अंतर स्पष्ट कीजिए ।

घ) कबीर दास के समाज सुधारक रूप पर संक्षेप में लिखिए ।

ङ) प्रेमाश्रयी शाखा पर टिप्पणी लिखिए ।

च) अष्टछाप के कवियों का संक्षिप्त परिचय दीजिए ।

छ) रीतिकाल को श्रृंगारकाल कहना कहाँ तक समीचीन है ? अपना विचार प्रकट कीजिए ।

3. Explain the Nebular hypothesis as regards the origin of the earth. 9
4. Describe the internal structure of the earth. 9
5. Elucidate the concept of plate tectonics. 9
6. Elaborate different types of faults. 9
7. Define weathering and discuss the Physical weathering. 9
8. Explain the cycle of erosion concept of Davis. 9
9. Discuss the formation of different Aeolian landforms. 9

V-309-0.5

**2018**

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1 which is compulsory

1. Write notes on any *four* of the following : 6 × 4
 - a) Big bang
 - b) Isostasy
 - c) Level of compensation
 - d) Jig-Saw fit
 - e) Richter scale
 - f) Conservative boundary
 - g) Mass Wasting
 - h) Beaches.

2. Write the nature and scope of geomorphology. 9

V-303

[Turn Over

2. Discuss the meaning and purpose of education. 9
3. Explain functions of education towards individual and society. 9
4. Describe the meaning and educational implication of metaphysics. 9
5. Elucidate common characteristics of Indian Philosophy. 9
6. Explain the salient features of Vedanta Philosophy and its educational implications. 9
7. Discuss the contribution of pragmatism towards theory and practice of education. 9
8. Illustrate Gandhi's Philosophy of education with respect to aims, curriculum and methods of teaching. 9
9. Enumerate the main ideas of John Dewey in the field of education. 9

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* of the following : 4 × 6
 - a) Explain the nature of Education.
 - b) Discuss aims of education for individual development.
 - c) Describe influence of Philosophy on aims of education.
 - d) What is philosophy of education.
 - e) Elucidate educational implications of Sankhya Philosophy.
 - f) Illustrate the relevance of idealism on educational system of India.
 - g) Explain aims of education according to Rousseau.
 - h) Describe educational philosophy of Sri Aurobindo.

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* of the following : 7½ × 4
- a) Define Accounting. State the main objectives of Accounting.
 - b) What is an Account ? Explain three types of Accounts with suitable examples.
 - c) Define Ledger. Distinguish between Journal and Ledger.
 - d) Explain the Error of Omission and Error of Commission with suitable example.

[2]

- e) How will you treat the following items while preparing Final Accounts of non-profit organisation.
- i) Specific Donation
 - ii) Entrance Fees.
- f) Explain the Accounting Procedures for Branch on the basis of Debtor System.
- g) Write three objectives and five advantages of Departmental Accounts.
- h) Write a short note on "Capital Redemption Reserve Account".
2. What do you mean by Generally Accepted Accounting Principles (GAAP). Write down four concept and four Convention of Accounting Principles. 12½
3. Define Subsidiary Book. Briefly explain the different types of subsidiary book. 12½

[3]

4. Cash Book of M/s Ankit Traders showed an overdraft of ₹8320 as on 31st March 2017. From the following additional information. Prepare a Bank Reconciliation Statement as on that date 12½
- a) Cheques drawn but encashed after 31-3-2017 amounts to ₹1,250.
 - b) Cheques deposited but not Collected before 31-03-2017 of ₹3,840.
 - c) Interest on Debentures ₹640 Collected directly by Bank not yet taken in Cash Book.
 - d) Cheques Received from Mohan ₹820 against sales made is omitted to be banked.
 - e) A bill receivable worth ₹4260 discounted with the bank at ₹4,200 is dishonoured. Noting Charges of ₹15 is paid by Bank. No entry in respect of this is made in cash book.
5. The following is the Trial Balance of Mahalaxmi Stores as on 31st March 2017. Prepare Trading and Profit and Loss Account for the year ended

31-03-2017 and the Balance Sheet as on that date. 12½

Trial Balance

<i>Name of Accounts</i>	<i>Debit(₹)</i>	<i>Credit(₹)</i>
Capital	---	80,000
Building	20,000	---
Drawings	8,500	---
Furnitures	10,000	---
Motor Van	28,000	---
12% loan	---	20,000
Interest on 12% loan	800	---
Sales	---	1,00,000
Purchase	80,000	---
Stock on 1-4-2016	18,000	---
Establishment Expenses	12,000	---
Wages	4,500	---
Rent	1,000	---
Commission	---	3,500
Sundry Debtors	24,200	---
Sundry Creditors	---	26,500
Bank Balance	16,000	---
Goodwill	7,000	---
	2,30,000	2,30,000

Adjustments :

- The value of Closing Stock on 31-03-2017 is ₹15,000
 - Wages in arrear is ₹800
 - Unexpired Rent is ₹400
 - Provide Depreciation on Building 2.5% on furniture 5% and on Motor Van 7.5%
 - Charge Interest on drawings ₹300.
- What do mean by Depreciation ? Briefly explain the different methods of providing Depreciation. 12½
 - Define a non-profit organisation. Distinguish between Receipts and Payment Account and Income and Expenditure Account. 12½
 - A head office in Mumbai has a branch in Ahmedabad to which goods are invoiced by the head office at Cost Price Plus 25%. All Cash Received by the Branch is remitted to head office. All Expenses are

paid from Mumbai. From the following particulars, show how Branch Account will appear in the book of head office

of head office	12½
Stock on 1st July 2017 (at Invoice Price)	₹12,500
Debtors on 1st July, 2017	₹12,000
Goods Invoiced from Mumbai	₹40,000
Remittance to Mumbai :	
Cash Sales	₹16,000
Cash Received from	
Debtor <u>₹29,500</u>	₹45,000
Goods Return to the head office	₹2,400
Cheques received from Mumbai :	
Wages and Salaries	₹11,000
Rent and Rates etc.	₹3,000
Sundry Expenses <u>₹500</u>	₹14,500
Stock on 31st Dec.2017	
(Invoice Price)	₹15,000
Debtors on 31st Dec, 2017	₹22,500
Liability for Petty Expenses	₹ 420

9. 'X' Ltd invited applications of shares from the Public for 5,00,000 equity shares of ₹10 each issued at ₹11 Per Share. The payment was to be made as follows :

₹3 on application

₹4 on allotment (including premium)

and ₹4 on call

Applications for 6,50,000 shares were received. Allotment of the Shares was made as follows :

Applicants of 4,00,000 Shares 4,00,000 Shares

Applicants of 2,00,000 Shares 1,00,000 Shares

Applicants of 50,000 Shares Nil

A Shareholder to whom 500 Shares were allotted under category 1 paid full amount due on Shares along with allotment money. Another Shareholder holding 1,000 Shares failed to pay the amount due on Call. His Shares were forfeited and 800 of these Shares were reissued as fully paid-up for ₹8 per Share.

Pass Journal Entries and Prepare the Balance Sheet. 12½

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory1. Answer any *four* of the following : 4 × 6

a) Solve the following differential equation

$$(2xy + x^2)dy = (3y^2 + 2xy)dx$$

b) Show that :

$$\text{Log}(z) = (z-1) - \frac{(z-1)^2}{2} + \frac{(z-1)^3}{3} + \dots$$

c) Evaluate $I = \int_0^{\infty} \frac{\text{Log}(1 + \alpha^2 x^2)}{x^2 + \beta^2} dx$

d) Find 'm' so that the vectors

 $2\hat{i} - 4\hat{j} + 5\hat{k}$, $\hat{i} - m\hat{j} + \hat{k}$ and $3\hat{i} + 2\hat{j} - 5\hat{k}$ are coplanar.

[2]

- e) Find the rate of change of $\phi = xyz$ in the direction normal to the surface $x^2y + y^2x + yz^2 = 3$ at the point $(1, 1, 1)$.
- f) If \vec{a} is a constant vector, show that $\vec{a} \times (\vec{\nabla} \times \vec{r}) = \vec{\nabla}(\vec{a} \cdot \vec{r}) - (\vec{a} \cdot \vec{\nabla})\vec{r}$.
- g) Evaluate $\int \vec{F} \cdot d\vec{r}$ where $\vec{F} = (x^2 \hat{i} + xy \hat{j})$ and C is the boundary of the square in the plane $z = 0$, and bounded by the lines $x = 0$, $y = 0$, $x = a$ and $y = a$.
- h) Express $x \hat{i} + 2y \hat{j} + yz \hat{k}$ in spherical Polar co-ordinates.
2. Solve the differential equation $\frac{d^2x}{dt^2} + \frac{g}{l}x = \frac{g}{l}L$ where g, l, L are constants subject to the conditions :
 $x = a, \frac{dx}{dt} = 0$ at $t = 0$. 9
3. A rectangular box open at the top is to have a given capacity. Find the dimensions of the box requiring least material for its construction. 9

[3]

4. The temperature T at any point (x, y, z) in space is $T = 400xyz^2$. Find the highest temperature on the surface of the unit sphere $x^2 + y^2 + z^2 = 1$. 9
5. State and prove Gauss's divergence theorem. 3 + 6
6. State and prove Stoke's theorem. 3 + 6
7. Obtain the expression for gradient, divergence and curl of a vector in spherical-polar coordinates. 3 + 3 + 3
8. Show that the vector field $\vec{F} = 2x(y^2 + z^3)\hat{i} + 2x^2y\hat{j} + 3x^2z^2\hat{k}$ is conservative. Find its Scalar Potential and workdone in moving a particle from $(-1, 2, 1)$ to $(2, 3, 4)$. 3 + 3 + 3
9. Obtain the expression for curl and Laplacian of a vector in cylindrical coordinates. $4\frac{1}{2} + 4\frac{1}{2}$

V-313-0.7



7. a) State and explain VSEPR theory with examples. 5
- b) Explain : 2×2
- i) Silver halides are less soluble in water.
- ii) Dipole moment of CO_2 is zero while that of H_2O is 1.84 D.
8. a) What is metallic bond? Discuss Lorentz's theory of metallic bonding. 1 + 4
- b) Give an account of stoichiometric defects. 4
9. a) Prove with an example that oxidation and reduction reaction take place simultaneously. 2
- b) Boiling point of octane is more than that of hexane. Explain. 2
- c) Explain dipole-dipole interaction with an example. 2
- d) Write a note on Van der Waal's forces. 3

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1 which is compulsory

1. Answer any *four* of the following :
- a) Using Bohr's theory, explain atomic spectra of hydrogen. 6
- b) Write notes on the following : 3 + 3
- i) Limitations of Bohr's
- ii) de-Broglie equation.
- c) Explain : 2×3
- i) Which of the following will have smaller size and why? Na^+ , F^- , Ne.
- ii) Anion is larger in size than its neutral atom.
- iii) Electronegativity of the elements increase from left to right along a period.

[2]

- d) Define ionisation energy of an element. How does it vary along a period and down a group in the periodic table ? 2 + 4
- e) i) Discuss two factors which influence the Lattice energy of an ionic compound. 3
- ii) How can you calculate percentage of ionic character of a polar bond using its bond dipole moment. 3
- f) On the basis of VSEPR theory explain the shape of 2 × 3
- (i) BF_3 (ii) XeF_4 (iii) ClF_3
- g) Give an account of Heitler-London approach of Valence bond theory. 6
- h) Complete the following reactions and balance them ionically. 2 × 3
- i) $\text{MnO}_4^- + \text{H}^+ + \text{C}_2\text{O}_4^{2-} \rightarrow$
- ii) $\text{Hg}^{2+} + \text{Sn}^{2+} \rightarrow$
- iii) $\text{Cr}_2\text{O}_7^{2-} + \text{H}^+ + \text{Fe}^{2+} \rightarrow$

[3]

2. a) State and explain the postulates of Bohr's Theory. How does it explain the stability of atom ? 5 + 2
- b) Write the electronic configuration of the element with atomic number 24 and name the element. 2
3. What is meant by quantum numbers ? Discuss different quantum numbers and give their significance. 1 + 8
4. What is Periodic Law ? Write the main features of Long form of periodic table. 1 + 8
5. a) How does electron affinity of an element vary down a group and along a period ? Explain. 2 + 2
- b) i) Compare the first and the second electron affinity values of oxygen. 2
- ii) Discuss screening effect. 3
6. a) What is ionic bond ? Discuss three factors affecting ionic bond formation. 1 + 3
- b) Draw the molecular orbital diagram of N_2 molecule. Calculate its bond order and predict its magnetic Character. 3 + 2

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

୧. ଯେ କୌଣସି ଚାରିଗୋଟିର ସଂକ୍ଷିପ୍ତ ଉତ୍ତର ଲେଖ : ୭.୫×୪

- କ) ଓଡ଼ିଶାରେ ଜନ୍ମଗ୍ରହଣ କରିଥିବା ଜଣେ ଚର୍ଯ୍ୟା ଗୀତିକାରଙ୍କ ନାମୋଲ୍ଲେଖ କରିବା ସଂଗେ ସଂଗେ ତାଙ୍କ ଗୀତିକାର ଆଧାରରେ ତତ୍କାଳୀନ ସମାଜର ରୂପରେଖ ଅଙ୍କନ କର ।
- ଖ) ଓଡ଼ିଶାରେ ନାଥପନ୍ଥୀମାନେ କେତେ ଭାଗରେ ବିଭକ୍ତ ଏବଂ କ'ଣ କ'ଣ ? ନାଥ ଧର୍ମର ପ୍ରସିଦ୍ଧ ରଚନା 'ଗୋରଖ ସଂହିତା' ସଂପର୍କରେ ଏକ ନୀତିଦୀର୍ଘ ପ୍ରବନ୍ଧ ରଚନା କର ।
- ଗ) ବିଲଙ୍କା ରାମାୟଣର ରଚୟିତା କିଏ ? ଏହାର ବିଷୟବସ୍ତୁ ସଂପର୍କରେ ଯାହା ଜାଣି ଲେଖ ।
- ଘ) ସାରଳାଙ୍କ ପ୍ରବର୍ତ୍ତିତ ବୃତ୍ତର ନାମ କ'ଣ ? ଏହାର କେତୋଟି ପଦ ଉଦାହରଣ ଭାବେ ଗ୍ରହଣ କରି ଏହି ବୃତ୍ତ ସଂପର୍କରେ ବୁଝାଅ ।

- ଡ) 'ଭାବ ସମୁଦ୍ର' କାବ୍ୟର ବିଷୟବସ୍ତୁ ସଂପର୍କରେ ଲେଖ ।
- ଚ) 'ଅତିବଡ଼ୀ' ଉପାଧିରେ ଜଗନ୍ନାଥ ଦାସଙ୍କୁ କିଏ ଭୂଷିତ କରିଥିଲା ? ତାଙ୍କ ଦ୍ଵାରା ପ୍ରବର୍ତ୍ତିତ ବୃତ୍ତିର ନାମ କ'ଣ ? ଏହାର ଚାରୋଟି ପଦ ରଚନା କର ।
- ଛ) 'ଅର୍ଥ କୋଇଲି' କେଉଁ କୋଇଲିର ତତ୍ତ୍ଵାର୍ଥ ? ଏହାର ଅଭିବାଚ୍ୟ କ'ଣ ଥିଲା ?
- ଜ) 'ହରିବଂଶ'ରେ ଥିବା ବୈଷ୍ଣବୀୟ ଚେତନାର ସ୍ଵରୂପ ସଂପର୍କରେ ଉଲ୍ଲେଖ କର ।
୨. ଯେ କୌଣସି **ଚାରିଗୋଟି** ର ଦୀର୍ଘ ଉତ୍ତର ଲେଖ : ୧୨.୫×୪
- କ) ଓଡ଼ିଆ ସବୁ ସାହିତ୍ୟକୁ ନାଥଧର୍ମ କିପରି ପ୍ରଭାବିତ କରିଥିଲା ? 'ଶିଶୁ ବେଦ' ନାଥପଦ୍ମୀ ରଚନା କି ? ଶିଶୁ ବେଦ ସଂପର୍କରେ ମହାକବି ସାରଳା ଦାସ କିପରି ବର୍ଣ୍ଣନା କରିଛନ୍ତି ତାହା ଉଦାହରଣ ମାଧ୍ୟମରେ ଲେଖ ।
- ଖ) ଓଡ଼ିଆ ସାହିତ୍ୟ ଉପରେ ବୌଦ୍ଧଗାନ ଓ ଦୋହାର ପ୍ରଭାବ ଉଲ୍ଲେଖ କରିବା ସଂଗେ ସଂଗେ ଦୋହାର ଭାଷା ସନ୍ଧ୍ୟାଭାଷା ବୋଲି କାହିଁକି କୁହାଯାଉଛି କିମ୍ବା ଏ ସଂପର୍କରେ ସମାଲୋଚକ ମାନଙ୍କର ମତାମତ ଉଲ୍ଲେଖ କର ।
- ଗ) ସାରଳା ମହାଭାରତ ଅବଲମ୍ବନରେ ତତ୍କାଳୀନ ଉତ୍କଳୀୟ ସମାଜର ରୂପରେଖ ପ୍ରଦାନ କର ।

- ଘ) କବି ବଳରାମ ଦାସ ଓ ଜଗନ୍ନାଥ ଦାସଙ୍କ ବୈଷ୍ଣବୀୟ କାବ୍ୟ ରଚନାର ପୃଷ୍ଠଭୂମି ସଂପର୍କରେ ଯାହା ଜାଣ ଲେଖ ।
- ଙ) ବଳରାମଙ୍କ ରଚିତ 'ଲକ୍ଷ୍ମୀପୁରାଣ' ତତ୍କାଳୀନ ସମାଜକୁ ଯେଉଁ ନୂତନ ଦିଗଦର୍ଶନ ଦେଇଥିଲା, ତାହା ଉଲ୍ଲେଖ କର ।
- ଚ) ପଞ୍ଚସଖା ସାହିତ୍ୟର ବୈଶିଷ୍ଟ୍ୟ ଗୁଡ଼ିକ ସଂପର୍କରେ ଏକ ନାତିଦୀର୍ଘ ପ୍ରବନ୍ଧ ରଚନା କର ।
- ଛ) ପଞ୍ଚସଖା ସାହିତ୍ୟର ସାମାଜିକ ଆବେଦନ କିପରି ଏକ ସୁସ୍ଥ ସମାଜ ଗଠନ କରିବାରେ ସାହାଯ୍ୟ କରିଥିଲା, ତାହା ଉଦାହରଣ ମାଧ୍ୟମରେ ଉଲ୍ଲେଖ କର ।
- ଜ) ଓଡ଼ିଆ ଭାଗବତ ତଥା ହରିବଂଶର ସାଂସ୍କୃତିକ ଆବେଦନଟି କ'ଣ ? ଏହା ଦ୍ଵାରା ତତ୍କାଳୀନ ଓଡ଼ିଆ ସମାଜରେ କିପରି ପରିବର୍ତ୍ତନ ଘଟିଥିଲା ?

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. अधस्तनेषु केषाञ्चित् *चतुर्णां* प्रश्नानामुत्तरं लिखत : $7\frac{1}{2} \times 4$

क) हितोपदेशः केन विरचितम् ? तत्र कति तन्त्राणि सन्ति ?

ख) कीदृशः पुत्रः पीडां ददाति ?

ग) 'एकश्चन्द्रः तमो हन्ति' इति कथं विदुषा उक्तम् ?

घ) के कथम् अलंघनीयाः भवन्ति ?

ङ) किम् आकाशात् उच्चतरं भवति ?

च) पुरुषः कथं मृतः स्यात् ?

छ) किं श्रेष्ठः धर्मो भवति ?

- ज) अधस्तनेषु चतुर्णां शब्दानां यथानिर्दिष्टं रूपं लिखत -
- मुनि - षष्ठी एकवचने
 - साधु - सप्तमी बहुवचने
 - नदी - द्वितीया बहुवचने ।
 - गुणिन् - पञ्चमी एकवचने ।
 - मातृ - चतुर्थी बहुवचने
 - युष्मद् - सप्तमी एकवचने ।
- हिरण्यकमूषिकराजकथां लिखित्वा तत्रस्थां नीतिकथां वर्णयत । 12½
 - गृध्रविडालकथाम् वर्णयन् तस्या सामाजिक उपयोगितां लिखेत । 12½
 - यक्षस्य रूपवर्णनं कुरु ? तेन कथं आत्मपरिचयं दत्तम् ? 12½
 - पठितांशमाधारेण युधिष्ठिरस्य धर्मनिष्ठां वर्णयत । 12½
 - यक्षप्रश्नतः नीतिकथाः संगृह्य तासां सारं प्रस्तुयत । 12½
 - व्याख्या कार्या : 12½
काचः काञ्चनसंसर्गात् धन्ने मारकतीक्ष्णितिम् ।
तथा सत्सन्निधानेन मूर्खो याति प्रवीणताम् ॥

- अधोलिखित श्लोकस्य मर्ममुद्घाट्य - 12½
यस्य तेऽर्थाच्च कामाच्च
आनृशंस्यं परं मतम् ।
तस्मात्ते भ्रातरः सर्वे
जीवन्तु भरतर्षभ ॥
- अधस्तनेषु चतुर्णां धातुनां यथा निर्धारितं रूपं लिखत : 12½
 - पद् - विधिलिङि मध्यमपुरुष एकवचने ।
 - नी - लङि प्रथमपुरुष बहुवचने ।
 - कृ - लटि उत्तमपुरुष एकवचने ।
 - सेव् - लृटि प्रथमपुरुष एकवचने ।
 - हन् - लटि मध्यमपुरुष एकवचने ।
 - दा - लङि प्रथमपुरुष बहुवचने ।
 - श्रु - लृटि उत्तमपुरुष एकवचने ।

8. Describe different ways to initialize the Structure.
Write a program in C to read Name, Age and Roll of
Two students and print them by using structure. 9
9. Write short notes on the following : 9
- i) Array of pointers
 - ii) Different modes of Files
 - iii) Error handling in File operation.

V-317-0.5

**2018**

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* of the following : 6 × 4
- a) How can you declare a single character "@" in terms of Character and String ? Write a program in C to read a String and count the number of words.
 - b) What is C-Programming Language ? Draw a flow chart to execute a C-Program. (It must describe all the steps from creation to execution.)
 - c) Write notes on the followings with example :
 - i) Rules of an Identifier
 - ii) Data types in C
 - d) Differentiate between post-increment and pre-increment. Write a program in C to find out the greatest among three numbers using function.

[2]

e) What is meant by pointer ? Write a program in C to input a String and print it in reverse order using pointer.

f) Find out the output of the following with explanation.

(i)	(ii)	(iii)
main() {	main(){	main() {
int i=5, j=8	int i=5, j;	int i = 5, j = 8;
j=(i > j)&&(i < j);	j=++i+i++;	if (i = j)
printf("%d%d",i,j);	printf("%d%d",i,j)	printf("Hello");
}	}	else
		printf("Hai");}

g) What is File ? Write a program in C to create a file, write some text in to the file and print it.

h) Differentiate the following with examples.

- i) Automatic Vs. External Variable
- ii) Function Definition Vs. Function Declaration.

2. Explain different operators in C-Language with examples. 9

[3]

3. Describe different looping statements in C with their syntax. Write a program in C to input a number and find out the sum of digits of a number.

4. Describe the concept of "Function returning pointers" and "Pointers to functions" with examples. 9

5. Differentiate the following with syntax : 9

- i) Malloc() Vs. Calloc ()
- ii) Call-by-Reference Vs. Call-by-Value
- iii) fprintf() Vs. fscanf()

6. Describe the concept of "Function with arguments and with return type" and "Function with arguments and no return type" with examples. 9

7. Describe the different storage classes available in C-Language with examples. Write down the different scope rules associated with each storage classes. 9

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* of the following : 6 × 4

- a) Find the ranges of values of x for which
 $y = x^4 - 6x^3 + 12x^2 + 5x + 7$ is concave
upwards or downwards.
- b) Show that the curve $ay^2 = x(x - a)(x - b)$ has
two and only two points of inflexion.
- c) Derive reduction formula for $\int \cos^n x \, dx$.
- d) Determine all the asymptotes of the curve
 $x^3 + y^3 - 3axy = 0$
- e) Trace the curve $r^2 = a^2 \cos 2\theta$.

[2]

- f) Find the volume generated by revolving the cardioid $r = a(1 + \cos\theta)$ about the initial line.
- g) Show that necessary and sufficient condition for $\vec{v}(t)$ to have constant direction is

$$\vec{v} \times \frac{d\vec{v}}{dt} = \vec{0}.$$
- h) Find equation of a rigid circular cone whose vertex is at $(0,0,0)$ and axis is z - axis.
2. Prove that the plane $3x + 12y - 6z = 17$ touches the conicoid $-3x^2 + 6y^2 - 9z^2 = 17$. Also find point of contact. 9
3. Find the components of velocity and acceleration at $t = 1$ in the direction of the vector $\hat{i} + \hat{j} + 3\hat{k}$, if a particle moves along the curve 9

$$\vec{r}(t) = (t^3 + 1)\hat{i} + t\hat{j} + (2t + 5)\hat{k}.$$
4. Evaluate $\int_2^1 \left(e^{2t}\hat{i} + e^{-t}\hat{j} + 2t\hat{k} \right) dt, \int_0^2 \left| t\hat{i} + 2t^2\hat{j} \right| dt$ 9

[3]

5. If $y = \cosh(\sin^{-1} x)$ show that

$$(1 - x^2)y_{n+2} - (2n + 1)xy_{n+1} - (n^2 + 1)y_n = 0. \quad 9$$
6. Evaluate $\int_0^1 xe^{-\sqrt{x}} dx$. Using Reduction formula. 9
7. Trace the curve $x^{2/3} + y^{2/3} = a^{2/3}$ 9
8. Find the area of a loop of the curve

$$a^4 y^2 = x^4 (a^2 - x^2) \quad 9$$
9. Prove that the length of the loop of the curve

$$3ay^2 = x(x - a)^2 \text{ is } \frac{4a}{\sqrt{3}}. \quad 9$$

V-319-0.7

□□

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* out of the following : $7\frac{1}{2} \times 4$
- a) Define Accounting. Discuss the advantages and disadvantages of Accounting.
 - b) What do mean by Accrual basis of Accounting ? Distinguish between Cash Basis and Accrual basis of Accounting.
 - c) What do mean by Trial Balance ? Discuss the main objects and limitations of preparing Trial Balance.
 - d) Define Income. What are the objectives of Net Income reporting ?

[2]

- e) What is deferred Revenue Expenditure ?
Explain with suitable Example.
 - f) Distinguish between Hire Purchase and
Installment Purchase system.
 - g) What are the main types of branches from
accounting point of view ? Give any three
objectives of Branch Accounting.
 - h) What is a Realisation Account ? How it differ
from Revaluation Account ?
2. What do mean by Accounting Principles ? Briefly
explain different concepts and Conventions of
Accounting Principles. 12½
3. What do you understand by "Subsidiary Book" ?
Briefly discuss the different types of subsidiary
books. 12½
4. Measurement of Business Income requires matching
cost with the Revenue. Explain. 12½

[3]

5. A company purchased a second hand-machinery on
1st January, 2013 for Rs. 37,000 and immediately
spent Rs. 2,000 on its repairs and Rs.1,000 on its
erection. On 1st July, 2014 it purchased another
machine for Rs. 10,000 and on 1st July, 2015, it sold
off the first machine purchased in 2013 for
Rs. 28,000 and on the same date it purchased another
machine for Rs. 25,000. On 1st July, 2016 the second
machinery purchased for Rs.10,000 was sold off for
Rs. 2,000.

Depreciation was provided on the machinery at
the rate of 10% on the original cost annually, on 31st
December. In 2014, however, the company changed
the method of providing depreciation and adopted
the written down value method, rate of depreciation
being 15%. Give the machinery account for 4 years
commencing from 1st January, 2013. Calculations
are to be made to the nearest rupee. 12½

6. From the following Trial Balance of Mr. Ajay,
Prepare trading and profit and loss account for the
year ending 31st March, 2017 and a Balance Sheet
as on that date.

Trial Balance

<i>Dr. Balances</i>	<i>Amount Rs.</i>	<i>Cr. Balances</i>	<i>Amount Rs.</i>
Cash	300	Sales	3,48,800
Bank Balance	10,000	Purchase Return	2,000
Plant & Mechinery	30,000	Bank Loan	15,000
Manufacturing wages	50,000	Creditors	70,000
Freight on Purchase	2,500	Capital	1,39,500
Freight on Sales	3,000	Provision for	
Salaries	25,000	Bad debts	10,000
Furnitures	15,000		
Manufacturing Expenses.	15,000		
Insurance and Taxes	7,000		
Goodwill	50,000		
General Expenses	15,000		
Fuel and power	2,000		
Debtors	1,20,000		
Interest	800		
Bad debt	2,200		
Discount	1,500		
Sales Return	4,000		
Purchases	1,30,000		
Live stock	7,500		
Opening stock	50,000		
Stable expenses	3,000		
Factory Electricity	1,500		
Building	40,000		
	<u>5,85,300</u>		<u>5,85,300</u>

Adjustments :

- i) Closing stock was Rs. 40,000
 - ii) Create a provision for Bad debts at 6% on Debtors.
 - iii) Depreciate Plant and Mechinery by 10%.
furniture by 6% livestock Rs 1,000
 - iv) Prepared Expenses : Insurance Rs.500 taxes Rs.300.
 - v) Commission to factory Manager is to be given at 10% on net profit after charging such commission. 12½
7. On 1st January, 2015 Sachine Purchased a Machine from Ashoka limited on hire purchase system. The Cash Price of Machine was Rs. 1,30,000 and the Payment was to be made Rs.40,000 down and remainder in three equal Installments of Rs. 30,000 each together with interest at 15% p.a. Sachine writes off depreciation @10% on written down value method. Sachine could not pay the installment due on 31st December, 2016 and Ashoka limited

arranged immediately to take back the machine which cost Rs. 60,000 allowing Rs. 41,500 provided that Sachine paid all the interest due to that date on the full amount owing.

Show Machine Account and Ashoka limited's Account in the books of Sachine. 12½

8. Write down the Accounting, Treatment passed under 'Stock and Debtor' system to maintain the Branch Account. 12½
9. X, Y and Z were partners in a business. Their Balance Sheets as on 31st March 2017 was as follows :

<i>Laibilities</i>	<i>Amount Rs.</i>	<i>Assets</i>	<i>Amount Rs.</i>
Capital Account :		Buildings	4,00,000
X	1,60,000	Machinery	4,00,000
Z	1,00,000	Furniture & Fixtuers	1,60,000
X's Loan	2,00,000	Stock	1,60,000
Creditors	10, 00,000	Book Debts	2,00,000
		Cash at Bank	10,000
		Y's Capital A/c	1,30,000
	14,60,000		14,60,000

Due to bad financial position of the partners, the firm was dissolved and all the partners were declared bankrupt. The assets realised are as follows :

Book Debts 45% less, Building Rs. 1,60,000, stock Rs. 1,00,000, Machinery Rs.2,00,000 and furniture and fixtures Rs.40,000. Realisation expenses were Rs. 10,000.

The private financial position of the partners was as follows :

	<i>Private assets in Rs.</i>	<i>Private liabilities in Rs.</i>
X	2,50,000	2,50,000
Y	2,00,000	1,80,000
Z	2,30,000	2,50,000

Prepare Realisation Account, Bank Account, Creditors Accounts, Partners Capital Account and Deficiency Account. 12½

- h) Structure and life cycle of *Trypanosoma gambiense*.
2. Give a brief account of mode of reproduction in Protozoa. 9
 3. Give an illustrated account of the life cycle of *Plasmodium vivax*. 9
 4. Describe the general characteristics and evolutionary significance of Phylum Porifera. 9
 5. What are coral reefs ? Give an account of various forms of coral reefs and add a note on their formation. 9
 6. Mention the general characters of Ctenophora. What is its relationship with Coelenterata. 9
 7. Describe the life cycle of *Fasciola hepatica*. Mention its parasitic adaptations. 9
 8. Write an essay on Polymorphism in Cnidaria. 9
 9. Describe the structure and life cycle of *Wuchereria bancrofti* and give a note on its pathogenicity and therapy. 9

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer **five** questions including Q.No.1
which is compulsory

1. Answer any **four** of the following : 6 × 4
 - a) *Entamoeba histolytica*, its pathogenicity, treatment and control.
 - b) Canal system in sponges.
 - c) Metagenesis in *Obelia*.
 - d) Structure of a mature proglottid of *Taenia solium*.
 - e) Pathogenesis, therapy and prophylaxis of *Ascaris lumbricoides*.
 - f) Differences between Protozoa and Parazoa.
 - g) Malaria, cause, symptom of the disease, its treatment and control.

- h) Briefly describe Thomas Campion's "Never Love Unless You Can".
2. Critically analyse Chucer's "The Wife of Bath". 12½
3. Discuss the theme of unrequited love in Ben Jonson's "Song to Celia". 12½
4. Make a critical appreciation of Michel Drayton's Poem "Since there is no help". 12½
5. What is the main idea of "Sonnet No-75" of Spenser. 12½
6. "Macbeth" is a Shakespearean Tragedy. Discuss. 12½
7. Justify supernatural Elements in "Macbeth". 12½
8. Sketch the character of Viola. 12½
9. How are different types of love explored in "Twelfth Night". 12½

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer **five** questions including Q.No.1
which is compulsory

1. Answer any **four** of the following : 7½ × 4
- Write a short note on Anglo-Saxon Poetry.
 - Consider Geoffrey Chaucer as the greatest English Poet of the Middle Ages.
 - Mystery Plays and Miracle Plays are formally developed in Medieval Europe. Discuss.
 - Explain briefly on English Renaissance.
 - Elizabethan Poetry is Characterised by elaboration of language and allusion to classical myths. Discuss.
 - Explain the line "Fair is foul and foul is Fair".
 - What was the Gunpowder Plot Plan ?

3. Discuss the role of incentives and information for efficient working of market. 12½
4. State and explain the Law of demand with its limitations. 12½
5. What is indifference curve ? Explain the properties of indifference curves 12½
6. Why does short-run average cost curve is U-shaped ? 12½
7. How price and output are determined under monopoly. 12½
8. Explain the marginal productivity theory of Labour. 12½
9. What do you mean by labour market ? Discuss the public policy relating to labour. 12½

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer **five** questions including Q.No.1
which is compulsory

1. Write short notes on any **four** of the following : $7\frac{1}{2} \times 4$
 - a) Scope of Microeconomics.
 - b) Opportunity sets.
 - c) Factors determining demand for goods.
 - d) Producer surplus
 - e) Consumer's Optimum Chioce.
 - f) Income Effect.
 - g) Imperfect Competition.
 - h) Demand for Labour.
2. What are the basic economic problems ? How these problems can be solved ? 12½

3. Discuss the significance of political theory. 12½
4. Write an essay normative approach of political theory. 12½
5. Discuss on conservative approach in political theory. 12½
6. Critically explain the legislations for protection of Women's Rights. 12½
7. Write an essay on Post Modernism. 12½
8. Critically examine the theory of democracy in India. 12½
9. Explain the methods of Minority Representation. 12½

V-301-1.1

**2018**

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1
which is compulsory

1. Answer any *four* of the following : 7½ × 4
 - a) Discuss the scope of Political Theory.
 - b) Explain General characteristics of politics.
 - c) Discuss Historical approach of Political theory.
 - d) Examine Anarchist view of Political theory.
 - e) Discuss important features of Feminism.
 - f) What is Postmodernism ? Explain.
 - g) Elaborate conditions necessary for democracy.
 - h) Explain Types of Electoral system.
2. Critically analyse Marxian view of political theory. 12½

V-301

[Turn Over

3. Describe the methods of determination of Age of the Earth. 9
4. Briefly describe the geological work of wind. 9
5. Give a detail account of drainage basin Analysis. 9
6. Briefly describe the various methods of weathering. 9
7. Briefly describe the topographic features formed by Volcanoes. 9
8. Briefly describe the Geological Time scale. 9
9. What are the causes of Glaciation ? How past glaciations are recognised. 9

2018

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1 which is compulsory

1. Write notes on any *four* of the following : 6 × 4
 - a) Solar system
 - b) Nebular Hypothesis
 - c) Prediction of Earthquake
 - d) Types of Volcanoes
 - e) Drainage pattern
 - f) Erosional Landforms formed by Ocean.
 - g) Quarternary Landforms in India.
 - h) Evidences of sea level changes.
2. Give a detail account of the Internal structure of the Earth. 9

3. Describe the Lamarckism with suitable examples. 9
4. Define biological Anthropology and discuss the history of Physical Anthropology. 9
5. Discuss the classification and characteristics of human evolution. 9
6. Discuss the comparative behaviour of human and non-human Primates. 9
7. Briefly discuss the classification of Hooton. 9
8. Discuss the structure and functions of an animal cell. 9
9. Describe the Principles in human genetics ? 9

V-308-0.2

**2018**

Full Marks - 60

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *five* questions including Q.No.1 which is compulsory

1. Write notes on any *four* of the following : 6 × 4
 - a) Biological Anthropology
 - b) Human Variation
 - c) Mutation
 - d) Human evolution
 - e) Race
 - f) UNESCO
 - g) Anaphase
 - h) Meiosis Phase-II.
2. Discuss the History and development of the theory of evolution. 9

V-308

[Turn Over

2. a) Discuss briefly the scope of Public Administration. 10
- b) Examine the evolution of Public Administration as a discipline in brief. 10

OR

Public and private Administration are "The two species of the same genus, but they have special values and techniques of their own which give to each its distinctive character. Explain. 20

3. What is Good governance ? Critically examine the indicators of Good governance. 20

OR

Discuss the major themes of New public administration and make an evaluation of the same. 20

4. Critically examine Maslow's theory of motivation based on humanistic psychology.

OR

Analyze the provision of Right to Information Act, 2005. Examine its attempt as security transparency in administration. 20

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. Answer any *ten* of the following : 2 × 10
- POSDCORB
 - Participative decision making
 - Minnowbrook conference
 - Good governance and political stability
 - Information technology and new public management
 - Need for selfesteem
 - Official secrets Act
 - Composition of Central Vigilance Commission
 - Public Accountability
 - Downsizing policy
 - Qualifications of PIO (Public Information Officer)
 - Principles of Administration.

- ଞ) ସୀତା କାହାକୁ ସ୍ମରଣ କରି ବିଳାପ କରୁଥିଲେ ?
 ଟ) ସମର ସଜା ସମୟରେ କିଏ ଦେଙ୍କାନାଳର ରାଜା ଥିଲେ ?
 ଠ) ସଦାନନ୍ଦ କବି ସୂର୍ଯ୍ୟ ବ୍ରହ୍ମାଙ୍କ ରଚିତ ଦୁଇଟି ଗ୍ରନ୍ଥର ନାମ ଲେଖ ?

୨. ଅସାର ସଂସାରର ସାରତତ୍ତ୍ୱ ପ୍ରକାଶରେ ଭକ୍ତ ଚରଣଙ୍କ କୃତିତ୍ୱ ପ୍ରଦର୍ଶନ କର । ୨୦

ଅଥବା

ମାତୃ ହୃଦୟର ମାର୍ମିକ ଅଭିବ୍ୟକ୍ତି 'ଧୀରେ ଘେନ କାନନରେ' କବିତାରେ କିପରି ପ୍ରକାଶିତ ହୋଇଛି ଆଲୋଚନା କର ।

୩. 'ସୁତି ଚିନ୍ତାମଣି'ର ପଞ୍ଚଦଶ ବୋଲିର ଭାବି ବିଶ୍ଳେଷଣ କର । ୨୦

ଅଥବା

ପଠିତ କବିତା ଅନୁସରଣରେ ସାଲବେଗଙ୍କର ଭକ୍ତି ଭାବନା ପ୍ରକାଶ କର ।

୪. ବ୍ରଜନାଥ ବଡ଼ଜେନାଙ୍କ ସମରସଜାର ଚିତ୍ର ପ୍ରଦାନ କର । ୨୦

ଅଥବା

'ଶ୍ରୀକୃଷ୍ଣଙ୍କ ଗୋଷ୍ଠ ବାହୁଡ଼ା' କବିତା ଆଧାରରେ କବିଙ୍କ ବର୍ଣ୍ଣନା ଚତୁଲତା ପ୍ରଦର୍ଶନ କର ।

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

୧. ଯେ କୌଣସି ଦଶଟିର ସଂକ୍ଷିପ୍ତ ଉତ୍ତର ଲେଖ : ୨×୧୦

- କ) ଝଗଡ଼ା ସାରି କୃଷ୍ଣ କେଉଁଠି ରହିଲେ ?
 ଖ) ଘଟ ଛୁଟିଲେ ତୋତେ କ'ଣ ବୋଲିବେ ?
 ଗ) କାହା ଗଣ୍ଡରେ ମକର କୁଣ୍ଡଳ ଆନ୍ଦୋଳନ କରେ ?
 ଘ) କୃଷ୍ଣ କାହାର ପାଟି ଚିରି ପକାଇଥିଲେ ?
 ଙ) ଘୃତ ଘଟକୁ ଶିଖା ପାଖରେ ରଖିଲେ କ'ଣ ହେବ ?
 ଚ) ଗୋପାଳକୃଷ୍ଣ ମୁଖରେ କ'ଣ ବୋଲି ଜୀବ ବରଜିବାକୁ ଚାହିଁଛନ୍ତି ?
 ଛ) ମୋ ଜୀବନ ପଛେ ନକେଁ ପଡ଼ିଥାଉ ଜଗତ ଉଦ୍ଧାର ହେଉ - ଏ କଥା କିଏ କହିଛନ୍ତି ?
 ଜ) ଶ୍ରୀ ପୁରୁଷୋତ୍ତମରେ ରହଣି କରି କ'ଣ ଖାଇବା ପାଇଁ କବି ମନ ବଳାଇଛନ୍ତି ?
 ଝ) ବୃନ୍ଦାବତୀ ଦାସୀଙ୍କ ରଚିତ ଗ୍ରନ୍ଥର ନାମ କ'ଣ ?

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. कबीर अथवा विद्यापति की काव्यगत विशेषताओं की समीक्षा कीजिए । 20

अथवा

क) कविर की गुरुदेव विषयक साखियों का सार लिखिए। 10

ख) विद्यापति का अनुसरण करके वसंत ऋतु का वर्णन कीजिए। 10

2. सूरदास रचित भ्रमरगीत के भावों का आकलन कीजिए । 20

अथवा

क) इस पद की व्याख्या कीजिए : 10

अधो, तुम हो अति बड़भागी

अपरस रहत सनेह तना तैं ता रस देहन दाना ।

ज्यों जल माँह तेलकी गागरी बूँद न ताको लागी ।

प्रीति नदी में पाँव न बोटो, दृष्टि न रूप परागी ।
सूरदास हम नारी मति भोरी, गुरु चींटी व्यों पागी ।

- ख) इस पद की व्याख्या कीजिए : 10
सुनु माता साखामृग नहि बल बुद्धि बिसाल ।
प्रभु प्रताप तें गरुड़ हि खाइ परम लघु प्याल ॥

3. बिहारी *अथवा* धनानन्द के काव्य की विलक्षणताओं की चर्चा कीजिए । 20

अथवा

- व्याख्या कीजिए : 10 × 2
क) मेरी भव बाधा हरौ राधा नागरि सोय ।
जा तन की झाई परै, स्याम हरित दुति होय ।
ख) अति सुधो सनह को मारग है जहाँ नैकु समानप बाँक नहीं ।
तहाँ सोचि चलौ तजि आपनपौ झिझकैं कपटी जे निसाँक नहीं ।

4. निम्न प्रश्नों में से किन्हीं दश के संक्षिप्त उत्तर दीजिए : 2×10
i) विद्यापति के श्रृंगारिक काव्य की दो विशेषताएँ ।
ii) शशिव्रता के रूप सौंदर्य का आकर्षण ।
iii) विरह की विशेषता ।

- iv) क्या अचंभा देखा कबीर ने ?
v) 'आए जोग सिखावन पांडेय' का अर्थ ।
vi) 'हरि हारिल की लकरी' कैसे ?
vii) आंखियाँ हरि दरसन को भूखी क्यों हैं ?
viii) तुम सटीखे संत प्रिय मोरे
धरऊँ देह नहिं आन निहोरे' – का भावार्थ ।
ix) तुलसी दास के नारीविषयक विचारों का सार ।
x) विहारी ने गागर में सागर कैसे भरा है ?
xi) क्या धनानंद का प्रेम इकतरफा है ?
xii) धाननंद का प्रेम मीन-प्रेम जैसा है ।

d) Find the Laurent's series expansion of $f(z) = \frac{3z-5}{z^2+5z-6}$. How many such expansions are there? Give the region of validity.

4. a) Find the residue at each of the isolated points in C of the function $f(z) = \frac{z}{z^3+3z+3}$ 10
- b) i) Using invariance property of the cross ratio find a mobius transformation of $f(z)$ which maps $\{0, 2, -2i, 4\}$ onto $\{-\frac{3}{4}, \frac{11i}{4}, \infty\}$ 5 + 5
- ii) Prove that composition of two Motion transformations is a mobius transformation.

OR

c) If $f(z)$ is analytic in a domain D except for isolated singularities at a_1, a_2, \dots, a_n then prove that for any closed contour in D in which name of the pairss

$$a_k, \text{ lie } \int_{\gamma} f(z) dz = 2\pi i \sum_{k=1}^n n(\gamma, a_k) \text{Res}[f(z), a_k] \quad 10$$

d) Evaluate the integral $\int_{-\infty}^{\infty} \frac{x^2 - x + 2}{x^4 + 10x + 9} dx$ 10

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks
Answer **all** questions

1. Answer any **ten** of the following : 2 × 10

- a) Let $z = -\sqrt{3} - i$. Find * arg z
- b) If w be the nth root of unity then find the value of $1 + 2w + \dots + nw^{n-1}$
- c) Show that $\lim_{z \rightarrow 0} \frac{\text{Re } z^2}{|z|^2}$ does not exist
- d) Prove that $f(z) = \alpha z + \frac{1}{\alpha z}$ is univariant in $\{z \mid |z| > |\alpha|^{-1}, \alpha \neq 0\}$
- e) Prove that $f(z) = \text{Re } z$ is nowhere differentiable.
- f) Let $f(z)$ is analytic in a domain D. If $f'(z) = 0$ in D then prove that $f(z)$ is constant.
- g) Find the radius of convergence of $\sum_{n=0}^{\infty} \left(\frac{z^n}{n!} + \frac{n^4}{z^n} \right)$

[2]

h) Determine and classify the singner points of

$$f(z) = \frac{z}{e^z - 1}$$

i) Determine the points where the mapping $f(z) = \cos z$ is conformal.

j) Prove that the transformation $w = \bar{z}$ is not a mobius transformation.

k) State Rouche's theorem.

l) Let $f(z) = (z \sin z)^{-1}$. Find residue of $f(z)$ at pole.

2. a) i) Test the convergence of $n^3 3^n (z+i)^{-n}$ 10

ii) Give the goemetric description of the set $S = \{z / 0 < \text{Re}(iz) \leq 1\}$

b) Test the continuity of the function $f(z)$ at $z = 0$

$$f(z) = \begin{cases} \frac{(\text{Re } z)(\text{Im } z)}{|z|^2}, & z \neq 0 \\ 0 & , z = 0 \end{cases} \quad 10$$

OR

[3]

c) Prove that a function $f(z)$ is continuous at a point $z \in D$ if and only if $f(z_0) = \lim_{n \rightarrow \infty} f(z_n)$ for every sequence $\{z_n\}$ such that $z_n \in D$ for $n = 1, 2, \dots$ and $z_n \rightarrow z_0$ as $n \rightarrow \infty$. 10

d) Show that $f(z) = z^2$ is not uniformly continuous on C . 10

3. a) Let $f(z) = x^2 + iy^2$. Does it satisfy the C – R equation at the origin ? 10
Is $f(z)$ differentiable at the origin ?
Is $f(z)$ is analytic at the origin ?

b) Using Cauchy's integral formula evaluate 10

$$\int_{|z|=2} \frac{z^n}{z-3} dz$$

OR

c) Let $f(z) = u + iv$ be analytic and 10
 $u(x, y) = uxy - x^3 + 3xy^2$. Find the harmonic conjugate of $u(x, y)$ in C and write $f(z)$ as a function of z .

The applicable rate of income-tax to the company is 35%. The opportunity cost of capital of the company is 10%. You are required to calculate the following : 20

- a) Pay back period.
 - b) Discounted payback period.
 - c) Net present value.
 - d) Internal Rate of Return.
3. a) Discuss the problems in determination of cost of capital. 10
- b) Calculate the weighted average cost of capital (before tax and after tax) from the following information : Assume that the income-tax rate is 35%. 10

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. Answer any *ten* of the following : 2 × 10
- a) What do you mean by Mutually Exclusive Investments ?
 - b) What do you mean by cut-off rate ?
 - c) Which are the two main categories in which we divide the evaluation criteria of capital budgeting decisions ?
 - d) What is the Acceptance Rule when NPV method is used for selecting a capital expenditure project ?

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01

Year	Cash Inflows before tax (Rs)	P.V.factor at 10%	P.V.factor at 13%	P.V. factor at 15%
1	1,80,000	0.909	0.885	0.870
2	2,20,000	0.826	0.783	0.756
3	1,90,000	0.751	0.693	0.658
4	1,70,000	0.683	0.613	0.572
5	1,40,000	0.621	0.543	0.497

[6]

- iii) By issuing preference shares at Rs. 10 carrying dividend rate of 16%.
- iv) By issuing debt of Rs. 1,00,000 at the rate of 14% and remaining by way of equity share issued at Rs.10 per share.

Find which of the above capital structure is best if the EBIT of the company is likely to be Rs. 60,000 and the company is in the tax bracket of 30%. 10

4. Briefly explain the factors that influence the planning of capital structure in practice. 20

OR

Give a critical appraisal of the traditional approach and the Modigliani-Millers approach to the problem of capital structure. 20

V-276-1



[5]

Type of Capital	Proportion of the capital structure	Before - tax Cost of Capital
Equity Capital :	25%	24.44%
Preference Capital :	10%	27.29%
Debt Capital :	50%	7.99%
Retained Earnings :	15%	18.33%

OR

- c) Explain how Financial leverage magnifies the revenue available for equity shareholders. 10
- d) A limited company has equity capital of Rs. 3,00,000 divided into shares of Rs. 10 each in its present capital structure. The company intends to raise another Rs. 2,00,000 by way of any of the following ways :
- i) By Debt of Rs. 2,00,000 @ 14%.
- ii) By equity shares issued at a price of Rs. 10 each.

V-276

[Turn Over

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. Answer any *ten* of the following. 2 × 10
- a) What are the periods of life span development ?
 - b) What is normative influence with example.
 - c) Define critical period with example.
 - d) What is Oedipus complex ?
 - e) Write basic belief of Erikson's psychosocial theory.
 - f) Write meaning and types of conservation.
 - g) Define ADHD with one significant symptom.
 - h) Define premenstrual syndrome.
 - i) What is male climacteric ?
 - j) Write the meaning of erectile dysfunction.

[2]

- k) What is functional age ?
 - l) What is aging brain ?
 - 2. a) Explain Erikson's NeoFreudian theory in context to human development. 10
 - b) Describe Watson's classical conditioning approach to human development. 10
- OR
- c) Analyse freudian Psychosexual stages of personality development.
 - d) Show your acquaintance with Bandura's social cognitive theory as an important perspective of human development. 10+10
3. a) Explain significant development of period of embryo and period of fetus. 10

OR

- b) Describe ADHD with its symptoms causes and treatment in a development disorder. 10

OR

[3]

- c) Describe environmental hazards of post-natal stages of human development. 10
 - d) Explain significant aspects of concrete and formal operational stages of cognitive development. 10
4. a) Analyse physical development in adolescents. 10
- b) Discuss midlife crises with research evidence. 10

OR

- c) Describe adulthood as beginning of a family. 10
- d) Discuss problems during old age. 10

V-272-0.5

□□

3. a) Derive Euler-Lagrange's equation by expanding the integral of 14

$J(\alpha) = \int_{x_1}^{x_2} f[y(x, \alpha), y_x(x, \alpha), x] dx$ in powers of α

- b) Using variational principle show that the shortest distance between two points in a plane is a straight line 6

OR

- c) State and explain the principle of least action. 10
- d) What do you mean by Noether's theorem and basing on this discuss the conservation of linear momentum and angular momentum for a system of particles. 10
4. Derive the Lorentz transformation equations taking the four-vectors into consideration. 20

OR

Obtain expression for Lagrangian for a charged relativistic particle in an electromagnetic field. 20

2018

Full Marks - 80

Time - 3 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. Answer any *ten* of the following : 2 × 10
- a) Show that real hermitian matrix is symmetric.
- b) Show that a product of unitary matrices is unitary.
- c) What do you mean by a unitary similarity transformation of a matrix ?
- d) Write a unitary matrix U which diagonalizes $H = \begin{pmatrix} 2 & i \\ -i & 2 \end{pmatrix}$ by a similarity transformation.
- e) Define geodesics on a plane.
- f) Write down the two different forms of Euler-Lagrange's equation.

[2]

- g) Find the 1st integral of the Euler equation to make stationary the integral $I = \int \frac{\sqrt{1+y'^2}}{\sqrt{y}} dx$
- h) Discuss brachistochrone problem.
- i) Under what condition the Lorentz transformations are reduced to the classical Galilean transformation.
- j) Write down the transformation equations for the components of four-momentum.
- k) Show that four-force and four-velocity are mutually orthogonal.
- l) Write down the equation of continuity in co-variant form.
2. a) Find the eigen value and eigen vectors of the matrix A 10

$$A = \begin{pmatrix} 3 & 5 & 3 \\ 0 & 4 & 6 \\ 0 & 0 & 1 \end{pmatrix}$$

[3]

b) If $A = \begin{pmatrix} 3 & 1 & -1 \\ 2 & 2 & -1 \\ 2 & 2 & 0 \end{pmatrix}$ Show that 10

$$2A^5 + 4A^4 - 6A^3 + A^2 - 3A - 3I = 137A^2 - 331A + 189I$$

by using Cayley- Hamilton theorem.

OR

- c) i) Show that a matrix which transforms one set of Linearly independent vectors into another set of Linearly independent vectors in the same vector space must be a non-singular matrix. 5
- ii) Obtain most general orthogonal matrix of order 2. 5
- d) i) If H_1 is hermitian and H_2 is antihermitian. Show that both $H_1 + iH_2$ $H_1 - iH_2$ are hermitian. 5
- ii) If a matrix A is triangular on well on hermitian. Show that A is diagonal. 5

4. Explain the various types of customers and loans against deposits provided by banks. 12½
5. What do you mean by financial system ? What are the constituents of financial system ? 12½

V-250-0.5

**2018**

Full Marks - 40

Time - 2 Hours

The figures in the right-hand margin indicate marks

Answer *three* questions including Q.No.1 which is compulsory

1. Write notes on any *two* of the following : 7½ × 2
- Write a note on e-banking.
 - Describe about various types of bank accounts
 - Transaction through ATM.
 - Micro finance.
2. What is banking system ? Describe the basic principles of banking. 12½
3. Discuss the recent trends in the Indian banking system. 12½

2. Answer any *two* of the following : $12\frac{1}{2} \times 2$

- a) How many types of storage are normally there in the storage unit of a computer system ? Justify the need for each storage type.
- b) Why computer system is called as data processor ? Describe different types of computers with suitable examples.
- c) What is Operating System ? Explain different types of Operating system with their merits and demerits. Give examples of each.
- d) Write short notes on the following :
 - i) Find Vs. Replace
 - ii) Copy-Paste Vs. Cut-Paste
 - iii) Save Vs. Save-as
 - iv) Headers Vs. Footers.

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Full Marks - 40

Time - 2 Hours

The figures in the right-hand margin indicate marks

Answer *all* questions

1. Answer any *two* of the following : $7\frac{1}{2} \times 2$

- a) Draw a block diagram to illustrate the basic organization of a computer system and explain the functions of the various units.
- b) Write short notes on the following :
 - i) Notepad
 - ii) Accessories of Windows
 - iii) Mail Merge.
- c) Describe different devices of computer with example.
- d) Write short notes on the following :
 - i) Word processor terminologies
 - ii) Window Operating System
 - iii) Application Vs. System Software.