

This question paper contains 4+2 printed, pages]

R—380—2014

FACULTIES OF ARTS/SCIENCE/COMMERCE/

SOCIAL SCIENCES/FINE ARTS

B.A./B.Sc./B.Com./B.S.W./B.F.A. (First Year)

(First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

HINDI (Second Language)

(साहित्य भारती)

(MCQ + Theory)

(Thursday, 27-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—40

N.B. :- (i) सभी प्रश्न अनिवार्य हैं ।

(ii) विभाग 'अ' में बहुपर्यायी प्रश्नों (MCQs) के लिए नकारात्मक अंक पद्धति लागू होगी ।

(iii) विभाग 'ब' में अंकों का विभाजन दाहिनी ओर किया गया है ।

P.T.O.

(MCQ)

1. निम्नलिखित बहुपर्यायी प्रश्नों (MCQs) के उत्तर दीजिए : 10

(1) 'Mortgage' शब्द का हिंदी रूप क्या है ?

(a) दायित्व

(b) निवेश

(c) गिरवी

(d) जनित्र

(2) मैथिलीशरण गुप्त के मतानुसार देशभर की दृष्टि किस पर लगी है ?

(a) नवयुवक

(b) वृद्ध

(c) बच्चे

(d) नारी

(3) मनसाराम को माहवार कितना वेतन मिलता है ?

(a) बीस

(b) चौबीस

(c) पच्चीस

(d) छब्बीस

(4) 'Ballot' शब्द का हिंदी रूप क्या है ?

(a) मतदान पत्र

(b) परिचय पत्र

(c) पारपत्र

(d) शपथ पत्र

(5) प्रेमचंद की पहली रचना कौनसे पत्र में छपी ?

(a) माधुरी

(b) हंस

(c) जागरण

(d) जमाना

(6) 'भारत दुर्दशा' नाटक के नाटककार कौन हैं ?

(a) भीष्म साहनी

(b) जयशंकर प्रसाद

(c) मोहन राकेश

(d) भारतेन्दु हरिश्चंद्र

(7) 'तमस' उपन्यास के उपन्यासकार कौन हैं ?

(a) यशपाल

(b) भीष्म साहनी

(c) अज्ञेय

(d) अमरकांत

(8) क्यों काँप रहे प्रासाद धवल की हुँकारों से ?

(a) जमीनदारों

(b) साहूकारों

(c) पूँजीपतियों

(d) भिखमंगों

(9) देविंदरलाल किस कहानी का पात्र है ?

(a) सच बोलने की भूल

(b) शरणदाता

(c) एष धर्म : सनातन

(d) त्रिबेनी

(10) अज्ञेय को कौनसे काव्यसंग्रह के लिए साहित्य अकादमी पुरस्कार मिला है ?

(a) कितनी नावों में कितनी बार

(b) बावरा अहेरी

(c) आँगन के पार द्वार

(d) हरी घास पर क्षणभर

(Theory)

2. ससंदर्भ व्याख्या कीजिए :

5

‘हे नवयुवकों ! देश भर की दृष्टि तुम पर ही लगी है मनुज जीवन की तुम्हीं में ज्योति सबसे जगमगी’

अथवा

‘आह ! सँभलकर ! आहट न करो । गर्दन ऐसे दबा देना कि आवाज न निकले । चीख न पड़े । छुरा ताक में है ।’

3. ‘नये जमाने की मुकरी’ कविता का आशय स्पष्ट कीजिए ।

10

अथवा

‘जुही की कली’ यह श्रृंगारिक कविता है । स्पष्ट कीजिए ।

4. 'शरणदाता' कहानी में देश विभाजन की समस्या को चित्रित किया गया है । स्पष्ट कीजिए । 10

अथवा

'नशा' कहानी की कथावस्तु पर प्रकाश डालिए ।

5. टिप्पणी लिखिए : 5

'जागरण' में व्यक्त क्रांति की भावना ।

अथवा

'त्रिबेनी' का चरित्र-चित्रण ।

This question paper contains 8 printed pages]

AD—260—2014

FACULTIES OF ARTS/SCIENCE

B.A./B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

MATHEMATICS

Paper I

(Differential Calculus)

(MCQ + Theory)

(Saturday, 29-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—40

N.B. :- (i) Attempt All questions.

(ii) Figures to the right indicate full marks.

(iii) First 30 minutes for Q. No. 1 (MCQ) and 2 hours for Theory.

(iv) Negative marking system for MCQ is applicable.

(v) Use black ball point pen to darken the circle of correct answer in OMR answer-sheet. Circle once darkened is final.

P.T.O.

(MCQ)

1. Choose the *correct* alternative for each of the following : 1 each

(i) The Hyperbolic sec function $\operatorname{sech} x$ is defined by :

(a) $\frac{e^x + e^{-x}}{2}$

(b) $\frac{e^x - e^{-x}}{2}$

(c) $\frac{2}{e^x - e^{-x}}$

(d) $\frac{2}{e^x + e^{-x}}$

(ii) If $y = \log (\sin x)$, then $y_3 =$

(a) $\frac{2 \cos x}{\sin^3 x}$

(b) $\frac{2 \sin x}{\cos^3 x}$

(c) $\frac{2 \cos x}{\sin^2 x}$

(d) $\frac{2 \sin x}{\cos^2 x}$

(iii) $\frac{d^n}{dx^n} \sin(5x + 3) =$

(a) $5^n \cos\left(5x + 3 + \frac{n\pi}{2}\right)$

(b) $5^n \sin\left(5x + 3 + \frac{n\pi}{2}\right)$

(c) $-5^n \cos\left(5x + 3 + \frac{n\pi}{2}\right)$

(d) $-5^n \sin\left(5x + 3 + \frac{n\pi}{2}\right)$

(iv) The equation of Normal at the Point 't' of the curve $x = f(t)$,
 $y = F(t)$ is :

(a) $[X - f(t)] F'(t) - [Y - F'(t)] f'(t) = 0$

(b) $[X - f(t)] F'(t) + [Y - F'(t)] f'(t) = 0$

(c) $[X - f(t)] f'(t) + [Y - F'(t)] F(t) = 0$

(d) $[X + f(t)] F'(t) + [Y - F'(t)] f'(t) = 0$

(v) If a function f is :

(i) continuous in a closed interval $[a, b]$ and

(ii) derivable in the open interval $]a, b[$,

then there exists at least one value $c \in]a, b[$ such that

$$\frac{f(b) - f(a)}{b - a} = f'(c).$$

This theorem is known as :

(a) Rolle's theorem

(b) Lagrange's mean value theorem

(c) Cauchy's mean value theorem

(d) Taylor's theorem

(vi) Rolle's theorem is applicable if the function is :

(a) Continuous in $[a, b]$

(b) Derivable in $]a, b[$

(c) $f(a) = f(b)$

(d) All of the above

(vii) $\lim_{x \rightarrow 0} \frac{a^x - b^x}{x}$ is equal to :

(a) 0

(b) ∞

(c) $\log(a/b)$

(d) $\log(a - b)$

(viii) $\lim_{h \rightarrow 0} \frac{f(a+h, b) - f(a, b)}{h}$ if it exists is called the partial derivative of f w.r.t. x at (a, b) and is denoted by :

(a) $f_x(a, b)$

(b) $f_y(a, b)$

(c) $f_{xy}(a, b)$

(d) $f_{yx}(a, b)$

(ix) If $z = \log(x^2 + y^2)$, then $\frac{\partial z}{\partial x} =$

(a) $\frac{2y}{(x^2 + y^2)}$

(b) $\frac{2x}{(x^2 + y^2)}$

(c) $\frac{1}{x^2 + y^2}$

(d) $\frac{-1}{x^2 + y^2}$

(x) If $x^x y^y z^z = c$, then $\frac{\partial z}{\partial x} =$

(a) $\frac{-(1 + \log y)}{(1 + \log z)}$

(b) $\frac{-(1 + \log x)}{(1 + \log z)}$

(c) $\frac{(1 + \log y)}{(1 + \log z)}$

(d) $\frac{(1 + \log x)}{(1 + \log z)}$

(Theory)

2. Attempt any *two* of the following : 5 each

- (a) Prove that :

$$\frac{d^n}{dx^n} (ax + b)^m = \frac{m!}{(m-n)!} a^n (ax + b)^{m-n}$$

where m is a positive integer.

- (b) If u and v be two functions of x possessing derivatives of the n th order, then prove that :

$$\begin{aligned} (uv)_n &= u_n v + {}^n c_1 u_{n-1} v_1 + {}^n c_2 u_{n-2} v_2 + \dots \\ &+ \dots + {}^n c_r u_{n-r} v_r + \dots + {}^n c_n u v_n. \end{aligned}$$

- (c) Show that in the case of the curve :

$$\beta y^2 = (x + \alpha)^3,$$

the square of the subtangent varies at the subnormal.

3. Attempt any *two* of the following : 5 each

- (a) If two functions $f(x)$ and $F(x)$ are derivable in closed interval $[a, b]$ and $F'(x) \neq 0$ for any value of x in $[a, b]$, then prove that there exists at least one value 'c' of x belonging to the open interval $]a, b[$ such that :

$$\frac{f(b) - f(a)}{F(b) - F(a)} = \frac{f'(c)}{F'(c)}$$

(b) If

$$f(x) = (x - 1)(x - 2)(x - 3), x \in [0, 4],$$

find c .

(c) Find :

$$\lim_{x \rightarrow 0} \left(\frac{\tan x}{x} \right)^{1/x}.$$

4. Attempt any *two* of the following :

5 each

(a) If $z = f(x, y)$ is a homogeneous function of x, y of degree n ,

then prove that :

$$x^2 \frac{\partial^2 z}{\partial x^2} + 2xy \frac{\partial^2 z}{\partial x \partial y} + y^2 \frac{\partial^2 z}{\partial y^2} = n(n-1)z.$$

(b) If

$$u = x^2 \tan^{-1} \frac{y}{x} - y^2 \tan^{-1} \frac{x}{y}, \quad xy \neq 0,$$

prove that :

$$\frac{\partial^2 u}{\partial x \partial y} = \frac{x^2 - y^2}{x^2 + y^2}.$$

(c) If

$$u = \cot^{-1} \frac{x+y}{\sqrt{x} + \sqrt{y}},$$

show that :

$$x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} + \frac{1}{4} \sin 2u = 0.$$

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AD—262—2014

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

MATHEMATICS

Paper II

(Algebra and Trigonometry)

(MCQ + Theory)

(Monday, 1-12-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2½ Hours

Maximum Marks—40

N.B. :— (i) All questions are compulsory and carry equal marks.

(ii) First 30 minutes for Q. No. 1 and remaining time for other questions.

(iii) Figures to the right indicate full marks.

(iv) Use black point pen to darken the circle on OMR sheet for Q. No. 1.

(v) Negative marking system is applicable for Question No. 1 (MCQ).

P.T.O.

(MCQ)

1. Choose the *correct* alternative for each of the following : 1 each

(i) Two matrices A and B are conformable for multiplication as AB

if :

(A) No. of rows of A = No. of columns of B

(B) No. of rows of A = No. of rows of B

(C) No. of columns of A = No. of rows of B

(D) No. of columns of A = No. of columns of B

(ii) A square matrix A is called nilpotent if there exists a positive

integer m such that :

(A) $A^m = I^m$

(B) $A = I^m$

(C) $A^m = 0$

(D) $A^m = I$

(iii) If \bar{A} and \bar{B} denote the conjugate of A and B, then which of the following is *incorrect* ?

(A) $\overline{(\bar{A})} = A$

(B) $\overline{(A + B)} = \bar{A} + \bar{B}$, if A and B are conformable for addition

(C) $\overline{(AB)} = \bar{B} \cdot \bar{A}$

(D) $\overline{(A^n)} = (\bar{A})^n$

(iv) The determinant of an orthogonal matrix is :

(A) 1

(B) 0

(C) -1

(D) both (A) and (C)

(v) If I_3 denote the identity matrix of order three, then its rank is :

(A) 3

(B) 2

(C) 1

(D) 0

(vi) If matrices B and C are the inverse matrices of matrix A, then :

- (A) $A = C$
- (B) $B = C$
- (C) $A = B$
- (D) All of the above

(vii) For the system $AX = B$ of m linear equations in n unknowns, which of the following is true ?

- (A) $\rho(A) > \rho([A : B])$
- (B) $\rho(A) \leq \rho([A : B])$
- (C) $\rho(A) \geq \rho([A : B])$
- (D) $\rho(A) < \rho([A : B])$

(viii) Modulus of the complex quantity $-1 - \sqrt{-3}$ is :

- (A) 2
- (B) 4
- (C) 0
- (D) 3

(ix) If $x = \cos \theta + i \sin \theta$, then $x + \frac{1}{x} = \dots\dots\dots$

(A) $\cos \theta - i \sin \theta$

(B) $2 \cos \theta$

(C) $2i \sin \theta$

(D) $\cos 2\theta$

(x) For all values of x , real or complex, $\cos x = \dots\dots\dots$

(A) e^{xi}

(B) e^{-xi}

(C) $\frac{e^{xi} + e^{-xi}}{2}$

(D) $\frac{e^{xi} - e^{-xi}}{2i}$

(Theory)

2. Attempt any *two* of the following :

5 each

(A) If A, B, C are three matrices of type $m \times n$, $n \times p$, $n \times p$ respectively,

then prove that :

$$A(B + C) = AB + AC.$$

P.T.O.

(B) Define inverse of a matrix and prove that inverse of a square matrix, if it exists is unique.

(C) Calculate the adjoint of A, where

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 1 & -1 & 2 \\ -2 & 1 & 1 \end{bmatrix}$$

3. Attempt any *two* of the following :

5 each

(A) Prove that the elementary operations do not alter the rank of a matrix.

(B) If X_1 is a solution of $AX = B$ and X_2 is any solution of the associated system $AX = 0$, then prove that $X_1 + X_2$ is a solution of $AX = B$. Also if Y is a solution of $AX = B$, then prove that $Y - X_2$ is a solution of $AX = 0$.

(C) Reduce to a row reduced echelon form the matrix

$$A = \begin{bmatrix} 0 & 1 & 3 & -1 & 3 & 1 \\ 0 & 1 & 3 & 0 & 2 & 3 \\ 0 & 2 & 6 & 1 & 3 & 9 \\ 0 & 4 & 12 & -2 & 10 & 7 \end{bmatrix}$$

and find $\rho(A)$.

4. Attempt any *two* of the following : 5 each

(A) Prove that for any positive and negative integers

$$(\cos \theta + i \sin \theta)^n = \cos n\theta + i \sin n\theta.$$

(B) Expand $\cos^8 \theta$ in a series of cosines or multiples of θ .

(C) If $\sin \alpha + \sin \beta + \sin \gamma = \cos \alpha + \cos \beta + \cos \gamma = 0$, then prove that :

$$\cos 3\alpha + \cos 3\beta + \cos 3\gamma = 3 \cos(\alpha + \beta + \gamma)$$

$$\text{and } \sin 3\alpha + \sin 3\beta + \sin 3\gamma = 3 \sin(\alpha + \beta + \gamma).$$

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AD—263—2014

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

CHEMISTRY

Paper I

(Organic and Inorganic Chemistry)

(MCQ + Theory)

(Tuesday, 2-12-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—40

N.B. :— (i) Attempt All questions.

(ii) All questions carry equal marks.

*(iii) Use separate answer-sheet (OMR sheet) for MCQ
No. 1.*

(MCQ)

1. Select the *correct* answer for each of the following multiple choice questions :

(i) The IUPAC name of $\text{CH}_3\text{CH}_2\text{OCH}_3$ is :

(a) Ethyl methylether

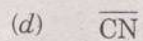
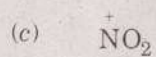
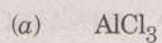
(b) Methoxyethane

(c) Ethoxymethane

(d) Methoxypropane

P.T.O.

(ii) Which of the following is nucleophile ?



(iii) Unsymmetrical bond fission is called as :

(a) Heterolysis

(b) Homolysis

(c) Photolysis

(d) Pyrolysis

(iv) Baeyer's strain theory explains

(a) Relative stability of alkanes

(b) Preparation of cycloalkanes

(c) Relative stability of cycloalkanes

(d) Structure of alkanes

- (v) Ethyne can be prepared from
- (a) Iodoform
 - (b) Calcium carbide
 - (c) Both (a) and (b)
 - (d) None of the above
- (vi) *Cis*-hydroxylation of ethene to give ethylene glycol is carried out using :
- (a) alk. KMnO_4
 - (b) Na_2CO_3
 - (c) HIO_4
 - (d) LiAlH_4
- (vii) Hydrolysis of oils or fats gives
- (a) Glycol
 - (b) Glycerol
 - (c) Ethanol
 - (d) Formaldehyde

- (viii) With increase in atomic number in a period, there is :
- (a) increase in electropositive character
 - (b) decrease in electropositive character
 - (c) increase in chemical activity
 - (d) none of the above
- (ix) The amount of energy released when an electron is added to neutral gaseous atom is called as :
- (a) Ionization energy
 - (b) Electronegativity
 - (c) Electron affinity
 - (d) Lattice energy
- (x) The number of lone pairs and bonded pairs present in XeF_2 respectively are :
- (a) 2, 3
 - (b) 3, 2
 - (c) 2, 2
 - (d) 3, 4

(Theory)**Section A****(Organic Chemistry)**

2. Answer any *two* of the following :

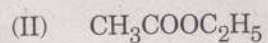
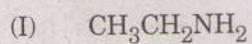
- (a) Explain the classification of organic compounds on the basis of functional group.
- (b) Define carbocation. Explain the structure and shape of carbocation. Give any *two* methods for the formation of carbocation.
- (c) What are alkanes ? How are alkanes prepared by :
- (i) Kolbe's synthesis
- (ii) Corey-House synthesis.
- (d) What is peroxide effect ? Explain free radical addition of HBr to propene with mechanism.

P.T.O.

3. Answer any *two* of the following :

- (a) What are alcohols ? How are they classified ?
- (b) Explain resonance and molecular orbital structure of 1, 3-butadiene.
- (c) Define the term 'substrate'. Explain types of organic reactions with suitable example.

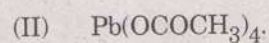
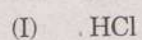
(d) (i) Give IUPAC names of the following :



(III)



(ii) What is the action of the following on ethylene glycol ?



Section B**(Inorganic Chemistry)**

4. Answer any *two* of the following :

- (a) Write the general characteristics of *f*-block elements.
- (b) Define electron affinity. Explain the factors affecting on it. Give its periodic trends.
- (c) (i) How will you explain the role of electronegativity in bond length ?
(ii) Explain the formation of Clathrate compounds by noble gases.
- (d) Write the electronic configuration of noble gases. Explain the structure of XeF_6 .

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R-389-2014

FACULTIES OF ARTS, COMMERCE AND SCIENCE

B.A., B.Com., B.Sc. (First Year) (First Semester)

EXAMINATION

NOVEMBER/DECEMBER, 2014

ENGLISH (Compulsory)

(MCQ + Theory)

(Friday, 28-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2½ Hours

Maximum Marks—40

N.B. :— (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

(MCQ)

1. (1) Give the synonym of 'ignorant'.
- (a) Intelligent
 - (b) Unintelligent
 - (c) Clever
 - (d) Cheerless

P.T.O.

- (2) The synonym of is 'reality'.
- (a) Fact
 - (b) Show
 - (c) Appearance
 - (d) False
- (3) Choose the antonym for 'violence'
- (a) Destruction
 - (b) Indignant
 - (c) Furious
 - (d) Piece
- (4) Choose an antonym for 'obvious'
- (a) Definite
 - (b) Apparent
 - (c) Vague
 - (d) Clear
- (5) A good scientist will be impartial Mr. Smith,
a tape-worm and the solar system.
- (a) Between
 - (b) Among
 - (c) Amidst
 - (d) Around

- (6) When I was at college, I leave the plains early in May.
- (a) Should
 - (b) Would
 - (c) Will
 - (d) May
- (7) What is the 'mother of evil and of all the misery' ?
- (a) Physical help
 - (b) Man's nature
 - (c) Ignorance
 - (d) Both (a) and (b)
- (8) A.G. Gardiner says that 'please' and 'thank you' are
- (a) Part of moral duty
 - (b) Old customs to follow
 - (c) Both (a) and (b)
 - (d) Like small change with which we pay our way as social being

- (9) Subroto Bagchi's mother was a
- (a) Government servant
 - (b) Land owner
 - (c) Local worker in Odisha
 - (d) Business person
- (10) Ruskin Bond received the Sahitya Academy award for his book
- (a) The Night Train at Deoli
 - (b) Midnight Children
 - (c) Our Trees Still Grow in Dehra
 - (d) The Room on the Roof

(Theory)

2. Explain with reference to the context any *one* of the following :

4

- (i) Bad manners probably do more to poison the stream of the general life than all the crimes in the calendar.

(ii) Our approach to the problem of disease is even less rational.

3. How does the story 'Father's Help' shed light on the psychology of a school going child ? 8

Or

Comment on the moral of 'Go Kiss the World'.

4. Write short answers of the following questions (any two) : 8
- (i) Sketch the character of Subroto Bagchi's mother.
- (ii) What is the moral of the story 'Karma' ?
- (iii) How does the bus conductor influence the author ?
- (iv) What are the types of help described by Swami Vivekananda ?
5. (A) Write a report on the 'Annual Gathering' celebrated in your college. 5

Or

Write an E-mail to congratulate the friend on his/her getting the first prize in debating competition.

- (B) Write a letter to the editor of the local newspaper highlighting the power cuts in your locality. 5

Or

Write an application for the post of a Junior Lecturer in English. Apply to the Principal, St. Xaviour Junior College, Pune.

This question paper contains 4+1 printed pages]

R—381—2014

FACULTY OF ARTS/COMMERCE/SCIENCE

B.A./B.Com./B.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

MARATHI (Second Language)

(साहित्यगाथा भाग-1)

(Theory + MCQ)

(Thursday, 27-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2½ Hours

Maximum Marks—40

N.B.:— (i) सर्व प्रश्न सोडविणे अनिवार्य आहे.

(ii) सर्व प्रश्नांना समान गुण आहेत.

(MCQ)

खालील वस्तुनिष्ठ प्रश्न सोडवा :

10

1. 'रुंभणेयाचा दृष्टांत'.....यांना पैठण येथे सांगितलेला दृष्टांत होय.

(अ) महदाईसा

(ब) लखूबाईसा

(क) म्हाईभट

(ड) नागदेवाचार्य

P.T.O.

2. आरुच्या ग्रंथालयातील ग्रंथ म्हणजे जणू काय तिची लहान लहान.....
.....होती.

(अ) बछडेच

(ब) पाडसच

(क) बाळेच

(ड) छावेच

3. दलित माणसांचे दुःख प्रत्ययकारी रीतीने.....या कथेतून
चित्रित झाले आहे.

(अ) लॉटरी

(ब) आरु

(क) कमाई

(ड) एकटा जीव

4. 'लॉटरी' या कथेतून.....बोलीचा उत्कट प्रत्यय येतो.

(अ) वन्हाडी

(ब) खानदेशी

(क) कोंकणी

(ड) मराठवाडी

5. जनता कला पथकाच्या कार्यक्रमात गाणी म्हणताना दादा कोंडके कधीही
.....कडे बघायचे नाहीत.
- (अ) नटीकडे
(ब) वादकाकडे
(क) दिग्दर्शकाकडे
(ड) प्रेक्षकांकडे
6. जातीपातीचे भेद नाकारून गुरुकृपेची महती.....या रचनेतून
अभिव्यक्त झाली आहे.
- (अ) डोईचा पदर आला खांद्यावरी
(ब) कुत्रे
(क) हा धन्य जोतिबा झाला
(ड) वेदाआधी तू होतास
7. महाराष्ट्र हा ज्ञानेशाचा
महाराष्ट्र तो तुकयाचा
.....हा लोकांचा
- (अ) शिवबा
(ब) विनोबा
(क) जोतिबा
(ड) गाडगेबाबा

8. ग्रामीण जीवनाच्या दाहक वास्तवाची अभिव्यक्ती.....यांच्या
लेखनातून दिसून येते.
- (अ) बाबूराव बागूल
- (ब) फ.मु. शिंदे
- (क) संतोष पवार
- (ड) विठ्ठल रामजी शिंदे
9. परिभाषा ही नेमकेपणाने.....व्यक्त करते.
- (अ) अनेकार्थता
- (ब) द्विअर्थता
- (क) एकार्थता
- (ड) लक्षार्थता
10. Editor म्हणजे.....होय.
- (अ) संपादक
- (ब) पत्रकार
- (क) लेखक
- (ड) प्रकाशक

(Theory)

2. खालीलपैकी कोणताही एक प्रश्न सोडवा : 10

- (i) 'शेतकऱ्यांचे शोषण' या लेखातून अशिक्षित भोळ्याभावड्या शेतकऱ्यांचे होणारे शोषण महात्मा जोतिबा फुले यांनी कसे स्पष्ट केले आहे ?
- (ii) 'सर, देश म्हणजे काय हो ?' या लेखातून विद्यार्थी आपल्या शिक्षकाला कोणकोणते प्रश्न विचारतो ? ते विशद करा.

3. खालीलपैकी कोणताही एक प्रश्न सोडवा : 10

- (i) 'डोईचा पदर आला खांद्यावरी' या अभंगातून विठ्ठलभेटीची आस प्रतीत झाली आहे.' साधार स्पष्ट करा.
- (ii) नवविवाहितेच्या आगमनाने आणि कष्टाने झालेला आनंद 'लक्षुमी' या कवितेतून कसा व्यक्त होतो. ते सांगा.

4. खालीलपैकी कोणताही एक प्रश्न सोडवा : 10

- (i) बातमी म्हणजे काय, ते सांगून बातमीची मूल्ये विशद करा.
- (ii) मानवी व्यक्तिमत्त्वाला आकार देण्यात भाषेचे अनन्यसाधारण महत्त्व आहे.' या विधानाचा परामर्श घ्या.

This question paper contains 3 printed pages]

AH—06—2014

FACULTY OF SCIENCE

B.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

(Revised Course)

COMPUTER SCIENCE

(Communication Skills—I)

(Thursday, 13-11-2014)

Time : 10.00 a.m. to 1.00 p.m.

Time—Three Hours

Maximum Marks—80

N.B. :—(i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

1. Write short notes on the following : 20
- (a) Body language
 - (b) Written communication
 - (c) Features of American English
 - (d) Presentation skills.

P.T.O.

2. In what sense Indian English differs from British English ? 15

Or

'Non-verbal communication plays an important role in oral communication.' Explain.

3. Discuss the characteristic features of language in detail. 15

Or

Discuss the basic skills of communication.

4. Discuss the barriers of communication in detail. 15

Or

Differentiate between Seminar and Conference.

5. (a) Transcribe any *ten* of the following words phonemically : 10

(i) Tag

(ii) Writing

(iii) Books

(iv) Focus

(v) Teach

(vi) English

(vii) Skill

(viii) Way

(ix) Grammar

(x) Speak

(xi) Manner

(xii) Some.

(b) Transcribe any *two* of the following sentences marking stress,
tone groups and intonation : 5

(i) This house is nice.

(ii) Why are you joining SBI ?

(iii) 'He is clever, isn't he ?

This question paper contains 3 printed pages]

AH—38—2014

FACULTY OF COMPUTER STUDIES

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

(Revised Course)

COMPUTER SCIENCE

(DBMS)

(Thursday, 20-11-2014) Time : 10.00 a.m. to 1.00 p.m.

Time—Three Hours

Maximum Marks—80

N.B.:—(i) All questions are compulsory.

(ii) Figures to right indicate full marks.

(iii) All questions carry equal marks.

1. Attempt the following : 20

(a) Explain Projection.

(b) Explain Null Values.

(c) Explain BCNF.

(d) Explain General Constraints.

P.T.O.

2. (a) Explain normalization forms in DBMS. 8
- (b) Explain forms of basic SQL query. 7
- Or*
- (a) Explain outer join with example. 8
- (b) Explain conversion of ER to relational model. 7
3. (a) Explain logical connection in DBMS. 8
- (b) Explain ER model in detail. 7
- Or*
- (a) Explain Entities Vs. Relationship in detail. 8
- (b) Explain structure of DBMS. 7
4. (a) Explain data models in DBMS. 8
- (b) Explain set comparison operators in DBMS. 7
- Or*
- (a) Explain group by and having clause with example. 8
- (b) Explain strings in SQL with example. 7

5. Write notes on any *three* :

15

- (a) People who deal in DBMS;
- (b) Tree;
- (c) Union;
- (d) Referential integrity;
- (e) Weak entities.

This question paper contains 3 printed pages]

AH—49—2014

FACULTY OF COMPUTER STUDIES

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

(Revised Course)

COMPUTER SCIENCE

(Web Page Designing)

(Saturday, 22-11-2014)

Time : 10.00 a.m. to 1.00 p.m.

Time—Three Hours

Maximum Marks—80

N.B. :— (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Assume suitable data, if necessary.

1. Attempt the following : 20

(a) Explain variable.

(b) Explain rules of HTML.

(c) Explain web browser.

(d) Explain colspan.

P.T.O.

2. (a) Explain web design process in detail. 8
- (b) Explain looping statement in VB script. 7

Or

- (a) Explain structure of HTML. 8
- (b) Explain list tag in detail. 7
3. (a) Explain DOM in detail. 8
- (b) Explain image map in detail. 7

Or

- (a) Explain table tag with their attributes. 8
- (b) Explain ramification of DHTML. 7
4. (a) Write HTML code to display the following output : 8

Name	Age	Class	Marks		
			S1	S2	S3

- (b) Explain paragraph tag with their attributes. 7

Or

- (a) Explain array in detail. 8
- (b) Explain operators in JavaScript. 7
5. Write short notes on (any *three*) : 15
- (a) Web site
- (b) URL
- (c) Hyperlink
- (d) Body tag
- (e) W.W.W.

This question paper contains 3 printed pages]

AH—27—2014

FACULTY OF COMPUTER STUDIES

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

(Revised Course)

COMPUTER SCIENCE

Paper CS S1.3

(Introduction to Programming in C)

(Tuesday, 18-11-2014) Time : 10.00 a.m. to 1.00 p.m.

Time—Three Hours

Maximum Marks—80

N.B.:—(i) All questions are compulsory.

(ii) Negative marking system is not applicable.

(iii) Draw a well labelled diagram if necessary.

1. Attempt the following : 20

(a) Compiler and interpreter;

(b) Structure of a 'C' program;

(c) Simple IF statement;

(d) Union.

P.T.O.

2. (a) What is flowchart ? Explain in detail with suitable example. 8

(b) Explain data types in detail. 7

Or

(c) Explain While and Do-while loop with an example. 8

(d) Write a program in 'C' to enter no. and find out the factorial of a given no. 7

3. (a) Explain formatted input and output statements in detail. 8

(b) What is function ? Explain standard library functions in detail. 7

Or

(c) What is an Array ? Explain two dimensional array with suitable example. 8

(d) Write a program to enter any 10 elements and display in ascending order. 7

4. (a) What is pointer ? Explain pointer arithmetic in detail. 8

(b) Write a program in 'C' to open a "Emp.dat" file in real mode. 7

Or

- (c) What is structure ? Explain passing structure to functions in detail. 8
- (d) Explain conditional compilation in detail. 7
5. Attempt the following (any three) : 15
- (i) Command line argument;
 - (ii) For loop;
 - (iii) Operators;
 - (iv) Pointer to pointer;
 - (v) Recursion.

This question paper contains 3 printed pages]

AH—16—2014

FACULTY OF COMPUTER STUDIES

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

(Revised Course)

COMPUTER SCIENCE

(Fundamental of I.T.)

(Saturday, 15-11-2014)

Time : 10.00 a.m. to 1.00 p.m.

Time—Three Hours

Maximum Marks—80

N.B. :— (i) All questions are compulsory.

(ii) Draw a labelled diagram to each question if necessary.

(iii) Negative marking system is not applicable.

1. Attempt the following :

20

(a) Explain classification of computer in brief.

(b) Octal number system

(c) DVD

(d) Configuration of DOS.

P.T.O.

2. (a) Explain impact and non-impact printers in detail. 8
- (b) Define flow chart and explain properties and principles of flow-charting. 7

Or

- (c) Explain in detail high level and low level languages. 8
- (d) Explain any *two* input devices in detail. 7
3. (a) What is microprocessor ? Explain family of μ p. 8
- (b) What is physical communication ? Explain the types of communication. 7

Or

- (c) What is memory ? Explain types of memory in detail. 8
- (d) Explain CDROM and HDD storages devices in detail. 7
4. (a) What is DOS ? Explain internal and external commands of DOS. 8
- (b) What is Windows O.S. ? Explain the types of files and folders. 7

Or

- (c) What are files and directory ? Explain types of files. 8
- (d) Explain Booting procedure of DOS. 7

5. Write short notes on any *three* :

15

(a) BIT, BYTE, WORD

(b) OMR

(c) Flowchart and symbols

(d) Compiler

(e) Cache memory.

This question paper contains 4+1 printed pages]

AD—228—2014

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

MICROBIOLOGY

Paper I

(Introductory Microbiology)

(MCQ + Theory)

(Tuesday, 25-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—40

N.B. :— (i) Attempt MCQs on OMR answer-sheet separately.

(ii) Attempt Theory questions on answer-book.

(iii) Attempt All questions.

(MCQ)

1. Multiple choice questions : 10

(i) is the study of living organisms of Microscopic size.

(a) Bacteriology

(b) Microbiology

(c) Mycology

(d) Phycology

P.T.O.

(ii) are very small non-cellular parasites.

(a) Bacteria

(b) Fungi

(c) Viruses

(d) Algae

(iii) Penicillin antibiotic is produced by

(a) Viruses

(b) Fungi

(c) Algae

(d) Protozoa

(iv) Pasteur suggested that heating could be used to kill
..... types of microbes growing in "ferments".

(a) Undesirable

(b) Desirable

(c) Semidesirable

(d) All of the above

- (v) Small, Pox vaccine was introduced by
- (a) Louis Pasteur
 - (b) Robert Koch
 - (c) Edward Jenner
 - (d) Joseph Lister
- (vi) Koch tried as the first solidifying agent and succeeded in developing solid culture media.
- (a) Gelatin
 - (b) Agar-Agar powder
 - (c) Complex polysaccharide
 - (d) None of the above
- (vii) Which of the following are *not* Fungi ?
- (a) Mushroom
 - (b) Mould
 - (c) Yeast
 - (d) Actinomycetes

(viii) In prokaryotic cell, type ribosome is present.

(a) 80s

(b) 16s

(c) 70s

(d) 50s

(ix) All organisms except are classified by Binomial nomenclature.

(a) Plant

(b) Bacteria

(c) Fungi

(d) Viruses

(x) The Phylogenic approach to Taxonomy is based on

(a) mRNA

(b) tRNA

(c) 16sRNA

(d) None of the above

(Theory)

2. Describe in detail General characteristics of fungi. 10

Or

- (a) Discuss the role of micro-organisms in industries. 5
- (b) Write a note on importance of Micro-organisms in human and animal health. 5
3. Explain in detail Pasteur's contribution in the field of microbiology. 10

Or

Write notes on :

- (a) Koch's postulates 5
- (b) Aseptic surgery. 5
4. Discuss in detail the difference between prokaryotic cell and eukaryotic cell. 10

Or

Write notes on :

- (a) Numerical classification 5
- (b) Plasmodium. 5

This question paper contains 4+2 printed pages]

AD—234—2014

FACULTY OF SCIENCE

B.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

MICROBIOLOGY

Paper II

(Microbiological Techniques)

(MCQ + Theory)

(Wednesday, 26-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—40

N.B. :— (i) Attempt MCQs on OMR sheet separately.

(ii) Attempt theory questions on answer book.

(MCQ)

Multiple choice questions :

10

1. fluorochrome fluoresces yellow when illuminated with ultraviolet light.

- (a) Auramine-O
- (b) Crystal violet
- (c) Basic fuchsin
- (d) Safranine

P.T.O.

2. Numerical aperture of objective is equal to

(a) $\frac{n \sin \theta}{w}$

(b) $n \sin \frac{\theta}{2}$

(c) $\frac{1}{n \sin \theta}$

(d) $n \cdot \sin \theta$

3. Metachromatic granules are polymer of

(a) Glucose

(b) Phosphate

(c) Aminoacids

(d) Nucleotides

4. Counter stain used in Gram's staining is

(a) Crystal violet

(b) Methylene blue

(c) Safranine

(d) Congo red

5. Blood is sterilized by method.
- (a) Autoclaving
 - (b) Hot air oven
 - (c) Filtration
 - (d) None of the above
6. Sugar media are sterilized at pounds pressure for minutes.
- (a) 10, 40
 - (b) 15, 40
 - (c) 10, 20
 - (d) 15, 20
7. A culture which contains only one species of organism is called as culture.
- (a) Mixed
 - (b) Pure
 - (c) Continuous
 - (d) Batch

8. A medium, whose exact chemical composition is known, is called as medium.

- (a) Selective
- (b) Differential
- (c) Transport
- (d) Synthetic

9. is a natural medium.

- (a) Milk
- (b) Blood
- (c) Both (a) and (b)
- (d) Sugar

10. Discontinuous heating process of sterilization is called as

- (a) Pasteurization
- (b) Tyndallization
- (c) Inceneration
- (d) Autoclaving

(Theory)

2. Describe the principle, ray diagram, working and applications of fluorescence microscope. 10

Or

Write short notes on :

- (a) Principle and working of dark field microscope 5
- (b) Principle and working of colorimeter. 5
3. Describe principle, mechanism, procedure and observation of negative staining. 10

Or

Write short notes on :

- (a) Definition and functions of mordants 5
- (b) Principle of chances method of cell wall staining. 5

4. Take a detailed account of sterilization by filtration. 10

Or

Write short notes on :

- (a) Streak plate method 5
- (b) Enrichment media. 5

This question paper contains 4+2 printed pages]

AD—259—2014

FACULTY OF SCIENCE

B.Sc. (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

BOTANY

Paper I

(Diversity of Microbes)

(MCQ + Theory)

(Saturday, 29-11-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—40

N.B. :- (i) Attempt all questions.

(ii) All questions carry equal marks.

(iii) Use separate answer-sheet for MCQ (OMR-sheet) and descriptive questions.

(iv) Time allotted to MCQ is 30 minutes and to descriptive questions is 2.00 hours.

(v) Draw a well labelled diagrams wherever necessary.

P.T.O.

(MCQ)

Choose the *correct* answers of the following questions :

1. The virus which kills the bacteria is called as

 - (a) Bacteriophage
 - (b) Plant virus
 - (c) Animal virus
 - (d) Insect virus

2. Ivanowsky was a botanist.

 - (a) Japanese
 - (b) Russian
 - (c) German
 - (d) French

3. Mycoplasma is also called as

 - (a) Virus particle
 - (b) PPLO
 - (c) Bacteriophage
 - (d) None of the above

4. Sexual reproduction observed in
- (a) Cyanobacteria
 - (b) E.coli
 - (c) Cocci
 - (d) Rhizobium
5. In Bacteria respiratory enzymes are present in
- (a) Cell wall
 - (b) Cytoplasm
 - (c) Plasma membrane
 - (d) Slime layer
6. Coenocytic mycelium is found in
- (a) Puccinia
 - (b) Albugo
 - (c) Eriotium
 - (d) Alternaria

7. The conidia of Eurotium are arranged
- (a) Acropetally
 - (b) Basipetally
 - (c) Irregularly
 - (d) In peripheral manner
8. In the life-cycle of Puccinia mycelium is present.
- (a) Monokaryotic
 - (b) Dikaryotic
 - (c) Both (a) and (b)
 - (d) None of the above
9. The algal partner in lichen is called as
- (a) Lycobiont
 - (b) Phycobiont
 - (c) Mycobiont
 - (d) None of the above

10. In Ascolichen fungus belongs to

- (a) Phycomycetes
- (b) Ascomycetes
- (c) Deuteromycetes
- (d) Basidiomycetes

(Theory)

2. Describe general characters, classification of viruses and add a note on its transmission.

Or

Write in brief :

- (a) Economic importance of viruses
- (b) Little leaf of Brinjal.

3. Describe the mode of Reproduction in bacteria. Add a note on its role in Agriculture.

Or

Write in short :

- (a) Ultrastructure of Bacterial cell
- (b) Heterotrophic bacteria.

4. Describe the structure of Mycelium and asexual reproduction in Eurotium.

Or

Describe in brief :

- (a) Role of Fungi in industries
- (b) Forms of lichen with examples.

This question paper contains 4+2 printed pages]

AD—261—2014

FACULTY OF SCIENCE

B.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2014

BOTANY

Paper II

(Cell and Molecular Biology)

(MCQ + Theory)

(Monday, 1-12-2014) Time : 10.00 a.m. to 12.30 p.m.

Time—2.30 Hours

Maximum Marks—30+10=40

N.B. :- (i) Attempt all questions.

(ii) All questions carry equal marks.

(iii) Use separate answer-sheet for MCQs (OMR-sheet) and descriptive questions.

(iv) Time allotted to MCQ is 30 minutes and to Descriptive questions are 2.00 hours.

(v) Draw well labelled diagrams, wherever necessary.

P.T.O.

(MCQ)

1. Choose the *correct* answer of the following questions : 10

(i) Nucleus was firstly discovered by :

- (a) Robert Cuvier
- (b) Robert Virchow
- (c) Robert Brown
- (d) Robert Hook

(ii) Ribosomes plays important role in
synthesis.

- (a) Protein
- (b) Fat
- (c) Lipid
- (d) Carbohydrate

(iii) Chromosome with only one arm is called as :

- (a) Telocentric
- (b) Acrocentric
- (c) Submetacentric
- (d) Metacentric

(iv) Bouquet formation is found in :

(a) Leptotene

(b) Zygotene

(c) Pachytene

(d) Diakinesis

(v) The Lampbrush chromosome was first discovered by :

(a) Robert Brown

(b) Ruckert

(c) E.G. Balbiani

(d) W. Waldeyer

(vi) Guanine is a :

(a) Sugar

(b) Phosphoric acid

(c) Nitrogen base

(d) All of the above

(vii) Semiconservative method of DNA replication was reported

by :

- (a) Meselson and Stahl
- (b) Watson and Crick
- (c) Beadle and Tatum
- (d) Nirenberg

(viii) One turn of DNA helix measures :

- (a) 0.34Å
- (b) 34Å
- (c) 3.4Å
- (d) 20Å

(ix) The term gene is coined by :

- (a) Kornberg
- (b) Darwin
- (c) Khorana
- (d) Johannson

(x) The urine of affected person becomes black when it is exposed to air, this is the symptoms of :

- (a) Albinism
- (b) Amniocentesis
- (c) Phenylketonuria
- (d) Alkaptonuria

(Theory)

2. Describe the ultrastructure and functions of Golgi complex. 10

Or

Describe in brief :

- (a) Ultrastructure of prokaryotic cell. 5
- (b) Gene mutations. 5

3. What is Meiosis ? Describe in detail Prophase I of Meiosis. 10

Or

Describe in brief :

- (a) Polytene chromosome 5
- (b) Amniocentesis. 5

P.T.O.

4. Describe in detail the structure of DNA. 10

Or

Describe in brief :

(a) tRNA 5

(b) Sickle cell anemia. 5