C 4748 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Mathematics

MT 2C 06—ALGEBRA—II

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer **all** *questions.*
Each question carries 1 *weightage.*

1. Show that a commutative ring with unity is a field iff it has no proper non-trivial ideals.
2. Show that $\sqrt{1+\sqrt{3}}$ is algebraic over Q.
3. Show that doubling the cube is impossible.
4. What is the order of $G\left(Q\left(\sqrt[3]{2}\right)/Q\right)$?
5. Prove that if E is an algebraic extension of a perfect field F, then E is perfect.
6. Show that the Galois group of the p^{th} cyclotomic extension of Q for a prime p is cyclic of order $p-1$.
7. Show that the regular 18-gon is not constructible.
8. Show that the polynomial x^5-1 is solvable by radicals over Q.

(8 × 1 = 8 weightage)

Turn over

Part B

Answer any **two** *questions from each of the following* 3 *units.*
Each question carries 2 *weightage.*

Unit I

9. Let E be a simple extension $F(\alpha)$ of a field F, and let α be algebraic over F. Let the degr
(α, F) be $n \geq 1$. Show that every element β of $E = F(\alpha)$ can be uniquely expressed in th
$\beta = b_0 + b_1 \alpha + ... + b_{n-1} \alpha^{n-1}$, where the b_i are in F.

10. Show that $Q\left(2^{1/2}, 2^{1/3}\right) = Q\left(2^{1/6}\right)$.

11. Show that a field F is algebraically closed iff every non-constant polynomial in $F[x]$ fac
$F[x]$ into linear factors.

Unit II

12. Find all the primitive 18^{th} roots of unity in $GF(19)$.

13. Let F be a finite field of characteristic p. Show that the map $\sigma_p : F \to F$ defined by $\sigma_p(a) = a$
$a \in F$ is an automorphism.

14. Show that if K is a finite extension of E and E is a finite extension of F, then K is separable o
iff K is separable over E and E is separable over F.

Unit III

15. State the Main Theorem of Galois Theory.

16. Find $\phi_{12}(x)$ *in* $Q[x]$.

17. Let F be a field of characteristic zero and F contains all the n^{th} roots of unity. Show that if K is
splitting field of $x^n - a$ over F for some $a \in F$, then $G(K|F)$ is a soluble group.

$(6 \times 2 = 12$ weight

Part C

Answer any **two** *questions.*
Each question carries 5 weightage.

8. (a) Let F be a field. Show that an ideal $< p(x) > \neq \{0\}$ of $F[x]$ is maximal iff $p(x)$ is irreducible over F.

(b) Show that $\frac{z_5[x]}{< x^3 + 3x + 2 >}$ is a field.

9. (a) Show that if E is finite extension field of a field F, and K is a finite extension field of E, then K is a finite extension of F, and $[K:F] = [K:E][E:F]$.

(b) Show that if E is a finite extension of F, then $\{E:F\}$ divides $[E:F]$.

10. State and prove the theorem of the conjugation isomorphisms.

11. Let K be the splitting field of $x^4 + 1$ over Q :

(i) Describe the group $G(K|Q)$; and

(ii) Give the group and field diagrams for K over Q.

(2 × 5 = 10 weightage)

C 4749 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Mathematics

MT 2C 07—REAL ANALYSIS—II

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer **all** *questions.*
Each question carries a weightage of 1.

1. Let A be the set of irrational numbers in the interval [0, 1], Prove that $m^*(A) = 1$.
2. Prove that a monotone function that is defined on an interval is a measurable function.
3. If $\{f_k\}_{k=1}^{n}$ is a finite family of measurable functions with common domain E, then prove that the functions max $\{f_1 ..., f_n\}$ and min $\{f_1, ..., f_n\}$ are also measurable.
4. Let f and g be bounded measurable functions on a set of finite measure E. If $f \leq g$ on E, then prove that $\int_E f \leq \int_E g$.
5. Let E be a set of finite measure and let $\delta > 0$ be given. Prove that E is the disjoint union of a finite collection of sets, each of which has measure less than δ.
6. If $\{f_n\} \to f$ in measure on E, then prove that there is a subsequence $\{f_{n_k}\}$ that converges pointwise a.e. on E to f.

Turn over

7. Find the upper and lower derivatives of f at $x = 0$ for the function $f(x) = |x|$, for all numbers x.

8. Give an example of a Cauchy sequence of real numbers that is not rapidly Cauchy.

($8 \times 1 = 8$ weightage)

Part B

Answer any **six** *questions by choosing* **two** *questions from each unit.*
Each question carries a weightage of 2.

Unit I

9. Show that every interval is a Borel set.

10. Show that the Cantor set is an uncountable set of measure zero.

11. Let $\{f_n\}$ be a sequence of measurable functions on E that converges point wise a.e. on E to function f. Prove that f is measurable.

Unit II

12. Show that the function f defined on $[0, 1]$ by $f(x) = 1$ if x is rational and $f(x) = 0$ if x is irrational not Riemann integrable over $[0, 1]$, but it is Lebesgue integrable over $[0, 1]$.

13. State and prove the Monotone Convergence theorem.

14. Let E have finite measure, $\{f_n\} \to f$ in measure on E and g is a measurable function on E that finite a.e. on E. Prove that $\{f_n \cdot g\} \to f \cdot g$ in measure.

Unit III

15. Let f and g be real-valued functions on (a, b). Show that, on (a, b),

$$\underline{D}f + \underline{D}g \leq \underline{D}(f + g) \leq \bar{D}(f + g) \leq \bar{D}f + \bar{D}g.$$

16. State and prove Jensen's Inequality.

17. Let E be a measurable set and $1 \leq p \leq \infty$. If the functions f and g belong to $L^p(E)$, then prove that their sum $f + g$ also belong to $L^p(E)$. Also prove that

$$\|f + g\|_p \leq \|f\|_p + \|g\|_p.$$

($6 \times 2 = 12$ weightage)

Part C

Answer any **two** *questions.*
Each question carries a weightage of 5.

18. Define the outer measure $m^*(A)$ of a set $A \subset \mathbb{R}$ and give an example. Prove that the outer measure of an interval is its length.

19. (a) State and prove Egoroff's theorem.

(b) Let f be a bounded function on a set of finite measure E. Prove that f is Lebesgue integrable over E if and only if it is measurable.

20. (a) Let E have measure zero. Show that if f is a bounded function on E, then f is measurable and $\int_E f = 0$.

(b) Let E be of finite measure. Suppose the sequence of functions $\{f_n\}$ is uniformly integrable over E. If $\{f_n\} \to f$ pointwise a.e. on E, then prove that f is integrable over E and $\lim_{n \to \infty} \int_E f_n = \int_E f$.

21. (a) If the function f is monotone on the open interval (a, b), then prove that it is differentiable almost everywhere on (a, b).

(b) Prove that a function f defined on a closed, bounded interval $[a, b]$ is absolutely continuous on $[a, b]$ if and only if it is an indefinite integral over $[a, b]$.

(2 × 5 = 10 weightage)

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C 4751 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Mathematics

MT 2C 09—ODE AND CALCULUS OF VARIATIONS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer **all** *questions.*
Each question carries 1 *weightage.*

1. Show that $x = 1$ is a regular singular point of the equation $x^2(x^2-1)^2 y'' - x(1-x)y' + 2y = 0$.

2. Show that $\cos x = \lim_{a \to \infty} F\left(a, a, \frac{1}{2}, \frac{-x^2}{4a^2}\right)$.

3. Use Rodrigue's formula to obtain $P_3(x) = \frac{1}{2}(5x^3 - 3x)$.

4. Show that $J_{-m}(x) = (-1)^m J_m(n)$ for any non-negative integer m.

5. Describe the phase portrait of the system :

   $\frac{dx}{dt} = x, \frac{dy}{dt} = 0$.

6. Show that (0, 0) is an asymptotically stable critical point for the system :

   $\frac{dx}{dt} = -3x^3 - y, \frac{dy}{dt} = x^5 - 2y^3$.

Turn over

7. Verify whether $f(x,y) = y^{1/2}$ satisfies a Lipschitz condition on the rectangle $|x| \leq 1$ and 0

8. Find the external for the integral $I = \int_{x_1}^{x_2} \left[y^2 - (y')^2 \right] dx$.

$(8 \times 1 = 8$ weig

Part B

Answer any **two** *questions from each of the following 3 units.*
Each question carries 2 weightage.

Unit I

9. Express $\sin^{-1}(x)$ in the form of a power series by solving the equation $y' = (1 - x^2)^{-1/2}$: $y(0)$ two ways.

10. Determine the nature of the point $x = \infty$ for Legendre's equation $(1-x^2)y'' - 2xy' + (p+1)y$ where p is a constant.

11. Let $f(x)$ be a function defined on the interval $-1 \leq x \leq 1$. Determine the polynomial p (degree x that minimizes the integral $I = \int_{-1}^{1} [f(x) - p(x)]^2 dx$.

Unit II

12. Show that between any two positive zeros $J_0(x)$ there is a zero of $J_1(x)$ and that between two positive zeros of $J_1(x)$ there is a zero of $J_0(x)$.

13. Determine the nature and stability properties of the critical point (0, 0) for the system :

$$\frac{dx}{dt} = -3x + 4y, \frac{dy}{dt} = -2x + 3y.$$

14. Show that (0, 0) is a simple critical point for the system $\frac{dx}{dt} = x + y - 2xy$, $\frac{dy}{dt} = -2x + y + 3y^2$ a determine its nature and stability properties.

Unit III

15. Consider the initial value problem $y' = 2x(1 + y)$, $y(0) = 0$, starting with $y_0(x) = 0$, apply Picar method to calculate $y_1(x), y_2(x), y_3(x)$.

16. Let $u(x)$ be any non-trivial solution of $u'' + q(x)u = 0$, where $q(x) > 0$ for all $x > 0$. Show that if $\int_1^\infty q(x)dx = \infty$, then $u(x)$ has infinitely many zeros on the positive x-axis.

17. A curve in the first quadrant joins (0, 0) and (1, 0) and has a given area beneath it. Show that the shortest such curve is an arc of a circle.

(6 × 2 = 12 weightage)

Part C

Answer any **two** *questions.*
Each question carries 5 weightage.

18. (a) Solve Legendre's equation $(1-x^2)y'' - 2xy' + p(p+1)y = 0$, where p is a constant.

(b) Show that equation $4x^2y'' - 8x^2y' + (4x^2+1)y = 0$ has only one Frobenius series solution and find it.

19. (a) Derive Rodrigue's formula for Legendre polynomials : $P_n(x) = \frac{1}{2^n \cdot n!} \frac{d^n}{dx^n}(x^2-1)^n$.

(b) Obtain $J_p(x)$, the Bessel function of first kind of order p.

20. (a) Find the general solution of the system :

$\frac{dx}{dt} = 4x - 2y, \frac{dy}{dt} = 5x + 2y$.

(b) Find the critical points and the differential equation of the paths of the system :

$\frac{dx}{dt} = y(x^2+1); \frac{dy}{dt} = 2xy^2$.

21. (a) Let $f(x,y)$ and $\frac{\partial f}{\partial y}$ be continuous functions of x and y on a closed rectangle R with sides parallel to the axes. If (x_0, y_0) is any interior point of R, then show that there exists a number $h > 0$ with the property that the initial value problem $y' = f(x,y), y(x_0) = y_0$ has one solution $y = y(x)$ on the interval $|x - x_0| \le h$.

(b) Show that if $y(x)$ is a non-trivial solution of $y'' + q(x)y = 0$, then $y(x)$ has an infinite number of positive zeros if $q(x) > \frac{k}{x^2}$ for some $k > \frac{1}{4}$.

(2 × 5 = 10 weightage)

'57 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Physics

PHY 2C 05—QUANTUM MECHANICS—I

(2019 Admissions)

: Three Hours Maximum : 30 Weightage

General Instructions

In cases where choices are provided, students can attend **all** *questions in each section.*

The minimum number of questions to be attended from the Section / Part shall remain the same.

There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.

Section A

8 *short questions answerable within* 7.5 *minutes.*
Answer **all** *questions.*
Each question carries weightage 1.

. Prove that an operator in a linear vector space can be represented by a square matrix.

. What is the quantum mechanical operator representing energy ?

. What are Hermitian operators ? Give their important properties.

. Briefly explain the features of interaction picture.

. Are the rigid rotator energy levels degenerate ? Explain.

. What are the admissibility conditions on a wavefunction ?

. Explain the principle of indistinguishability in quantum mechanics.

. Discuss the conservation law associated with space inversion symmetry.

(8 × 1 = 8 weightage)

Section B

4 *essay questions answerable within* 30 *minutes.*
Answer any **two** *questions.*
Each question carries weightage 5.

). Describe the Sequential Stern-Gerlach experiment and the conclusions which lead to the basics of quantum mechanics.

Turn over

10. Establish the Schrodinger equation for one dimensional harmonic oscillator and solve it t the energy eigen values and eigen functions. Also discuss the significances of zero-point e

11. Establish the addition of orbital angular momentum and spin angular momentum. A Clebsch-Gordan coefficients.

12. Discuss the importance of symmetry of the wavefunctions, taking the example of the grou of Helium atom.

(2 × 5 = 10 wei

Section C

7 problems answerable within 15 minutes.
Answer any **four** *questions.*
Each question carries weightage 3.

13. Show that $(\sigma \cdot A)(\sigma \cdot B) = A \cdot B + i\sigma \cdot (A \times B)$ where A and B are arbitrary vectors.

14. An electron has a speed of 500 m/s with an accuracy of 0.004%. Calculate the certainty wit we can locate the position of the electron.

15. For an electron in a one-dimensional infinite potential well of width 1Å, calculate (i) the sep between two energy levels (ii) the frequency and wavelength of the photon correspondi transition between these two levels (iii) in what region of the electromagnetic spectrum frequency wavelength ?

16. Evaluate the commutator (i) $\left[x, p_x^2\right]$; and (ii) $\left[xyz, p_x^2\right]$.

17. A beam of electrons is incident from left, normally, on a semi-infinite step potential 5.0 eV The incident electrons have kinetic energy E (when to the left of the step potential). Wha relative probability that any given electron will be reflected back by the step potential Wh 10.0 eV.

18. For the operators A, B and C show that [[A, B], C] + [[B, C], A] + [[C, A], B] = 0.

19. Prove that the spin matrices S_x matrix and S_y have $\pm\frac{\hbar}{2}$.

(4 × 3 = 12 weig

C 4760 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Physics

PHY 2C 08—COMPUTATIONAL PHYSICS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
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Section A

8 Short questions answerable within 7.5 minutes.
Answer **all** *questions.*
Each question carries 1 weightage.

1. Distinguish lists and tuples in Python.
2. What is pickling and unpickling in Python ?
3. List out the built-in data types in python programming.
4. Write a python program to plot a cosine wave from 0 to 2π.
5. Give the differences between interpolation and curve fitting.
6. Explain the two-point boundary value problem.
7. Write a program to create a NumPy array of five zeros of dimension 1.
8. What is Logistic map equation ?

(8 × 1 = 8 weightage)

Turn over

Section B

Essay questions answerable within 30 minutes.

Answer any **two** *questions.*

Each question carries 5 weightage.

9. Derive Newton's forward and backward difference interpolation formula.

10. Explain the least square curve fitting for an exponential function of the form, $y = Ae^{Bx}$.

11. Outline the Shooting method and Numerov's method in numerical analysis.

12. Explain the Euler method. Write a python program to obtain the trajectory of a simple harm motion using Euler method.

(2 × 5 = 10 weigh

Section C

7 problems answerable within 15 minutes.

Answer any **four** *questions.*

Each question carries 3 weightage.

13. Write a Python program to display all the prime numbers within the interval [10, 50].

14. Write a python code to calculate the Fourier coefficients of a square wave and to plot the wav

15. Using Lagrange's interpolation formula, find the form of the function $y = f(x)$ from the follow table :

X	y
0	−12
1	0
3	12
4	24

16. Using Trapezoidal rule, evaluate

$$I = \int_0^1 \frac{1}{1+x}\,dx$$

correct to three decimal places. (Assume $h = 0.5, 0.25$).

17. Approximate the area under the curve, $y = f(x)$, between $x = -4$ and $x = 8$ using Simpson's ru with $n = 6$ subintervals.

x	:	−4	−2	0	2	4	6	8
$f(x)$	:	1	3	4	4	6	9	14

18. Using the Runge-Kutta method of fourth order, evaluate the value of $y(0.1)$ correct to four decimal places for the function :

$$\frac{dy}{dx} = y - x ; x_0 = 0 ; y_0 = 2.$$

19. Write a python program to estimate the value of π using Monte Carlo simulation method.

(4 × 3 = 12 weightage)

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4712 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Chemistry

CHE 2C 05—GROUP THEORY AND CHEMICAL BONDING

(2019 Admissions)

me : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
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Section A

Answer any **eight** *questions.*
Each question carries a weightage of 1.

1. Assign Schoenflies symbol of point group :
   (a) Allene. (b) Dichloromethane.
2. Find the similarity transform of any one of the vertical planes in NH_3.
3. Generate matrices using positional co-ordinates x, y, z :
   (a) S_4. (b) C_3.
4. Distinguish between degenerate and non-degenerate representations with examples.
5. Explain with one example non-vanishing integral.
6. Cis butadiene belongs c_{2v} point group. Find the character under E in the gamma cart.
7. Write projection operator $\hat{P}_{Ag}$ for c_{2h}. The operations are E, c_{2z}, $\sigma_h x_y$ and i.
8. State and explain Born–Oppenheimer approximation.
9. Write spectroscopic term symbol of :
   (a) O_2. (b) N_2.
10. State and explain Laporte selection rules.

(8 × 1 = 8 weightage)

Turn over

Section B

Answer any **six** *questions.*
Each question carries a weightage of 2.

11. Explain the importance of block diagonalization in solving quantum mechanical proble group theory.
12. Derive C_3 character table.
13. Find IR and Raman active vibrations of H_2O (c_{2v}).
14. Find molecular orbitals of HCHO. Use c_{2v} character table.
15. Find bond energy of π – molecular orbitals of benzene by HMO method.
16. Discuss Frost Hückel mnemonic device for cyclic polymers.
17. Show that the four symmetry operations E, c_{2z}, $\sigma_h x_y$ and i form a mathematical group multiplication.
18. List the symmetry operations possible on D_{4h}. Classify them into different classes of opera

(6 × 2 = 12 weig

Section C

Answer any **two** *questions.*
Each question carries a weightage of 5.

19. Find hybridized orbitals of C in CH_4. Use Td character table.
20. Find $\pi(pi)$ molecular orbitals of *cis butadiene* by HMO method. Use c_{2v} character table.
21. Discuss V.B. method of bonding as applied to H_2.
22. (a) Setup group multiplication tables for c_{3v}.
    (b) State and explain rules for assigning Mulliken's symbol for symmetry species.

c_{2v}	E	c_{2z}	$\sigma_v x_z$	$\sigma' vyz$		
A_1	1	1	1	1	z	x^2, y^2, z^2
A_2	1	1	–1	–1	Rz	xy
B_1	1	–1	1	–1	x, Ry	xz
B_2	1	–1	–1	1	y, Rx	xyz

T_d	E	$8c_3$	$3c_2$	$6s_4$	$6\sigma_d$		
A_1	1	1	1	1	1		$x^2 + y^2 + z^2$
A_2	1	1	1	−1	−1		
E	2	−1	2	0	0		$(2z^2 - x^2 - y^2)$
T_1	3	0	−1	1	−1	(Rx, Ry,Rz)	
T_2	3	0	−1	−1	1	(x, y, z)	(xy, xz, yz)

(2 × 5 = 10 weightage)

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4713 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Chemistry

CHE 2C 06—CO-ORDINATION CHEMISTRY

(2019 Admissions)

me : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
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Section A

Answer any **eight** *questions.*

Each question carries a weight of 1.

1. Which is stabler ; EDTA complex of Mg^{2+} or Ca^{2+} ? Substantiate your answer.
2. The successive formation constants for the formation of $[CdBr_4]^{2-}$ in aqueous medium are : $K_1 = 36.2$, $K_2 = 3.47$, $K_3 = 1.15$, $K_4 = 2.34$. Explain why $K_4 > K_3$?
3. The nephelauxetic effect produced by CN-is greater than that of NH_3 ; why ?
4. Why tetrahedral complexes are always of high-spin ?
5. Differentiate between microstate and atomic state.
6. Arrive at the ground state term symbols for metal ions with the following electronic configuration :

   (a) $3d^5 4s^0$; (b) $3d^8 4s^0$.

Turn over

7. How infrared spectroscopy can be used to identify intermolecular and intramolecular h bonding in ligand systems ? Explain.

8. What information do you gather from chemical shift observed in NMR spectra of liga metal complexes ? Explain with suitable examples.

9. Explain aquation reaction in metal complexes with a suitable example.

10. Explain the mechanism and catalysts involved in photolysis of water in photosynthetic p

(8 × 1 = 8 we

Section B

Answer any **six** *questions.*
Each question carries a weight of 2.

11. Discuss the factors that affect the stability of metal complexes.

12. What is Jahn-Teller distortion ? Which of the following are expected to show this distortion ? Explain :

    (a) $[Cr(acac)_3]$.

    (b) $[Co(CN)_6]^{4-}$.

    (c) $[CuCl_6]^{4-}$.

13. Octahedral cobalt (II) complexes have higher magnetic moment values than tetra cobalt (II) complexes ; why ?

14. An iron (II) complex exhibits a Mössbauer peak at 98 K, while at 155 K it gives two peaks might be the reason for this temperature dependent behavior ?

15. Explain the factors that affect the rate of substitution reaction in metal complexes.

16. Write a note on metal complex sensitizers.

17. Sketch the different bonding modes of acetate group towards a metal ion. How infrared spectr can be used to identify these bonding modes ?

18. Differentiate between chelate effect and macrocyclic effect with suitable examples. Compar stabilities of $[Cu(en)_2(H_2O)_2]^{2+}$ and $[Cu(en)_3]^{2+}$ (en = ethylenediamine).

(6 × 2 = 12 weight

Section C

Answer any **two** *questions.*

Each question carries a weight of 5.

19. What is CFSE ? Discuss the consequences of crystal filed splitting on ionic radii, heat of hydration and lattice energy of bivalent 3d metal ions.

20. (a) Give an account of the ferromagnetism and antiferromagnetism exhibited by metal complexes.

(b) Describe the experimental details for finding out the magnetic moment value of a solid metal complex. What is the significance of Pascal's constants in this experiment ?

(2 + 3 = 5 weightage)

21. What is trans effect ? What are the important theories put forward to explain it ? Explain any *one* of its synthetic applications.

22. Discuss the mechanisms involved in outer-sphere and inner-sphere electron transfer reactions of metal complexes, bringing out the factors favouring these reactions.

[2 × 5 = 10 weightage]

; 4714 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Chemistry

CHE 2C 07—REACTION MECHANISM IN ORGANIC CHEMISTRY

(2019 Admissions)

me : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **eight** *questions.*
Each question carries a weightage of 1.

1. What are ambident nucleophiles ? Explain with examples.
2. In aromatic electrophilic substitution reactions, each hydrogen atom of donor-substituted aromatic compound should be substituted faster than a H atom in benzene and each hydrogen atom of acceptor-substituted aromatic compound should be substituted more slowly than a H atom in benzene. Explain.
3. Explain the mechanism of Hofmann elimination, highlighting the stereochemical relationship of the substrate and product.
4. Arrange the following in order of stability : CF_2, : CCl_2, : CBr_2 and CH_2. Justify.
5. Indicate the mechanism of Dieckmann condensation reaction. Comment on the synthetic utility of this reaction.
6. Predict the product in the CN^- catalyzed condensation of benzaldehyde and p-dimethylaminobenzaldehyde. Indicate mechanism involved.
7. Given the triplet energies of norbornene (70 - 78), benzophenone (70) and acetophenone (78), predict the products obtained when each of the ketone is irradiated with norbornene.

Turn over

8. Write down the mechanism of di-pi methane rearrangement.

9. Illustrate Paterno-Büchi reaction with a suitable example.

10. Cholesterol undergoes oxidation of side chain under various conditions. Give the structur major products formed in these reactions.

(8 × 1 = 8 wei

Section B

Answer any **six** *questions.*
Each question carries a weightage of 2.

11. Explain the SNAr and SRN1 mechanisms of aromatic nucleophilic substitution with a s examples.

12. Explain the ion-pair mechanism of nucleophilic aliphatic substitution. Comment stereochemical outcome in such reactions.

13. Substitution and elimination reactions are often competing reactions. Why ? What are the prec to be taken to get the desired products ?

14. Briefly discuss the main pathways of generation of carbanions. Comment on their structu stability.

15. Explain Mannich reaction with an appropriate example.

16. Predict whether the thermal ring closure of a compound with three conjugated pi-b conrotatory or disrotatory. Explain.

17. Explain the following terms : i) photosensitization ; ii) quenching ; and iii) photoenolizatic

18. Write a brief note on general structure and properties of anthocyanins.

(6 × 2 = 12 weig

Section C

Answer any **two** *questions.*
Each question carries a weightage of 5.

19. Discuss the mechanisms of electrophilic aromatic substitution with special reference to subs effect on reactivity and orientation in mono and disubstituted benzene rings.

20. Discuss the major acid and base catalyzed mechanisms of ester hydrolysis.

21. Give one example each of : i) thermally allowed cycloaddition reaction ; and ii) photochem allowed electrocyclic reaction. Justify the answer by FMO method.

22. Discuss the salient features of total synthesis of longifolene.

(2 × 5 = 10 weigl

4714 (Pages : 2) Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Chemistry

CHE 2C 07—REACTION MECHANISM IN ORGANIC CHEMISTRY

(2019 Admissions)

ne : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **eight** *questions.*
Each question carries a weightage of 1.

1. What are ambident nucleophiles ? Explain with examples.
2. In aromatic electrophilic substitution reactions, each hydrogen atom of donor-substituted aromatic compound should be substituted faster than a H atom in benzene and each hydrogen atom of acceptor-substituted aromatic compound should be substituted more slowly than a H atom in benzene. Explain.
3. Explain the mechanism of Hofmann elimination, highlighting the stereochemical relationship of the substrate and product.
4. Arrange the following in order of stability : CF_2, : CCl_2, : CBr_2 and CH_2. Justify.
5. Indicate the mechanism of Dieckmann condensation reaction. Comment on the synthetic utility of this reaction.
6. Predict the product in the CN^- catalyzed condensation of benzaldehyde and p-dimethylaminobenzaldehyde. Indicate mechanism involved.
7. Given the triplet energies of norbornene (70 - 78), benzophenone (70) and acetophenone (78), predict the products obtained when each of the ketone is irradiated with norbornene.

Turn over

8. Write down the mechanism of di-pi methane rearrangement.

9. Illustrate Paterno-Büchi reaction with a suitable example.

10. Cholesterol undergoes oxidation of side chain under various conditions. Give the structure major products formed in these reactions.

(8 × 1 = 8 weig

Section B

Answer any **six** *questions.*
Each question carries a weightage of 2.

11. Explain the SNAr and SRN1 mechanisms of aromatic nucleophilic substitution with a s examples.

12. Explain the ion-pair mechanism of nucleophilic aliphatic substitution. Comment o stereochemical outcome in such reactions.

13. Substitution and elimination reactions are often competing reactions. Why ? What are the preca to be taken to get the desired products ?

14. Briefly discuss the main pathways of generation of carbanions. Comment on their structu stability.

15. Explain Mannich reaction with an appropriate example.

16. Predict whether the thermal ring closure of a compound with three conjugated pi-bo conrotatory or disrotatory. Explain.

17. Explain the following terms : i) photosensitization ; ii) quenching ; and iii) photoenolizatio

18. Write a brief note on general structure and properties of anthocyanins.

(6 × 2 = 12 weig

Section C

Answer any **two** *questions.*
Each question carries a weightage of 5.

19. Discuss the mechanisms of electrophilic aromatic substitution with special reference to substi effect on reactivity and orientation in mono and disubstituted benzene rings.

20. Discuss the major acid and base catalyzed mechanisms of ester hydrolysis.

21. Give one example each of : i) thermally allowed cycloaddition reaction ; and ii) photochem allowed electrocyclic reaction. Justify the answer by FMO method.

22. Discuss the salient features of total synthesis of longifolene.

(2 × 5 = 10 weigh

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(Pages : 2)

Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Chemistry

CHE 2C 08—ELECTRO CHEMISTRY, SOLID STATE CHEMISTRY AND STATISTICAL THERMODYNAMICS

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **eight** *questions.*
Each question carries a weightage of 1.

1. Write electrode reactions for $H_2 - O_2$ fuel cell under alkaline conditions.
2. Find electrode potential for a calomel electrode with 0.1 M kCl. The standard electrode potential is 0.268 V, T = 298 K.
3. What is Stern model of electrical double layer ?
4. What is half wave potential ? Explain its significance.
5. Write Schoenflies symbol for (a) 222 ; (b) mmm.
6. Account for the semiconductivity of nonstoichiometric ZnO.
7. Explain ferrimagnetism. Write one example.
8. Explain thermodynamic probability. How is it related to entropy ?
9. Find symmetry number for (a) C_6H_6 ; (b) CH_4.
10. Calculate the heat capacity for diamond at 1.86 K characteristic temperature is 1860 K.

(8 × 1 = 8 weightage)

Turn over

Section B

Answer any **six** *questions.*
Each question carries a weightage of 2.

11. Calculate the concentration of Ag^+ at equilibrium, when excess of finely divided metallic added to 0.05 molal ferric nitrate. The standard electrode potentials of Ag^+/Ag and Fe^{2+}, Fe are 0.799 and 0.771 V respectively. T = 298 K.

12. Calculate the thickness of ion atmosphere around k^+ in 0.01 KCl at 25°C in water. The diele constant = 78.5.

13. Discuss one of the theories of hydrogen over voltage.

14. List the seven crystal systems and corresponding Bravais lattices. Discuss.

15. What is Piezoelectricity ? Discuss its applications.

16. Define partition function. Derive equation to show its relationship with internal energy.

17. Calculate absolute entry of He at 0°C and 1 atmosphere pressure.

18. Show that all particles obey Maxwell-Boltzman statistics under dilute system conditions.

(6 × 2 = 12 weight

Section C

Answer any **two** *questions.*
Each question carries a weightage of 5.

19. What are the assumptions of Debye Huckel theory ? Using the theory derive Debye Huckel limi law.

20. Derive Butler-Volmer equation.

21. Briefly discuss free electron theory of metals.

22. Discuss Debye's theory of heat capacity of solids.

(2 × 5 = 10 weight

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SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Botany

BOT 2C 04—CELL BIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *questions.*

Each question carries 2 *weightage.*

1. Explain how DNA replication is suppressed between meiosis I and meiosis II.
2. What is apoptosis? Briefly describe intrinsic pathway.
3. Explain the process of termination of transcription in prokaryotes.
4. Describe the regulation of *trp* operon when tryptophan levels are high in the cell.
5. What do you understand by C value paradox ? Discuss the hypothesis proposed to explain the paradox and give their relative merits and demerits.
6. Write notes on freeze drying and its application.
7. What are buffers ? Give an account on the functions of buffers in biological system and its use in biological research.

(4 × 2 = 8 weightage)

Turn over

Part B

Answer any **four** *questions.*

Each question carries 3 *weightage.*

8. Describe the check points in cell cycle.

9. Define aging. Discuss the causes of aging.

10. Write about metastasis and malignant transformation.

11. Write a detailed description about post transcriptional modification of mRNA.

12. Explain the structure of lac operon and regulation by cAMP.

13. Describe the molecular mechanisms of mutation.

14. Describe the structure of three RNA polymerases known in eukaryotes and compare them that of prokaryotic RNA polymerase. Discuss the function of these eukaryotic RNA polymera

(4 × 3 = 12 weigh

Part C

Answer any **two** *questions.*

Each question carries 5 *weightage.*

15. Describe the organization of chromatin and chromosomes in eukaryotes with the help of diag

16. What biochemical events take place in cells before cellular divisions occur ? Compare the cytog view of chromatin in interphase of mitosis and meiosis.

17. Explain the role played by DNA repair mechanisms in ensuring the fidelity of DNA.

18. Discuss the principle of centrifugation. Write about different types of centrifuges an applications.

(2 × 5 = 10 weigh

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SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Zoology

ZOL 2C 04—PHYSIOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* all *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

I. Answer any *four* questions. Each question carries 2 weightage :

1 Comment on the composition of lymph.

2 Briefly explain acclimatization.

3 What is reticular formation ?

4 What are semilunar valves ?

5 Comment on Brodman map.

6 What is visual cycle ?

7 Briefly write on glomerular filtration.

(4 × 2 = 8 weightage)

Section B

II. Answer any *four* questions. Each question carries 3 weightage :

8 Write an account on the various types of movements of gastrointestinal tract.

9 Explain the physiological anatomy of cardiac muscle.

10 Enumerate the structure and functions of juxtaglomerular apparatus.

Turn over

11 Describe the neural organization of retina.

12 Explain the structure of spinal cord.

13 Elaborate on limbic system and its functions.

14 Comment on pulmonary volume and capacities.

(4 × 3 = 12 weigh

Section C

III. Answer any *two* questions. Each question carries 5 weightage :

15 Explain the organization and functions of brain stem.

16 Describe the mechanisms of concentration of urine.

17 Enumerate the neural and chemical regulation of respiration.

18 Explain taste receptors and the physiology of taste.

(2 × 5 = 10 weigh

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SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Zoology

ZOL 2C 05—MOLECULAR BIOLOGY

(2019 Admissions)

ne : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* questions. Each question carries 2 weightage :

1 IS elements

2 Gene conversion

3 Salient features of human mitochondrial genome

4 Interrupted mating and gene mapping.

5 Semi conservative mode of replication.

6 Name any Inhibitor of translation and its mode of action.

7 How Arabinose Operon is different from other operones ?

(4 × 2 = 8 weightage)

Part B

II. Answer any *four* questions. Each question carries 3 weightage :

8 Write on prokaryotic and eukaryotic ribosomes.

9 Explain the role and significance of different types of restriction enzymes.

Turn over

10 Explain the role of transcriptional factors in mRNA synthesis.

11 Write on transposable elements in bacteria.

12 Write features of prokaryotic and eukaryotic RNA polymerases.

13 Elaborate the mechanisms of gene expression in λ-phage.

14 Write an account on different kinds of eukaryotic DNA and its reassociation kine

(4 × 3 = 12 wei

Part C

III. Answer any *two* questions. Each question carries 5 weightage :

15 Write an account on different DNA repair mechanisms.

16 Write an essay on organization of globin genes in human. Explain how their expre developmentally controlled.

17 Write an essay on the role of inhibitors in translational studies in prokaryot eukaryotes.

18 Write an account on genetic transfer mechanisms in prokaryotes.

(2 × 5 = 10 weig

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SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Zoology

ZOL 2C 06—SYSTEMATICS AND EVOLUTION

(2019 Admissions)

ime : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Answer any *four* questions. Each question carries 2 weightage :

1 Empiricism.

2 Superspecies.

3 Levels of taxonomy.

4 Linnaean hierarchy.

5 Gradualism.

6 Y-MRCA.

7 Homoplasy.

(4 × 2 = 8 weightage)

Part B

II. Answer any *four* questions. Each question carries 3 weightage :

8 Explain type method and its importance in Taxonomy.

9 Elaborate on morphological taxonomic characters.

10 Explain molecular systematics.

Turn over

11 How would you account for the collapse of orthogenesis ?

12 Explain how natural selection operates with respect to sexual selection.

13 Write on the ethics related to taxonomic publications.

14 Elaborate on the various aspects of neutral theory of molecular evolution.

(4 × 3 = 12 wei

Part C

III. Answer any *two* questions. Each question carries 5 weightage :

15 Elaborate on the various taxonomic impediments. Add a note on the solutions to ov the impediments.

16 Write on different types of taxonomic keys. Mention the merits and demerits of ea

17 Explain different species concepts.

18 Explain the significance of population genetics in evolutionary studies.

(2 × 5 = 10 weig

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SECOND SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

English

ENG 2C 08—POSTCOLONIAL WRITINGS

(2019 Admissions)

ne : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

I. Annotate any *two* of the following :

1 I cry again for Warrarra men,
Gone from kith and kind,...
I mourned again for the Murray tribe,
Gone too without a trace.

2 Africa of whom my grandmother sings
On the banks of the distant river
I have never known you
But your blood flows in my veins

3 And then the mystic drum
in my inside stopped to beat -
and men became men,
fishes became fishes
and trees, the sun and the moon
found their places, and the dead
went to the ground and things began to grow

Turn over

4 New York ! I say New York, let black blood flow into your blood.

Let it wash the rust from your steel joints, like an oil of life

Let it give your bridges the curve of hips and supple vines.

Now the ancient age returns, unity is restored.

(2 × 2 = 4 v

Part B

II. Write short essays on any *two* of the following in about 250 words each :

5 Hagar's sorrow in Stone *Angel*.

6 Significance of the title "House and Land".

7 Search for the self in Ramanujan's "Self Portrait".

8 *Hayavadana* as a reworking of Thomas Mann's *Transposed Heads*.

(2 × 3 = 6 w

Part C

III. Write essays on any *four* of the following in about 450 words each, choosing *one* at least section :

A

9 Discuss Timberlake Wertenbaker's *Our Country's Good* as a history play.

10 Analyse *The Road* as an example of ritual theatre.

B

11 Discuss Senghor's "New York" as a clarion call to the black community of Harle

12 Kamau Brathwaite's "Negus" is a plea for orature which is native to African Substantiate.

C

13 Attempt a post-colonial reading of Achebe's *Things Fall Apart*.

14 Elucidate the theme of guilt and redemption in Hosseini's *Kite Runner*.

(4 × 5 = 20 we

37

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SECOND SEMESTER M.Com. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.Com.

MCM 2C 07—ADVANCED STRATEGIC MANAGEMENT

(2019 Admissions)

: Three Hours Maximum : 30 Weightage

General Instructions

- *In cases where choices are provided, students can attend* **all** *questions in each section.*
- *The minimum number of questions to be attended from the Section / Part shall remain the same.*
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Section A

Answer any **four** *questions.*
Each question carries 2 *weightage.*

. What is SWOC analysis ?

. Write a note on strategic planning.

. What is defensive mode of strategic choice ?

. Describe strategic analysis.

. Write a short note on portfolio models.

. Define competitive strategy.

. What is Dupont control model ?

(4 × 2 = 8 weightage)

Section B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

3. Discuss the process of strategy formulation.

9. What is strategic decision-making and discuss the approaches to strategic decision-making ?

Turn over

997

10. Describe Michael Porter Competitive strategy.

11. Enumerate some characteristics of strategic management.

12. What can executives do to properly implement strategic plan ?

13. What is Portfolio strategic management and write the major process of portfolio management ?

14. How do companies benefit from forming international joint ventures and strategic allia

(4 × 3 = 12 we

Section C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. Define strategic evaluation and control. Discuss the techniques the techniques of strategy ev and control in details.

16. Describe various issues related to behaviour affect the strategy implementation strategy.

17. What is environmental scanning and what are the different techniques of enviro scanning ?

18. Explain the process involved in strategic choice and major subjective issues of strategic c

(2 × 5 = 10 wei

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SECOND SEMESTER M.Com. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.Com.

MCM 2C 08—STRATEGIC COST ACCOUNTING

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *questions.*
Each question carries 2 *weightage.*

1. Explain the various techniques of Costing.
2. Distinguish between Relevant Cost and Irrelevant Cost.
3. What is Equivalent Production ? How is it computed ?
4. Explain Geographic Pricing Strategies.
5. Explain the Principles of Kaizen Costing.
6. What is Life Cost Analysis ?
7. Define : a) Cost Object ; b) Cost Driver.

(4 × 2 = 8 weightage)

Part B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

8. What are the limitations of Cost Accounting ?
9. "Cost may be classified in a variety of ways according to their nature and the information needs of the Management." Explain.

Turn over

10. ABC LTD. has the capacity of production of 1,20,000 units and presently sells 30,000 ₹ 100 each. The demand is sensitive to selling price and it has been observed that wi reduction of ₹ 10 in selling price the demand is doubled. What should be the target co capacity if profit margin on sale is taken as 25% ?

11. In the timber industry, the milling operations to the split off point during a period amo ₹ 17,400 with the following production :

First grade timber 400 units ; second grade timber 500 units ; third grade timber 600 uni

You are required to apportion the joint cost on technical evaluation with points 5, 4 and 3 f second and third grade respectively.

12. A company fixes the inter-divisional transfer prices for its product on the basis of cost estimated return on investment in its divisions. The relevant portion of the budget for the A for the year 2015-16 is given below :

Fixed Assets ₹ 5,00,000 ; Current Assets (other than debtors) ₹ 3,00,000 ; Debtors ₹ 2,0 Annual Fixed Cost of the Division ₹ 8,00,000 ; Variable Cost per unit of product ₹ 10 ; Bu Volume of Production per year (units) ₹ 4,00,000 ; Desired Return on Investment 28%.

You are required to determine the transfer price for the Division A.

13. From the following details prepare Statement of Equivalent Production, Statement of Cost, Sta of Evaluation and Process Account by following average cost method :

Opening work-in-progress :	2,000 Units
Material (100% complete)	₹ 7,500
Labour (60 % complete)	₹ 3,000
Overheads (60 % complete)	₹ 1,500
Units introduced into the process	₹ 8,000

There are 2,000 units in process, and the stage of completion is estimated to be :

Material 100%; Labour 50% ; Overhead 50%.

800 units are transferred to next process.

The process costs for the period are :

Material ₹ 1,00,000; Labour ₹ 78,000 ; Overheads ₹ 39,000.

14. Define Productivity. How will you measure the Productivity ?

(4 × 3 = 12 weigh

Part C

Answer any **two** *questions.*
Each question carries 5 weightage.

5. TP Ltd. produces a product which passes through two processes-Cutting and Finishing. The following information is provided :

	Cutting	Finishing
Hours available per annum	50,000	60,000
Hours needed per unit of product	5	12
Fixed operating costs per annum excluding direct material (₹)	10,00,000	10,00,000

The selling price of the product is ₹ 1,000 per unit and the only variable cost per unit is direct material, which costs ₹ 400 per unit. There is demand for all units produced.

Evaluate each of the following proposals independent of each other :

i) An outside agency is willing to do the finishing operation of any number of units between 5,000 and 7,000 at ₹ 400 per unit.

ii) An outside agency is willing to do cutting operation of 2,000 units at ₹ 200 per unit.

iii) Additional equipment for cutting can be bought for ₹ 10,00,000 to increase the cutting facility by 50,000 hours, with annual fixed costs increased by ₹ 2 lakhs.

16. Shakshi Ltd. manufactures two products X and Y. Product X is produced in four runs of 250 units and product Y in five independent runs of 200 units. Each product consumes equal direct material and direct labour content. The product overheads amount to ₹ 36,000 which comprises line set up costs ₹ 18,000, product inspection costs ₹ 9,000 and ₹ 9,000 for material movement to the product line. Total cost incurred for producing 1,000 units of product X and 1,000 units of product Y will be as under :

	₹
Direct material	30,000
Direct labour	8,000
Production overhead	40,000
	78,000

Calculate product wise cost under Traditional Costing as well as under Activity Based Costing.

Turn over

17. The factory is engaged in the production of a chemical X and in the course of its manu a by-product Y is produced, which after a separate process has a commercial value. For th of January 2020, the following are the summarized cost data :

	Joint Expenses (₹)	Separate Expenses	
		X (₹)	Y (₹)
Materials	19,200	7,360	780
Labour	11,700	7,680	2,642
Overhead	3,450	1,500	544

The output for the month was 142 tons of X and 49 tons of Y and the selling price of Y a ₹ 280 per ton. Assuming that profit of Y is estimated at 50% of the selling price, prepare an showing the cost of X per ton.

18. What is JIT ? Discuss the aims and objectives of JIT. How JIT affects production price an system ?

(2 × 5 = 10 we

; 4696 (Pages : 2) Name.....

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SECOND SEMESTER M.Com. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.Com.

MCM 2C 09—INTERNATIONAL BUSINESS

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A

Answer any **four** *questions.*
Each question carries 2 *weightage.*

1. What is turnkey contract ?
2. What is international strategic alliance ?
3. What is international business ethics ?
4. Brief upon few international agencies involved in conflict resolution.
5. What are the different facts of international business environment ?
6. What is non - tariff trade barrier ?
7. What is global competitiveness index ?

(4 × 2 = 8 weightage)

Part B

Answer any **four** *question.*
Each question carries 3 *weightage.*

8. Discuss the role played by MNC's in technological transfer.
9. What are the different modes of entry into international business ?

Turn over

10. Discuss the impact of Regional economic agreements on the trading activities of the countries.

11. Explain the international distribution channel system.

12. Write short notes on : (a) TRIPS (b) Anti dumping duties.

13. Write short notes on : (a) SAARC (b) ASIAN.

14. What are the uses of FDI for the host country ?

(4 × 3 = 12 weig

Part C

Answer any **two** *questions.*
Each question carries 5 *weightage.*

15. What are the barriers to international trade ? List and explain all the types of barri international trade.

16. Explain Adam Smith theory of absolute advantage. How does Ricardo's theory of compa advantage differ from theory of absolute advantage ?

17. Explain the functions of WTO. Describe the dispute resolution mechanism of WTO.

18. Explain the classification of international business.

(2 × 5 = 10 weigh

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C 4599 (Pages : 3) Name.....

Reg. No.....

SECOND SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Economics

ECO 2C 05—MICRO ECONOMICS THEORY AND APPLICATIONS-II

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A (Multiple Choice Questions)

Answer **all** *questions.*
Each question carries ¼ weightage.

1) IRR is defined as the discount rate at which NPV = ————.

(a) 1. (b) 2.

(c) 3. (d) 0.

2) Hicks test is the reverse of ———— test.

(a) Pareto. (b) Pigou.

(c) Kaldor. (d) Scitovsky.

3) Free riding is considered a failure of the conventional ———— market system.

(a) Perfect. (b) Free.

(c) Imperfect. (d) Barter.

4) Among the following ———— is not related to Lindahl equilibrium.

(a) Every consumer demands the same amount of the public good and thus agrees on the amount that should be produced.

(b) Consumers each pay a price according to the marginal benefit they receive.

(c) The total revenue from the tax covers the full cost of providing the public good.

(d) Consumers do not pay a price according to the marginal benefit they receive.

Turn over

5) Externalities are ———— when the social costs outweigh the private costs.

(a) Positive. (b) Negative.

(c) Both (a) and (b). (d) None of the above.

6) Unsystematic risk mitigated through diversification is ————.

(a) Diversifiable risk. (b) Conventional risk.

(c) Scientific risk. (d) Specific risk.

7) Behavioural economics is often related with ————.

(a) Positive economics. (b) Welfare economics.

(c) Normative economics. (d) Poor economics.

8) A public good is subject to ———— problem as some people will take advantage of usi refusing to help to pay for it.

(a) Rivalry. (b) Excludability.

(c) Externality. (d) Free-rider.

9) Evenly Rotating Economy (ERE) is an alternative to ————.

(a) Partial equilibrium. (b) Long-run general equilibrium.

(c) Equilibrium. (d) Pareto equilibrium.

10) William Meckling is associated to ————.

(a) Asymmetric information. (b) Theory of Second Best.

(c) Impossibility theorem. (d) Principal-agent problem.

11) ———— is a part of social choice theory.

(a) Pigou's theorem. (b) Pareto's theorem.

(c) Walra's theorem. (d) Arrow's impossibility theorem.

12) Real interest rate takes ———— into account.

(a) Money rate. (b) Bank rate.

(c) Inflation. (d) Exchange reserve.

(12 × ¼ = 3 wei

Part B (Short Answer Type Questions)

Answer any **five** *questions.*
Each question carries 1 *weightage.*

13) Define future goods.

14) Explain Lindahl pricing.

15) Write a note on Coase theorem.

6) Define Welfare Economics.

7) Explain supply of future goods.

8) What is CPR ?

9) Explain efficiency wage theory.

10) Explain Rules of thumb.

(5 × 1 = 5 weightage)

Part C (Paragraph type Questions)

Answer any **seven** *questions.*
Each question carries 2 *weightage.*

11) Explain rules of thumb and biases in decision making.

12) What are the implications of asymmetric information ?

13) Explain capital assets pricing model.

14) How pricing of risky assets is done ?

15) Explain Arrow's impossibility theorem.

16) Compare diversifiable and non diversifiable risks.

17) Explain Firms demand for capital.

18) Explain IRR Criterion.

19) Briefly explain the theory of Second Best.

20) Explain hidden information and hidden action.

(7 × 2 = 14 weightage)

Part D (Essay type Questions)

Answer any **two** *questions.*
Each question carries 4 *weightage.*

31) What is Public good ? Explain Public goods and market failure.

32) What is externality ? Briefly explain positive and negative externalities in production and consumption.

33) Explain the criteria of social welfare. Briefly illustrate Kaldor-Hicks compensation criterion.

34) What is NPV ? Explain NPV criterion for capital investment decision.

(2 × 4 = 8 weightage)

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4600 Reg. No.....

SECOND SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Economics

ECO 2C 06—MACRO ECONOMICS : THEORIES AND POLICIES—II

(2019 Admissions)

me : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A (Multiple Choice Questions)

Answer **all** *questions.*
Each question carries ¼ weightage.

1. Which of the following statement is correct ?
   a) A variable is endogenous when its value is determined by forces outside the model.
   b) A change in an exogenous variable is classified as an autonomous change.
   c) A variable is exogenous when its value is determined by forces within the model.
   d) A variable is autonomous when its value is determined by forces within the model.
2. If, money has no real effect, it is referred to as :
   a) Neutrality of money. b) Real effect.
   c) Consumption effect. d) Income effect.
3. Which of the following is not an essential characteristic of business cycle ?
   a) Recurrent nature. b) Cumulative in effect.
   c) Regular. d) All pervading in their impact.
4. Bottle-neck inflation is a situation that sets in ————.
   a) After the point of full employment. b) Before the point of full employment.
   c) After imposing price controls. d) During war period.

Turn over

5. If the government's anti inflationary policy is not viewed as credible, it results in :

a) Self-fulfilling inflation. b) Deflation.

c) Disinflation. d) Stable prices.

6. Which of the following groups will not be hurt by inflation ?

a) Individuals on fixed incomes. b) Borrowers at fixed interest rates.

c) Retail store owners. d) Lenders at fixed interest rates.

7. Which of the following will be the outcome of stagflation ?

a) Unemployment goes down. b) The price level goes down.

c) Phillips curve shifts rightward. d) Real GDP increases.

8. In which year did William Nordhaus received Nobel prize in economics :

a) 2019. b) 2017.

c) 2016. d) 2018.

9. A political signal in demand management, output and inflation movements originating in party control of the government was mainly advocated by :

a) New classical. b) Nordhaus model.

c) Partisan theory. d) None of the above.

10. The behavior that the motivation of government to win the elections in order to rea policies is known as :

a) Preference behaviour. b) Naive behaviour.

c) Opportunistic behaviour. d) Partisan behaviour.

11. If supply of money falls short of demand for money, the country will have :

a) BOP surplus. b) BOP deficit.

c) BOP equilibrium. d) BOP neither surplus nor deficit.

12. Business cycle fluctuationsto a large extent can be accounted for by real shocks are advocated by :

a) Classical school. b) Keynesian school.

c) New Classical school. d) New Keynesian school.

(12 × ¼ = 3 wei

Part B (Short Answer Type Questions)

Answer any **five** *questions.*
Each question carries 1 *weightage.*

13. What is meant by classical dichotomy ?

14. Distinguish between monetarism and fiscalism.

15. What is Lucas' surprise supply function ?
16. State Adaptive Expectation Hypothesis.
17. What is meant by natural rate of unemployment hypothesis ?
18. Bring out the propositions of implicit wage contract model.
19. State the rationale of political business cycles.
20. Distinguish between devaluation and depreciation.

(5 × 1 = 5 weightage)

Part C (Paragraph Type Questions)

Answer any **seven** *questions.*
Each question carries 2 *weightage.*

21. What is Nordhaus opportunistic model ?
22. Explain the 'new micro economics' of the labour market.
23. Describe rational expectation hypothesis.
24. How to pay for war ? Substantiate your arguments.
25. Describe the monetarist approach to inflation.
26. Examine the problems of BOP Disequilibrium.
27. Describe Expectation Augmented Phillips Curve.
28. Explain the policy implications of supply side economics.
29. Critically Explain the Kaldor's theory of business cycle.
30. What are the consequences of devaluation ?

(7 × 2 = 14 weightage)

Part D (Essay Type Questions)

Answer any **two** *questions.*
Each question carries 4 *weightage.*

31. Explain the major postulations and policy implications of New Political macro economics.
32. Critically examine the policy implications of the Classical Equilibrium model.
33. What are the Keynesian critiques on classicism ? Explain Keynesian analysis of the labour market.
34. Describe the contributions of new classical macro economics.

(2 × 4 = 8 weightage)

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SECOND SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Economics

ECO 2C 07—PUBLIC FINANCE : THEORY AND PRACTICE

(2019 Admissions)

me : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A (Multiple Choice Questions)

Answer **all** *questions.*
Each question carries ¼ weightage.

1. Chairman of 15th Finance Commission is :

   a) Y.V. Reddy. b) Nand Kishore Singh.

   c) Vijay K Kelkar. d) C.Rangarajan.

2. Which of the following is not a characteristic of public good ?

   a) Non-excludable. b) Non-rivalry.

   c) Divisibility. d) Indivisibility.

3. Who is the constitutional authority to decide the tax share of states ?

   a) Finance Minister. b) Finance Commission.

   c) Planning Commission. d) Union Cabinet.

4. Reason for market failure is :

   a) Asymmetric information. b) Decreasing cost.

   c) Provision of public good. d) All of these.

Turn over

Part B (Short Answer Type)

Answer any **five** *out of eight questions.*
Each question carries 1 *weightage.*

13. Define Tax. What are the characteristics of a tax ?
14. Examine the role of finance commission in a country.
15. What is a public good ? How it is different from private good ?
16. Explain balanced budget multiplier.
17. Distinguish between development and non-development expenditure.
18. Explain Musgrave's concept of incidence.
19. Write a note on vertical fiscal imbalance.
20. What is GST ? Explain.

(5 × 1 = 5 weightage)

Part C (Paragraph Type)

Answer any **seven** *out of ten questions.*
Each question carries 2 *weightage.*

21. What are Externalities ? Explain positive and negative externalities.
22. What are the objectives of FRBM Act ? Explain.
23. Describe the principles of public debt management.
24. Explain Median Voter Theorem.
25. Explain the Voluntary Exchange theory of Lindahl.
26. Define public revenue. What are the sources of public revenue ?
27. What are the objectives of public expenditure in a developing country ?
28. Discuss the factors influencing the incidence of a tax.
29. Briefly explain theory of public choice.
30. What are the methods of fiscal transfers in India ? Explain.

(7 × 2 = 14 weightage)

Turn over

Part D (Essay Type)

Answer any **two** *out of four questions.*
Each question carries 4 *weightage.*

31. Define Zero Based Budgeting. What are the main processes involved in Zero Based Bud
Explain its merits and demerits.

32. Examine the problems of central state financial relations in India. Discuss the impact
economic reforms on centre state financial relations.

33. Explain the role of public debt in the economic development of India. Discuss the trend
growth of public debt India.

34. Critically explain the pure theories of public expenditure.

(2 × 4 = 8 weig

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SECOND SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

Economics

ECO 2C 08—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS—II

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Part A (Multiple Choice Questions)

Answer **all** *questions.*
Each question carries ¼ weightage.

1. How many four digit, numbers can be formed with the digits 3, 4, 5, 6, 7, 8 ?

   (a) 120. (b) 240.

   (c) 360. (d) 480.

2. For a binomial distribution, mean is ———— variance.

   (a) Less than. (b) Equal to.

   (c) Greater than. (d) None of these.

3. If X is a random variable with mean μ, then $E(X)^r$ is called :

   (a) r^{th} row moment. (b) r^{th} central moment.

   (c) Variance. (d) Standard deviation.

4. If the two events A and B are mutually exclusive, then :

   (a) $P(A \cap B) = P(A) \cdot P(B)$. (b) $P(A \cap B) = P(A) \cdot P(B|A)$.

   (c) $P(A \cap B) = 0$. (d) None of these.

Turn over

5. For a standard normal distribution, median is always :

(a) Equal to zero. (b) Not equal to zero.

(c) Equal to three. (d) Not equal to three.

6. The variance of the difference of two independent random variables is equal to the ——— their individual variances :

(a) Sum. (b) Difference.

(c) Product. (d) Ratio.

7. The square root of the variance of an estimator is called :

(a) Significance level. (b) Statistic.

(c) Parameter. (d) Standard error.

8. Ratio of two Chi-square variates will follow :

(a) χ^2 distribution. (b) t distribution.

(c) F distribution. (d) Normal distribution.

9. The distribution used for testing the equality of two population proportions is :

(a) Normal distribution. (b) t distribution.

(c) F distribution. (d) χ^2distribution.

10. If the statistic t gives all the information regarding the parameter () contained in the sample, ther t is a ——— estimator.

(a) Sufficient. (b) Consistent.

(c) Efficient. (d) Likelihood.

11. Whether a test is one-tailed or two-tailed depends on ——— hypothesis.

(a) Null. (b) Alternative.

(c) Simple. (d) Composite.

12. The expectation of the mean of a random sample of size n from a population with mean μ is :

(a) $\frac{\mu}{n}$. (b) $n\mu$.

(c) μ^2. (d) μ.

(12 × ¼ = 3 weightage)

26. The weekly wages of 1,000 workers are normally distributed around a mean of Rs.70 and with a standard deviation of Rs. 5. Estimate the number of workers whose weekly wages will be (i) between Rs.70 and Rs.72 ; (ii) between Rs.69 and Rs.72 ; (iii) more than Rs.75 ; and (iv) less than Rs. 63.

27. Explain the procedure for testing equality of two population means.

28. A soap manufacturing company was distributing a particular brand of soap through a number of retail shops. Before a heavy advertisement campaign, the mean sales per week per shop was 140 dozens. After the campaign, a sample of 20 shops was taken and mean sales was found to be 147 dozens with a standard deviation of 16. Can you consider the advertisement campaign effective ?

29. What do you mean by significance level, power and critical region of a test ?

30. Explain the desirable properties of an estimator.

(7 × 2 = 14 weightage)

Part D (Essay Type)

Answer any **two** *out of four questions.*
Each question carries 4 *weightage.*

31. A random variable X follows a probability distribution as given below :

X	:	0	1	2	3
$p(x)$	:	$\frac{k}{2}$	$\frac{k}{3}$	$\frac{k+1}{3}$	$\frac{2k-1}{6}$

Find the value of k. Also find the mean and variance of the variable.

32. A systematic sample of 100 pages was taken from the Oxford Dictionary and the observed frequency distribution of foreign words per page was found to be as follows :

No. of foreign words per page (X)	:	0	1	2	3	4	5
Frequency	:	42	34	12	7	4	1

Calculate the expected frequencies using Poisson distribution.

33. The heights of six randomly chosen sailors are in inches : 63, 65, 68, 69, 71 and 72. Those of 10 randomly chosen soldiers are 61, 62, 65, 66, 69, 69, 70, 71, 72 and 73. Test whether the data support the claim that the sailors are on the average taller than soldiers.

34. A set of data involving four tropical feed stuffs A, B, C, D tried on 20 chicks is given below. All the 20 chicks were treated alike in all respects except the feeding treatments and each feeding treatment is given to 5 chicks. Analyze the data :

A	55	49	42	21	52
B	61	112	30	89	63
C	42	97	81	95	92
D	169	137	169	85	154

(2 × 4 = 8 weightage)

Part B (Short Answer Type)

Answer any **five** *out of eight questions.*
Each question carries 1 *weightage.*

13. Compute the values of the following :

    (a) ${}_5P_2$; (b) ${}_{10}C_6$; (c) ${}_6C_2$; and (d) ${}_7P_5$.

14. Obtain the probability of getting a sum of 9 when two dice are thrown simultaneously.

15. In how many ways can 4 white and 3 black balls be selected from a box containing 20 white and 15 black balls ?

16. Briefly explain the probability function and parameters of a normal distribution.

17. Discuss the two types of errors associated with hypothesis testing.

18. Distinguish between point estimate and interval estimate.

19. Discuss the major applications of t-test.

20. Define a random variable. Also define expectation and variance of a random variable.

(5 × 1 = 5 weightage)

Part C (Paragraph Type)

Answer any **seven** *out of ten questions.*
Each question carries 2 *weightage.*

21. Explain the frequency definition and axiomatic definition of probability.

22. Two persons A and D attempt independently to solve a puzzle. The probability that A will solve is $\frac{3}{5}$ and the probability that B will solve is $\frac{1}{3}$. Find the probability that the puzzle will be solved by

    (i) At least one of them ; and (ii) Both of them.

23. Explain the important properties of normal distribution.

24. A random sample of 50 Mathematics grades showed a mean of 75 and a standard deviation of 10. What are the 95 % confidence limits for the population mean ?

25. Three letters are selected from the letters of the word 'ASSASSINATIONS'. What is the probability that (i) all are 'S' ; (ii) Two are 'A' and one is 'N' ; (iii) Exactly one is 'I' ; and (iv) At least one is 'A'.

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Reg. No.....

SECOND SEMESTER M.S.W. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.S.W.

SOW 2C 06—SOCIAL CASE WORK

(2019 Admissions)

ıe : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **four** *questions not exceeding* 100 *words.*
Each question carries 2 *weightage.*

te Short Notes on :

1. Client self determination.
2. Narrative recording.
3. Ventilation.
4. Stress management.
5. Psychoanalytical approach to casework.
6. Crisis Intervention.
7. Resource management.

(4 × 2 = 8 weightage)

Turn over

Section B

Answer any **four** *questions not exceeding* 300 *words.*
Each question carries 3 *weightage.*

8. Describe the objectives of social casework.
9. What are the principles of casework interview ?
10. Explain "place" as a component of casework.
11. Discuss the importance of environment modification.
12. Explain the importance of assertiveness in enhancing client's problem solving.
13. Describe the functional approach in casework.
14. What is care co-ordination in case management ?

(4 × 3 = 12 weight

Section C

Answer any **two** *questions not exceeding* 800 *words.*
Each question carries 5 *weightage.*

15. Discuss the qualities and principles of casework relationship with illustrations from field.
16. Explain the components of casework based on Perlman's model.
17. Discuss the Hamilton and Pearlman models of Casework Practice.
18. Elucidate the scope of social case work in various settings.

(2 × 5 = 10 weight

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SECOND SEMESTER M.S.W. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.S.W.

SOW 2C 07—SOCIAL GROUP WORK

(2019 Admissions)

ne : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **four** *questions not exceeding* 100 *words.*
Each question carries 2 *weightage.*

rite Short Notes on :

1. Therapeutic groups.
2. Sociogram.
3. Rejection.
4. Interaction pattern.
5. Norming.
6. Need Assessment.
7. Group development.

(4 × 2 = 8 weightage)

Section B

Answer any **four** *questions not exceeding* 300 *words.*
Each question carries 3 *weightage.*

8. Describe the significance of groups in society.
9. What are different types of subgroups ?

Turn over

10. Explain the importance of decision-making in group dynamics.

11. What are the determinants of group morale ?

12. Describe the characteristics of social group work.

13. Explain the qualities of a group worker.

14. What are the different types of recording in group work ?

(4 × 3 = 12 weight

Section C

Answer any **two** *questions not exceeding* 800 *words.*
Each question carries 5 *weightage.*

15. Discuss the significance of evaluation in social group work. What are the types and method evaluation ?

16. Enumerate the application of group work in schools and child guidance clinics.

17. Explain the steps in group formation. Illustrate with example from your fieldwork experience

18. Elucidate the importance of group dynamics in group process.

(2 × 5 = 10 weighta

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Reg. No.....

SECOND SEMESTER M.S.W. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.S.W.

SOW 2C 08—COMMUNITY ORGANIZATION AND SOCIAL ACTION

(2019 Admissions)

me : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **four** *questions not exceeding* 100 *words.*
Each question carries 2 *weightage.*

1. Geographical community.
2. Concept of Authority.
3. Community organisation.
4. Social Exchange Theory.
5. Satyagraha.
6. Advocacy.
7. Resource Mobilisation.

(4 × 2 = 8 weightage)

Section B

Answer any **four** *questions not exceeding* 300 *words.*
Each question carries 3 *weightage.*

8. What are the sources of power in communities ?
9. Explain the philosophy of non-violence.
10. List down the skills required in community organization practice.

Turn over

11. Explain the importance of Natural Resource Management in community organisation

12. Discuss the principles of social action.

13. Explain the need for conflict resolution skills for a social worker

14. Discuss the significance of community profiling and recording in community organisation.

(4 × 3 = 12 weight

Section C

Answer any **two** *questions not exceeding* 800 *words.*
Each question carries 5 *weightage.*

15. Explain the principles and phases in community organisation in working with displaced populat

16. Enumerate on the scope of social action in India with illustrations.

17. Based on your fieldwork experience, illustrate the skills required in working with urban/r communities in Kerala.

18. Discuss in detail Rothman's approaches to Community Organisation.

(2 × 5 = 10 weighta

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SECOND SEMESTER M.S.W. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2021

(CBCSS)

M.S.W.

SOW 2C 09—PSYCHOLOGY FOR SOCIAL WORK

(2019 Admissions)

e : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

Answer any **four** *questions not exceeding* 100 *words.*
Each question carries 2 *weightage.*

te Short Notes on :

1. Social Perception.
2. Gender stereotype.
3. Pro-social Behaviour.
4. Propaganda.
5. Post-traumatic stress disorder.
6. Hypochondriasis.
7. Conduct Disorders.

(4 × 2 = 8 weightage)

Section B

Answer any **four** *questions not exceeding* 300 *words.*
Each question carries 3 *weightage.*

3. Explain the relevance of social psychology to social work.

). Describe the types of social influence.

Turn over

10. Discuss the characteristics of Audience and crowd.

11. Explain generalized anxiety disorders.

12. Differentiate between sex and gender.

13. What are Somatic Symptom Disorders ?

14. Explain clinical features of Depersonalization.

(4 × 3 = 12 weightag

Section C

Answer any **two** *questions not exceeding* 800 *words.*
Each question carries 5 *weightage.*

15. Define the concept of mental health. Discuss the Mental Health issues in the contemporary societ

16. Elucidate the major childhood disorders.

17. Discuss in detail the determinants of collective and social behaviour in current society, wit illustrations.

18. Explain the various factors that determine gender identity in our society. Quote some exampl based on your fieldwork experience.

(2 × 5 = 10 weightag