



ABHEDANANDA MAHAVIDYALAYA

SAINTHIA, BIRBHUM, WEST BENGAL, PIN 731234

Founder: Srimat Satyananda Dev (1965)

(Affiliated to the University of Burdwan and Accredited by NAAC)

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Ref. No. GEN/19/2022

Date: 28.01.2022

From: The Principal

SEMESTER I INTERNAL পরীক্ষা সংক্রান্ত বিজ্ঞপ্তি:

বিশ্ববিদ্যালয়ের নির্দেশক্রমে প্রথম সেমিস্টারের BA/BSC HONOURS INTERNAL পরীক্ষার জন্য ছাত্রছাত্রীদের Home Assignment (১০ নম্বরের) দেওয়া হল।

১। প্রশ্ন পাওয়া যাবে Whatsapp Group ও website-এ। উত্তরপত্রের প্রথম পাতা কেমন হবে তা প্রশ্নের সাথে দেওয়া হল। বাড়িতে নিজের হাতে উত্তর লিখে নিচে দেওয়া তারিখ অনুসারে mail id-তে উত্তরপত্র জমা দিতে হবে।

২। উত্তরপত্র স্ক্যান করার সময় file name হবে "SUBJECT/PAPER CODE/COLLEGE ROLL NO. অনুযায়ী। উদাহরণস্বরূপ, college roll no. 100-এর কারোর বাংলা CC 1 পরীক্ষার স্ক্যান করা উত্তরপত্রের file name হবে "BENGALI CC1 ROLL 100"।

৩। Mail করার সময়ও mail-এর subject field-এ "BENGALI CC1 ROLL 100" লিখতে হবে।

ANSWERSCRIPT SUBMISSION DATES FOR ALL HONOURS SUBJECTS: 01/02/2022 and 02/02/2022	SUBJECT	MAIL ID
	BENGALI HONS.	CC 1: bengalihons12@gmail.com
		CC 2: sbengalihons@gmail.com
	ENGLISH HONS.	CC 1: pritam2k7@yahoo.co.in
		CC 2: rita731236@gmail.com
	HINDI HONS.	hindihons301@gmail.com
	SANSKRIT HONS.	sanskriithons1st@gmail.com
	ECONOMICS HONS.	CC 1: shrabanibanerjee9@gmail.com
		CC 2: bedadyuti70@gmail.com
	HISTORY HONS.	CC 1: hitoryhons444@gmail.com
		CC 2: historyhons301@gmail.com
	GEOGRAPHY HONS.	ashamukul1980@gmail.com
	PHILOSOPHY HONS.	301philosophysem1hons@gmail.com
	POL. SC. HONS.	sem1polhonsabhm@gmail.com
	PHYSICS HONS.	301physhons@gmail.com
	MATHEMATICS HONS.	301mathhons@gmail.com
	CHEMISTRY HONS.	CC 1: gcm79@rediffmail.com
		CC 2: 301chemhons@gmail.com
	BOTANY HONS.	ambotsem3hons@gmail.com
	ZOOLOGY HONS.	abmzoologydept@gmail.com



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ASSIGNMENT FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: COURSE CODE:

Course Title:

FULL MARKS: 10

DATE OF SUBMISSION:

NAME OF THE STUDENT:

COLLEGE ROLL NO.:

GIVE ANSWERS IN THE SPACE BELOW:



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: BENGALI HONOURS / COURSE CODE: CC 1 (বাংলা সাহিত্যের ইতিহাস: প্রাচীন ও মধ্যযুগ)

MAIL ID FOR BENGALI CC 1: bengalihons12@gmail.com

১/ যেকোনো একটি প্রশ্নের উত্তর দাও:

১০

ক/ চর্যাগীতিতে বিধৃত সমাজ চিত্রের সংক্ষিপ্ত পরিচয় দাও।

খ/ কবি দৌলত কাজীর কাব্যের নাম সহ কবিকৃতিত্ব আলোচনা কর।

SUBJECT: BENGALI HONOURS / COURSE CODE: CC 2 (ছন্দ, অলংকার)

MAIL ID FOR BENGALI CC 2: sbengalihons@gmail.com

১/ একটি প্রশ্নের উত্তর দাও:

১০

ক/ / মিশ্রবৃত্ত ছন্দ কাকে বলে? মিশ্রবৃত্ত ছন্দের সাধারণ বৈশিষ্ট্য গুলি উদাহরণ সহ আলোচনা কর।

খ/ রূপক অলংকার কাকে বলে? উদাহরণ সহ রূপক অলংকারের বিভিন্ন বিভাগ সম্পর্কে আলোচনা কর।



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: ENGLISH HONOURS / COURSE CODE: CC 1 (Indian Classical Literature)

1. Discuss the significance of the title of Sudraka's play – *The Mrichchhakatika*. 10

MAIL ID FOR ENGLISH CC 1: pritam2k7@yahoo.co.in

SUBJECT: ENGLISH HONOURS / COURSE CODE: CC 2 (European Classical Literature)

1. Greek mythology pairs hubris with nemesis – those who commit the former are likely to succumb to the latter. Discuss this in reference to the story of Pentheus and Bacchus in *Metamorphoses*, Book III. 10

MAIL ID FOR ENGLISH CC 2: rita731236@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: ECONOMICS HONOURS / COURSE CODE: CC 1 (Introductory Microeconomics)

1. What is Utility? Distinguish between total utility and marginal utility? 10
- OR
2. Show how the equilibrium of the consumer is determined in indifference curve approach? 10

MAIL ID FOR ECONOMICS CC 1: shrabanibanerjee9@gmail.com

SUBJECT: ECONOMICS HONOURS / COURSE CODE: CC 2

1. Answer any two. 5+5=10
 - A. What is Statistical Data? What are the methods of collection of data?
 - B. Explain Central Tendency (Arithmetic mean, Median & Mode).
 - C. Compare Mean Median & Mode.
 - D. What is Range, Mean deviation, Standard deviation & Quartile Deviation?

MAIL ID FOR ECONOMICS CC 2: bedadyuti70@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: GEOGRAPHY HONOURS / COURSE CODE: CC 1 (Geotectonic and Geomorphology)

1. Discuss the theories of Airy and Pratt. 10

MAIL ID FOR GEOGRAPHY CC 1: ashamukul1980@gmail.com

SUBJECT: GEOGRAPHY HONOURS / COURSE CODE: CC 2 (Cartographic Techniques and Geological Maps Study)

1. Discuss the concept of generating globe. 5
2. Discuss classification of projection. 5

MAIL ID FOR GEOGRAPHY CC 2: ashamukul1980@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: HISTORY HONOURS / COURSE CODE: CC 1 (History of India: From earliest time to 600A.D)

1. সিন্ধু সভ্যতার নগরিক বৈশিষ্ট্য আলোচনা কর। এই সভ্যতা কোন বিষয়ে পৃথক ছিল? 10
2. আর্যদের ভারতে আগমন সম্পর্কে বিতর্কটি আলোচনা কর। 10

MAIL ID FOR HISTORY CC 1: hitoryhons444@gmail.com

SUBJECT: HISTORY HONOURS / COURSE CODE: CC 2 (Social Formation & Cultural Pattern of the Ancient World)

1. লোহার ব্যবহার যাযাবর গোষ্ঠীর ওপর কীরূপ প্রভাব ফেলেছিল? 10
অথবা
2. পেলোপনেন্সীয় যুদ্ধ কতদূর অর্থনৈতিক সংঘাত প্রসূত ছিল? 10

MAIL ID FOR HISTORY CC 2: historyhons301@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: POLITICAL SCIENCE HONOURS / COURSE CODE: CC 1 (Western Political Thought)

*** PLEASE SEE BELOW FOR QUESTIONS OF POLITICAL SCIENCE CC 1

MAIL ID FOR POL. SC. CC 1: sem1polhonsabhm@gmail.com

SUBJECT: POLITICAL SCIENCE HONOURS / COURSE CODE: CC 2 (Political Theory)

1. রাষ্ট্রবিজ্ঞান আলোচনায় সনাতন তত্ত্ব ব্যাখ্যা কর। 10
অথবা
2. সার্বভৌমিকতায় একাত্ববাদী তত্ত্ব সমালোচনা সহ আলোচনা কর। 10

MAIL ID FOR POL. SC. CC 2: sem1polhonsabhm@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: PHILOSOPHY HONOURS / COURSE CODE: CC 1 (OUTLINES OF INDIAN PHILOSOPHY-1)

1. ভারতীয় দর্শনের সাধারণ বৈশিষ্ট্যগুলির সংক্ষিপ্ত ব্যাখ্যা দাও। 10
অথবা
2. বুদ্ধ -নির্দেশিত অষ্টাঙ্গিক মার্গের উল্লেখপূর্বক ব্যাখ্যা কর। 10

MAIL ID FOR PHILOSOPHY CC 1: 301philosophysem1hons@gmail.com

SUBJECT: PHILOSOPHY HONOURS / COURSE CODE: CC 2 (OUTLINES OF WESTERN PHILOSOPHY-1)

1. প্লেটো জ্ঞানের কী সংজ্ঞা দিয়েছেন? তিনি কিভাবে প্রমাণ করার চেষ্টা করেছেন যে, প্রত্যক্ষ জ্ঞান নয়? 10
অথবা
2. সংশয় পদ্ধতি কি? দেকার্ত সত্যে পৌঁছানোর জন্য এই পদ্ধতিকে কিভাবে প্রয়োগ করেছেন? 10

MAIL ID FOR PHILOSOPHY CC 2: 301philosophysem1hons@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: BOTANY HONOURS / COURSE CODE: CC 1 (Microbiology and Phycology)

1. Briefly describe the range of thallus organization with proper diagram in algae. 10

OR

2. Mention the economic importance of bacteria. 10

MAIL ID FOR BOTANY CC 1: ambotsem1hons@gmail.com

SUBJECT: BOTANY HONOURS / COURSE CODE: CC 2 (Archegoniate)

1. Write the general characteristics and importance of gymnosperms. 5+5=10

MAIL ID FOR BOTANY CC 2: ambotsem1hons@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: CHEMISTRY HONOURS / COURSE CODE: CC 1 (ORGANIC CHEMISTRY)

1. Write a short note on (i) electrophilic and nucleophilic radical (ii) Radical cation and radical anion. 10

MAIL ID FOR CHEMISTRY CC 1: gcm79@rediffmail.com

SUBJECT: CHEMISTRY HONOURS / COURSE CODE: CC 2 (Physical Chemistry-I)

1. Explain how Van der Waals equation is constructed from the ideal gas law. 10

MAIL ID FOR CHEMISTRY CC 2: 301chemhons@gmail.com



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QUESTIONS/TOPICS FOR INTERNAL EXAMINATION, JANUARY 2022

SESSION: 2021—22

SEMESTER 1

SUBJECT: ZOOLOGY HONOURS / COURSE CODE: CC 1 (NON CHORDATES)

1. Write down a note on life cycle and pathogenesis of Plasmodium Vivax. 10

MAIL ID FOR ZOOLOGY CC 1: abmzoologydept@gmail.com

SUBJECT: ZOOLOGY HONOURS / COURSE CODE: CC 2 (Ecology)

1. Differentiate between K and r selected Strategy. Write a Short note on grazing food Chain. 10

MAIL ID FOR ZOOLOGY CC 2: abmzoologydept@gmail.com

Internal Assessment 2022
Abhedananda Mahavidyalaya
Semester – I (Honours)

Subject: Sanskrit

Course Code: CC-1

Course Title: *Classical Sanskrit Literature(Poetry)* F.M.- 10

সীতার প্রতি বাল্মীকির সান্বনা-বাক্যগুলি “সীতাপরিত্যাগঃ” পাঠ্যাংশ
অনুসারে নিজের ভাষায় লেখ।

অথবা,

অশ্বঘোষের মহাকাব্যগুলি সম্বন্ধে আলোচনা কর।

Internal Assessment 2022
Abhedananda Mahavidyalaya
Semester – I (Honours)
Subject: Sanskrit
Course Code: CC-2
Course Title: *Critical Survey of Sanskrit Literature* *F.M.-10*

संस्कृत व्याकरण साहित्येर इतिहासे त्रिमुनिर (पाणिनि, कात्यायन, पतञ्जलि)
अवदान संक्षेपे आलोचना कर।

अथवा,

बौद्ध दर्शनैर मूल तत्त्वगुलि संक्षेपे आलोचना कर।

ABHEDANANDA MAHAVIDYALAYA

INTERNAL EXAM- 2022

HINDI

SEMESTER-I

MARKS -10

CC-1 हिन्दी साहित्य का इतिहास (रीतिकाल तक)

1. भक्तिकाल के प्रमुख प्रवृत्तियाँ पर प्रकाश डालिए।

अथवा

2. बिहारी का साहित्यिक परिचय दीजिए।

CC-2 हिन्दी साहित्य का इतिहास (आधुनिक काल)

1. आधुनिक काल की पृष्ठभूमि पर प्रकाश डालिए।

अथवा

2. छायावाद के चारों स्तम्भों में से किन्हीं एक स्तंभ का साहित्यिक परिचय अपने शब्दों में लिखिए।

Subject :- Political Science (Hons.)

Semester – I

Course Code :- CC-1

Course Title :- Western Political Thought

নিম্নলিখিত প্রশ্ন দুটির মধ্যে যেকোনো একটি প্রশ্নের উত্তর দাও (F.M. :- 10)

1. প্লেটোর ন্যায় তত্ত্ব সম্পর্কে সংক্ষেপে আলোচনা করো (১০)

(Briefly discuss about Plato's theory of Justice.) (10)

অথবা (Or)

2. জন স্টুয়ার্ট মিলের স্বাধীনতা সম্পর্কিত ধারণাটির ব্যাখ্যা দাও (১০)

(Briefly explain about John Stuart Mill's concept of Liberty) (10)

Abhedananda Mahavidyalaya
Internal Examination
Sem I (Hons), Mathematics
Course : BMH1CC01

Answer the following questions :- (2x5=10)

- 1) Suppose $n \neq 0$ or 1 . Prove that the transformation $v = y^{1-n}$ reduces the Bernoulli equation

$$\frac{dy}{dx} + P(x)y = Q(x)y^n$$

to a linear equation in v .

Hence solve the differential equation

$$\frac{dy}{dx} + y = xy^3$$

- 2) If $y = e^{\tan^{-1}x} = a_0 + a_1x + a_2x^2 + \dots + a_nx^n + \dots$, prove that

$$a) (1+x^2)y_{n+2} + \{2(n+1)x - 1\}y_{n+1} + n(n+1)y_n = 0$$

$$b) a_{n+2} = \frac{a_{n+1} - na_n}{n+2}$$

Answer the following questions: (Any two)

1. State and Prove Cauchy-Schwartz inequality. [5]
2. Find the Rank of the following matrix by reducing it to a row reduced echelon matrix.

$$\begin{bmatrix} 2 & 6 & 4 & 2 & 8 \\ 0 & 0 & 1 & 2 & 1 \\ 1 & 3 & 1 & 0 & 3 \\ 3 & 9 & 4 & 2 & 10 \end{bmatrix}$$

[5]

3. Find the Eigen Values and Corresponding Eigen vectors of the following matrix.

$$\begin{bmatrix} 1 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 1 \end{bmatrix}$$

[5]

4. Define Equivalence relation on a Set. [2]

Give an example of a relation which is [3]
reflexive and Symmetric but not transitive.

ABHEDANANDA MAHAVIDYALAYA
SAINTHIA BIRBHUM
B.Sc. SEM-I Phys(H) Internal Examination, 2021
Subject: Physics
PAPER: CC-I (Mathematical Methods of Physics)

F.M. = 10

Answer any two questions from the following;
 $2 \times 5 = 10$.

1. If $\vec{F} = (x+2y+4z)\hat{i} + (2x-3y-z)\hat{j} + (4x-y+2z)\hat{k}$, show that \vec{F} is conservative and can be expressed as $\vec{\nabla} \phi$. Evaluate the value of ϕ .

2. Solve the following differential equations:

i) $\frac{dy}{dx} + \ln x^y = 0$
 subject to the condition that $y \rightarrow 1$ when $x \rightarrow 0$.

ii) $\frac{dy}{dx} + x \ln x = \frac{y}{x}$

3. Find the point on the plane $ax+by+cz=p$ at which the function $f = x^2 + y^2 + z^2$ has a minimum value and find this minimum f .

— 0 —

AM/B.Sc.-SEM/ I/Physics(H)/Int/2022
AbhedanandaMahavidyalaya

B. Sc. SEM-I (Honours) Internal Examination, 2022

Subject: Physics

Paper: CC-II (Mechanics)

Time: 1 Hour

Full Marks: 10

The figures in the margin indicate full marks.

SECTION-I

Answer any two questions. 5×2 = 10

- 1) **a.** A particle of mass m moves under the influence of the force field given by

$$\vec{F} = a(\sin\omega t \hat{i} + \cos\omega t \hat{j})$$

If the particle is initially at rest

at the origin, find

- i. the work done on the particle upto time t .
- ii. the instantaneous power applied to the particle.

b. Prove that the force field $\vec{F} = (yz - y)\hat{i} + (xz - x - 1)\hat{j} + (xy - 2z)\hat{k}$ is conservative. Is the angular momentum (about the origin) conserved for this force? [3+2=5]

- 2) **a.** A particle of mass m_1 moving with velocity ' u ' undergoes head-on elastic collision with another particle of mass $m_2 = k.m_1$ initially at rest. Show that after collision K.E. transferred to m_2 is

$$\Delta E = \frac{1}{2} m_1 u^2 \frac{4k}{(1+k)^2}$$

b. Consider an elastic collision between two particles of equal mass, one of which is initially at rest. Show that after the collision the particles move at right angles to each other. [2.5+2.5=5]

[P.T.O]

- 3) **a.** Show that the differential equation of motion of a particle under the influence of a central force $\vec{F}(r)$ can be written as

$$\frac{d^2u}{d\theta^2} + u = -\frac{m}{L^2u^2} F\left(\frac{1}{u}\right), \text{ Where } L = \text{Angular momentum.}$$

- b.** If (r, θ) be the polar co-ordinates of the particle, show that the total energy of the particle in central force field is given by

$$E = \frac{h^2}{2m} \left[\frac{d^2u}{dr^2} + u^2 \right] + V(r), \text{ Where } u = \frac{1}{r} \text{ and } V(r) = \text{Potential energy.}$$

[3+2=5]

- 4) **a.** Define centre of mass for a system of particles. Show that the K.E. of the system is equal to the K.E. of a single particle of total mass M situated at the centre of mass together with the K.E. of the system of particles with their motion relative to the centre of mass.

- b.** Prove that for a system of particles, the total external torque is equal to the rate of change of angular momentum of the system provided that the internal force between the particles is central one. [3+2=5]

- 5) **a.** Show that the equation of motion for a rocket projected vertically upward in a uniform gravitational field, neglecting atmospheric resistance is

$$m \frac{d\vec{v}}{dt} - \mu \vec{v}' - mg\hat{k}$$

Where, $\mu = -\frac{dm}{dt}$, m is the mass of the rocket and \vec{v}' is the velocity of the escaping gases relative to the rocket and \hat{k} is a unit vector in the vertically upward direction.

- b.** Integrate the rocket equation to obtain v as a function of m , assuming a constant time rate of loss of mass. [3+2=5]

[P.T.O]

- 6) **a.** Derive an expression for the volume of a liquid flowing per unit time in streamline motion through a capillary tube mentioning the assumptions made.

b. Show that the formula can be compared with Ohm's law with viscous resistance given by $R = \frac{8\eta l}{\pi r^4}$. (Symbols have their usual meanings).

[3+2=5]

- 7) **a.** A spherical shell of inner radius r_1 and outer radius r_2 has a constant density ρ . Find the gravitational potential at a distance r from the centre where r lies between r_1 and r_2 .

b. A cylinder has a mass M , length l , and radius R . Find the moment of inertia of the cylinder about the axis perpendicular to its length and passing through its centre of mass.

[2.5+2.5=5]

- 8) **a.** The frame of reference S' is rotating with an angular velocity $\vec{\omega}$ relative to an inertial frame S having the same origin. Find the relation between the velocity and acceleration of a particle relative to S' and S .

b. A particle of mass m is dropped from a height h which is small compared to the earth's radius. Write down the differential equations and integrate to prove that the object hits the earth at a point east of the vertical at a distance

$$\frac{2}{3} \omega h \sin \lambda \sqrt{\frac{2h}{g}} \text{ Where } \lambda \text{ is the colatitude.}$$

[2+3=5]

- 9) **a.** If the Poisson's ratio of a material is σ , longitudinal strain is α then prove that the volume strain of the material is $(1 - 2\sigma)\alpha$.

b. Consider a rod of circular cross section of length and radius a . The volume of the rod is not changed when the rod is stretched. Show that Poisson's ratio has the value 0.5 in this case.

[2.5+2.5=5]

[P.T.O]

10) **a.** A rod of proper length l_0 oriented parallel to the x-axis moves with speed $\frac{2}{3}c$ along the x-axis in the S-frame, where c is the speed of light in free space. The observer is also moving along the x-axis with speed $\frac{c}{2}$ with respect to the S-frame. Find the length of the rod as measured by the observer.

b. In an inertial frame S, two events A and B take place at time $(t_A) = 0$, position $(x_A) = 0$ and time $(t_B) = 0$, position $(x_B) = 2\hat{i}$, respectively. Find the times at which these events take place in a frame S' moving with a velocity $0.6c \hat{y}$ with respect to S. (c is the velocity of light)

[2+3=5]

