WEST BENGAL STATE UNIVERSITY

B.A./B.Sc. Honours 1st Semester Examination, 2020, held in 2021

ECOACOR01T-ECONOMICS (CC1)

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words
and adhere to the word limit as practicable.

প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি পূর্ণমান নির্দেশ করে।
পরীক্ষার্থীরা নিজের ভাষায় যথা সম্ভব শব্দসীমার মধ্যে
উত্তর করিবে।

All symbols are of usual significance.

1.   Answer any *five* questions: 2×5 = 10
      যে-কোনো *পাঁচটি* প্রশ্নের উত্তর দাওঃ

   (a) Graphically explain the effect on equilibrium price and quantity of hotel rooms in Goa when continuous disruption of flights causes travellers to shy away from air travel.
      ক্রমাগত বিমান পরিষেবায় ব্যাঘাত ঘটায় পর্যটকেরা যদি বিমান ভ্রমণে উৎসাহ হারায়, তবে গোয়ার হোটেল ঘরের ভারসাম্য দাম ও পরিমাণে কি প্রভাব পড়বে তা রেখাচিত্রের সাহায্যে দেখাও।

   (b) If the equation of the Engel curve is given by $q = M^2$, where q is quantity and M is money income, find out the income elasticity of demand for the commodity.
      কোন এঞ্জেল রেখার সমীকরণ যদি $q = M^2$ হয়, q দ্রব্যের পরিমাণ ও M আয়, তবে দ্রব্যটির আয়গত স্থিতিস্থাপকতার মান কত ?

   (c) Define 'isoclines'.
      'আইসোক্লাইনের' সংজ্ঞা দাও।

   (d) Define expansion path.
      সম্প্রসারণ রেখার সংজ্ঞা দাও।

   (e) What is the shape of average fixed cost curve?
      গড় স্থির ব্যয় রেখার আকার কিরূপ হয় ?

   (f) If demand is unit elastic how will a decline in price affect total revenue?
      যদি চাহিদা একক স্থিতিস্থাপক হয়, তবে মোট আয়ের উপর দাম হ্রাসের কি প্রভাব পড়বে ?

   (g) Calculate the elasticity of supply for the supply curve $P = 10 + 3Q$ at $P = 25$, P and Q represent price and quantity respectively.
      $P = 10 + 3Q$ যোগান রেখাটিতে, $P = 25$ বিন্দুতে যোগানের স্থিতিস্থাপকতার মান নির্ণয় করো।

   (h) In a two commodity space draw the budget line of a consumer where one commodity is rationed so that no more than a specific amount of it can be purchased.
      দুটি দ্রব্যের পরিসরে একটি বাজেট রেখা দেখাও যেখানে একটি দ্রব্যের ক্ষেত্রে রেশন আরোপিত হয়েছে ফলত সেটি একটি নির্দিষ্ট পরিমাণের বেশি কেনা যাবে না।

2. Answer any *four* questions: 5×4 = 20

যে-কোনো *চারটি* প্রশ্নের উত্তর দাওঃ

(a) Find the value of elasticity of substitution for CES production function.

CES উৎপাদন অপেক্ষকের ক্ষেত্রে বিকল্পায়নের স্থিতিস্থাপকতার মান বের করো।

(b) Constant return to scale may co-exist with diminishing return to variable factor — Explain.

সমহার প্রতিদানের মাত্রা ও ক্রমহ্রাসমান প্রান্তিক উৎপাদনের বিধি একইসাথে থাকতে পারে — ব্যাখ্যা করো।

(c) How is the curvature of an isoquant related to the marginal rate of technical substitution?

সমোৎপাদন রেখার বক্রতা কিভাবে প্রকৌশলগত প্রান্তিক পরিবর্ততার হারের সাথে যুক্ত ?

(d) "If prices of two inputs are equal they should be used in equal amounts". Is the proposition correct? Justify your answer.

'উৎপাদনের দুটি উপাদানের দাম সমান হলে তাদের সমান পরিমাণে ব্যবহার করা হবে' সিদ্ধান্তটি কি ঠিক ? যুক্তি দিয়ে বল।

(e) Suppose the total cost function is given by $C = 16 + Q^2$. Illustrate the shape of the average and marginal cost curves in a diagram.

মনে করো মোট ব্যয় অপেক্ষকটি হল $C = 16 + Q^2$। একটি রেখাচিত্রের সাহায্যে গড় ব্যয় ও প্রান্তিক ব্যয় অপেক্ষকগুলির আকৃতি বর্ণনা করো।

(f) Construct a set of indifference curve in each of the following cases:

নিম্নলিখিত পরিস্থিতি দুটিতে নিরপেক্ষ রেখার আকৃতি কেমন হবে ?

(i) The person likes X but neutral about Y.

কোন ব্যক্তি X পছন্দ করে কিন্তু Y দ্রব্যের প্রতি নিরপেক্ষ।

(ii) The consumer likes both X and Y but believes that beyond 6 units of X a day, X is bad and beyond 4 units of Y a day, Y is bad.

ভোক্তা X এবং Y দুটোই পছন্দ করে কিন্তু দিনে 6 টি X এর বেশি X এবং 4 টির বেশি Y পছন্দ করে না।

3. Answer any *two* questions: 10×2 = 20

যে-কোনো *দুটি* প্রশ্নের উত্তর দাওঃ

(a) Let the utility function be $u = xy$, and the budget line is $M = P_x.x + P_y.y$. 5+5

ধরা যাক উপযোগিতা অপেক্ষকটি হল $u = xy$ এবং বাজেট রেখা $M = P_x.x + P_y.y$।

(i) Derive the optimum values of X and Y.

X এবং Y এর কাম্য মান কি ?

(ii) Show that the sum of price elasticity, cross price elasticity and income elasticity of demand equal to zero.

দেখাও যে চাহিদার নিজ দামগত স্থিতিস্থাপকতা, পারস্পরিক দামগত স্থিতিস্থাপকতা এবং আয়গত স্থিতিস্থাপকতার যোগফল শূন্য।

(b) (i) Define homogeneous function. 2+2+6

সমজাতীয় উৎপাদন অপেক্ষকের সংজ্ঞা দাও।

(ii) Show that $q = A L^\alpha K^\beta$ is a homogeneous function.

দেখাও যে $q = A L^\alpha K^\beta$ অপেক্ষকটি একটি সমজাতীয় অপেক্ষক।

(iii) Discuss the properties of Cobb-Douglas production function.

কব-ডগলাস উৎপাদন অপেক্ষকের বৈশিষ্ট্যগুলি আলোচনা করো।

(c) (i) Left and right shoes are perfect complements. Draw the appropriate price consumption and income consumption curve. 5+5

বাম পায়ের জুতো এবং ডান পায়ের জুতো সম্পূর্ণ পরিপূরক। প্রাসঙ্গিক দাম সাপেক্ষ ভোগ রেখা এবং আয় সাপেক্ষ ভোগ রেখা অঙ্কন করো।

(ii) State and explain the Slutsky decomposition of price effect into income effect and substitution effect.

স্লাটস্কি নির্দিষ্ট দাম প্রভাবের আয় প্রভাব এবং পরিবর্ত প্রভাবের মধ্যে বিচ্ছিন্নকরণের সূত্রটি লেখো এবং ব্যাখ্যা করো।

(d) (i) Define 'consumers surplus' and show it graphically. 5+5

'ভোক্তার উদ্বৃত্ত' এর সংজ্ঞা দাও এবং ছবি এঁকে দেখাও।

(ii) Distinguish between ordinary demand curve and compensated demand curve.

সাধারণ চাহিদা রেখা এবং ক্ষতিপূরক চাহিদা রেখার মধ্যে পার্থক্য দেখাও।

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within* 1 *hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

CMSACOR01T- COMPUTER SCIENCE (CC1)

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

GROUP-A

1.   Answer any *four* questions from the following: 2×4 = 8

(a) Why C is called procedural language?

(b) What do you mean by header files?

(c) Differentiate between while loop and do-while loop in C.

(d) What do you mean by derived data types?

(e) What is pointer?

(f) What is copy constructor?

(g) What do you mean by classes and objects?

GROUP-B

Answer any *four* questions from the following   8×4 = 32

2. (a) How a C Program is compiled and executed? Mention all steps involved in this entire process.   3

(b) Compare if-else construct with switch-case construct in C.   3

(c) State the difference between '=' operator and '==' operator in C.   2

3. (a) What do you mean by polymorphism?   2

(b) Define constructor. How it can be overloaded?   1+2

(c) Differentiate between function overloading and function overriding.   3

4. (a) Distinguish between 'call by value' and 'call by reference'. Give examples.   4

(b) What is double pointer?   2

(c) What do you mean by dereferencing a pointer variable?   2

5. (a) What is recursion?   2

   (b) State the differences between member functions and friend functions of a class.   2

   (c) What do you mean by inline functions?   2

   (d) Give examples of some operators which cannot be overloaded in C++.   2

6.   Distinguish between the following:

   (a) Structure and Union   4

   (b) Static memory allocation and Dynamic memory allocation.   4

7. (a) Write a recursive function to find the factorial of a number.   4

   (b) Write a program in C++ to overload any binary operator.   4

8.   Write short notes on any *two* of the following: 4+4

   (a) Inheritance property of OOP

   (b) User Defined Functions in C/C++

   (c) Storage class specifiers in C.

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

CEMACOR01T-CHEMISTRY (CC1)

Time Allotted: 2 Hours   Full Marks: 40

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All symbols are of usual significance.

Answer any *three* questions taking *one* from each unit

UNIT-1

1. (a) Draw the orbital picture of $H_2C=CH-CN$ mentioning the hybridization of each carbon atom and nitrogen atom.   3

   (b) Which of the following compound has higher solubility in water and why?   2

   and
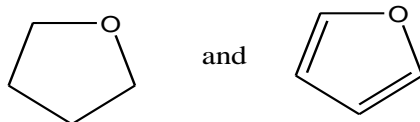
   (c) Draw all possible canonical forms of $Me_2N-\overset{+}{C}HOCH_3$ and justify which one is the most stable and which one is the least stable among them.   3

   (d) Draw a properly labeled π-molecular orbital diagram of 1, 3-butadiene. Indicate the HOMO and LUMO of the molecule in the ground state.   3

   (e) Classify the following molecules as non-aromatic, aromatic, antiaromatic or homoaromatic with reason.   3
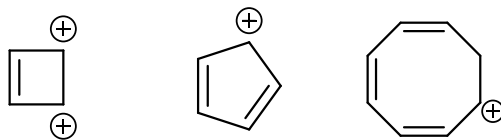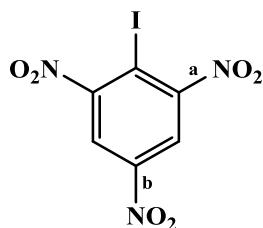
   (f) "Heat of combustion and not heat of hydrogenation is more suitable to compare the stability of 1-butene, 2-butene and isobutene" — Justify with the help of energy diagram.   2

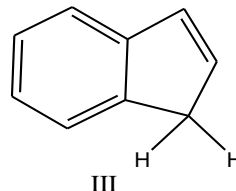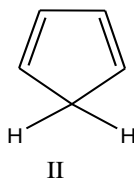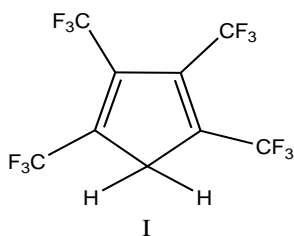2. (a) Cyclooctatetraene is non-planar but its dianion is planar. Explain.   2
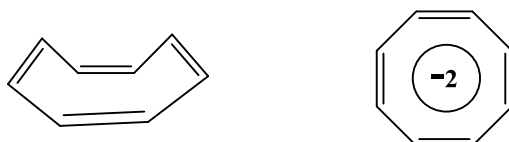
(b) Compare the bond lengths (a vs b) of the following compound with reason.   3

(c) Arrange the following compounds in order of increasing pK_a values with explanation.   3

(d) Could you compare the stabilities of pent-1-ene, cis- and trans-pent-2-enes and 3-methyl-but-1-ene by measuring their heat of hydrogenation? Explain. What method would you use?   3

(e) Calculate the DBE of a compound with molecular formula $C_6H_3Cl_2ON$.   2

(f) Three isomeric chlorotoluenes have μ values 1.3D, 1.9D and 1.8D. Assign which is which with proper explanation.   3

UNIT-2

3. (a) Compare the order of nucleophilicity of EtO^-, PhO^-, $MeCOO^-$.   2

(b) What do you mean by homolytic bond fission? Compare the energy required for homolytic fission of following C–H bonds (indicated as a, b, c).   2

$$Me_3C \overset{a}{\rule{1cm}{0.4pt}} H \qquad Me_2CH \overset{b}{\rule{1cm}{0.4pt}} H \qquad MeH_2C \overset{c}{\rule{1cm}{0.4pt}} H$$

(c) Arrange the following carbocations in increasing order of stability and justify.   2
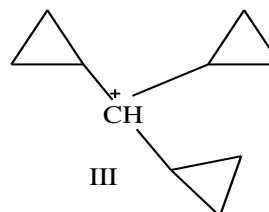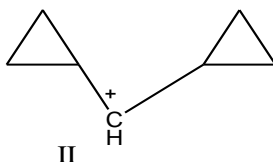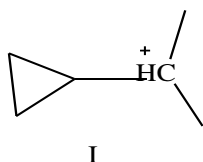
(d) Which one of the marked protons (A and B) in the following compound is more acidic and why ?   2

4. (a) All electrophiles are positively charged – justify or criticize the statement. 3

   (b) Explain the order of stability of the following radicals. 2

$$CH_3-O-\overset{\bullet}{C}H_2 \quad \overset{\bullet}{C}H_2Me \quad \overset{\bullet}{C}HMe_2$$
$$\textbf{I} \qquad\qquad \textbf{II} \qquad \textbf{III}$$

   (c) Write down the structural features of the singlet and triplet carbenes mentioning the hybridization involved herein. 3

UNIT-3

5. (a) Draw all stereoisomers of $CH_3CH=CH–CHBr–CH=CHCH_3$ and comment on their optical activity. 3

   (b) What are asymmetric and dissymmetric molecules? Illustrate with suitable examples. 3
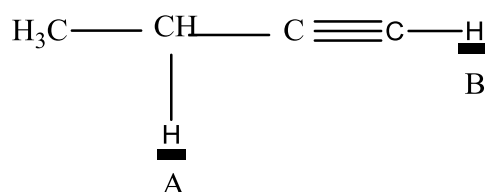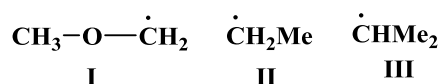
   (c) Convert the following zig-zag projection to Fischer projection. 2
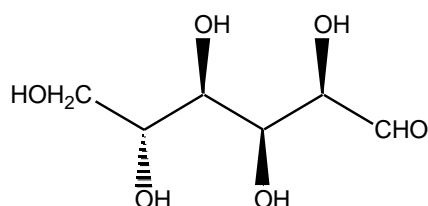
   (d) Draw the Flying wedge formula of the following. 3

   (i) (R)-2-Deuteropropanoic acid

   (ii) (2R, 3S)-3-phenyl-2-butanol

   (e) An optically pure sample of (R)-2-butanol shows a specific rotation of $-13.6°$. What relative molar proportion of (S)-2-butanol and (R)-2-butanol would give a specific rotation $+6.8°$? 3

   (f) Assign the R/S of the chiral center of the following compound 2
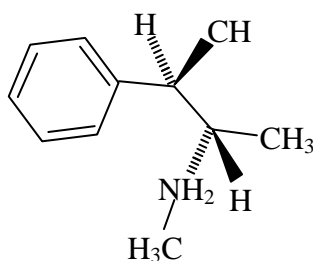
6. (a) Define center of symmetry with an example. 2

   (b) Draw the *anti*-form in Sawhorse and Newmann projection of threo-3-bromobutan-2-ol. 3

   (c) Label the following pair of molecules as homomer, enantiomer or diastereomer 2+1
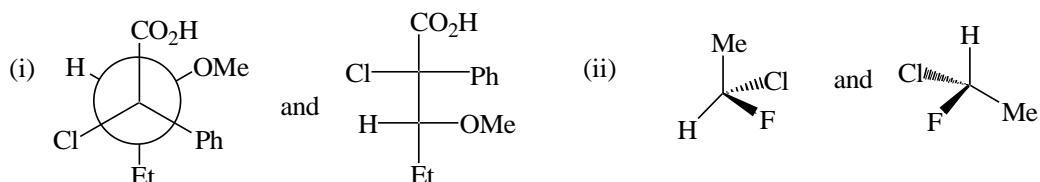
(d) Comments on the optical activity of the following compounds with justification.   3

(i)

(ii)
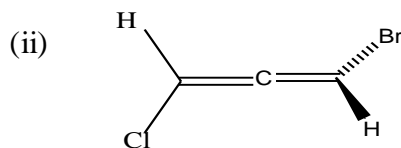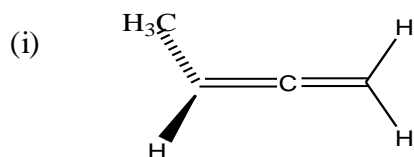
(e) Assign E/Z descriptor to the following stereostructures   2

(i)

(ii)
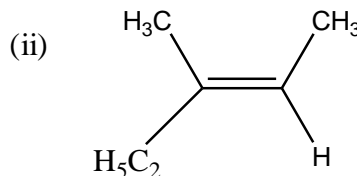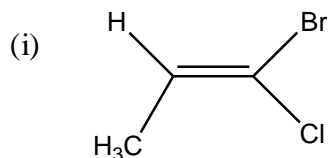
(f) What are the differences between configurations and conformations? Explain with suitable example(s).   3

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

BOTACOR01T-BOTANY (CC1)

Time Allotted: 2 Hours   Full Marks: 40

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Candidates should answer in their own words and adhere to the word limit as practicable.

GROUP-A

1.   Answer ***all*** questions from the following: 1×3 = 3

   (a) Name one acid fast bacteria.

   (b) Name one disease caused by Prion.

   (c) Write the membrane characters of Archaea.

2.   Answer any ***four*** questions from the following: 3×4 = 12

   (a) Write the differences between membrane structures of bacteria and archaea.

   (b) Draw the labeled structure of TMV and mention their physico-chemical characters.

   (c) Write the differences of various types of recombination in bacteria.

   (d) Differentiate between the cell wall of Gram (+) and Gram (−) bacteria. Write down the special component present in *Mycobacterium* cell wall.

   (e) Mention the role of small subunit of ribosome in bacterial classification.

   (f) Draw and describe the physico-chemical characteristics of a plant virus.

3.   Answer any ***one*** question from the following: 5×1 = 5

   (a) Draw and describe the different steps of lytic cycle in a bacteriophage.

   (b) With suitable examples, write a note on different types of vaccines.

GROUP-B

4.   Answer ***all*** questions from the following: 1×3 = 3

   (a) Name the main pigment and reserve food material in Rhodophyceae.

   (b) What is Gaidukov phenomenon?

   (c) Name one algae where isomorphic alternation of generation is found.

5.   Answer any *four* questions from the following: 3×4 = 12

   (a) Draw and label the sexual reproductive structures in *Chara*.

   (b) In which algae 'daughter colony' is found? Describe the structure of this algae.

   (c) Write a short note on the range of thallus structure of Phaeophyceae.

   (d) State the diagnostic characters of Cyanophyta.

   (e) What is triphasic life cycle? Where it is found? Why it is so named?

   (f) What is diatomite? Mention the economic importance of diatomite.

6.   Answer any *one* question from the following: 5×1 = 5

   (a) Draw and describe the life cycle of a monoecious macrandrous *Oedogonium*.

   (b) Illustrate with diagram the sexual reproduction in *Vaucheria*.

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WEST BENGAL STATE UNIVERSITY

B.A. Honours 1st Semester Examination, 2020, held in 2021

BNGACOR01T-BENGALI (CC1)

প্রাগাধুনিক বাংলা সাহিত্যের ইতিহাস

Time Allotted: 2 Hours   Full Marks: 50

প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি প্রশ্নের মান নির্দেশ করে।
পরীক্ষার্থীদের নিজের ভাষায় যথা সম্ভব শব্দসীমার মধ্যে উত্তর দিতে হবে।

১।   প্রতিটি একক থেকে *একটি* করে প্রশ্ন নিয়ে মোট *চারটি* প্রশ্নের উত্তর দাওঃ   ১০× ৪ = ৪০

একক – ১

(ক) বাংলা সাহিত্যের প্রাচীনতম নিদর্শন কী ? কে এই গ্রন্থটি, কোথা থেকে আবিষ্কার করেন ? গ্রন্থটির   ১+১+১+৭
সাহিত্যিক মূল্য বিচার করো।

অথবা

(খ) শ্রীকৃষ্ণকীর্তন কাব্যটির রচয়িতা কে ? গ্রন্থটির আবিষ্কার বৃত্তান্ত সংক্ষেপে লেখো। এই গ্রন্থে সমকালীন   ১+২+৭
সমাজচিত্রের যে প্রতিফলন লক্ষ্য করা যায় তার পরিচয় দাও।

একক – ২

(গ) ভারতচন্দ্রের অন্নদামঙ্গল প্রকৃতপক্ষে কবির সমকালীন অবক্ষয়িত সমাজজীবনেরই শিল্প-সংগীত —   ১০
আলোচনা করো।

অথবা

(ঘ) শিবায়ন কাব্যকে 'শিবমঙ্গল' আখ্যা দেওয়া কতদূর সংগত আলোচনা করো। প্রসঙ্গত, এই ধারার   ৪+৬
একজন উল্লেখযোগ্য কবির কাব্যকৃতির পরিচয় দাও।

একক – ৩

(ঙ) কবি কৃত্তিবাসকে মধুসূদন বলেছেন 'এ বঙ্গের অলঙ্কার'। — কৃত্তিবাসের সংক্ষিপ্ত পরিচয় দিয়ে তাঁর   ১০
কাব্য-প্রতিভার মূল্যায়ন করো।

অথবা

(চ) অনুবাদ সাহিত্য বলতে কী বোঝো ? মহাভারতের তিনজন অনুবাদকের নাম লেখো। শ্রেষ্ঠ অনুবাদকের   ১.৫+১.৫+৭
অনুবাদ কর্মের পরিচয় ও কবি-প্রতিভার বৈশিষ্ট্য নির্দেশ করো।

একক – ৪

(ছ) বৈষ্ণব সাহিত্য ও দর্শনে বৃন্দাবনের ষড়গোস্বামীর ভূমিকা আলোচনা করো।   ১০

অথবা

(জ) শাক্ত পদাবলীর জনপ্রিয়তার কারণ কী ? এই ধারায় সাধক কবি কমলাকান্ত ভট্টাচার্যের কবি-প্রতিভার   ৩+৭
পরিচয় দাও।

২।   নিম্নলিখিত যে-কোনো **দুটি** বিষয় সম্পর্কে সংক্ষেপে আলোচনা করোঃ (অনধিক ১৫০ শব্দে)   ৫×২ = ১০

(ক) বাংলা সাহিত্যের অন্ধকার যুগ

(খ) কবি বিজয় গুপ্ত

(গ) শ্রীকৃষ্ণবিজয়

(ঘ) খেতুরী-র মহোৎসব।

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

ZOOACOR01T-ZOOLOGY (CC1)

NON-CHORDATES I

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.

1. Answer any *eight* questions from the following: 2×8 = 16

   (a) Define spicule.

   (b) Name various larval stages of *Fasciola hepatica*.

   (c) State functions of gonozooids.

   (d) Define signet-ring stage.

   (e) What is the infective stage of *Entamoeba histolytica*?

   (f) State two characteristic features of Nemathelminthes.

   (g) What is rostellum?

   (h) Write down the generic name of two freshwater sponges.

   (i) Give two examples (scientific name) of Platyhelminthes.

   (j) Name definitive hosts of *Ascaris lumbricoides* and *Taenia solium*.

   (k) Distinguish between polyp and medusa.

   (l) Write the functions of macronucleus of *Paramoecium* sp.

2. Answer any *three* questions from the following: 3×3 = 9

   (a) State the significance of conjugation in *Paramoecium*.

   (b) Write down the pathogenicity of *Plasmodium vivax*.

   (c) State characteristic features of phylum Ctenophora.

   (d) Mention significance of coral reefs.

   (e) Briefly narrate symptoms and treatment of taeniasis.

3. Answer any *three* questions from the following: 5×3 = 15

   (a) Classify phylum Cnidaria up to classes with proper example.   5

   (b) Write a short note on Rhagon type of canal system in Sponges with a proper   2+3
   diagram.

(c) Name the phylum and class of the following animals: $1 \times 5 = 5$

    (i) *Beroe*

    (ii) Liver fluke

    (iii) Sea fan

    (iv) Portuguese Man of War

    (v) *Fungia*.

(d) Write short notes on: $2\frac{1}{2} \times 2 = 5$

    (i) Atoll

    (ii) Pneumatophore.

(e) Describe briefly morphological adaptations found in *Taenia* sp. and *Ascaris* sp. $2\frac{1}{2} \times 2 = 5$

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WEST BENGAL STATE UNIVERSITY

B.A. Honours 1st Semester Examination, 2020, held in 2021

PLSACOR01T-POLITICAL SCIENCE (CC1)

UNDERSTANDING POLITICAL THEORY

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words
and adhere to the word limit as practicable.

প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি পূর্ণমান নির্দেশ করে।
পরীক্ষার্থীরা নিজের ভাষায় যথা সম্ভব শব্দসীমার মধ্যে
উত্তর করিবে।

1. Answer any *five* questions from the following: 2×5 = 10
    নিম্নলিখিত যে-কোনো ***পাঁচটি*** প্রশ্নের উত্তর দাওঃ

    (a) What do you mean by the term 'Political'?
        'রাজনৈতিক' শব্দটি বলতে তুমি কি বোঝো ?

    (b) Mention two features of post-behaviouralism.
        উত্তর আচরণবাদের দুটি বৈশিষ্ট্য উল্লেখ করো।

    (c) Point out the basic sources of Marxism.
        মার্কসবাদের মৌলিক উৎসগুলি চিহ্নিত করো।

    (d) Mention two criticisms of behaviouralism.
        আচরণবাদের দুটি সমালোচনা উল্লেখ করো।

    (e) Mention Weber's concept of authority.
        ওয়েবারের কর্তৃত্বের ধারণাটি উল্লেখ করো।

    (f) Define political system.
        রাজনৈতিক ব্যবস্থার সংজ্ঞা দাও।

    (g) Write the two focal points of Structural Functionalism.
        কাঠামো-কার্যগত তত্ত্বের মূল আলোচ্য বিষয় কি কি ?

    (h) Define political communication.
        রাজনৈতিক যোগাযোগের সংজ্ঞা দাও।

    (i) Who wrote the book "Modern Political Analysis"?
        "Modern Political Analysis" গ্রন্থটি কে রচনা করেন ?

2. Answer any *two* questions from the following: 5×2 = 10
    নিম্নলিখিত যে-কোনো ***দুটি*** প্রশ্নের উত্তর দাওঃ

    (a) "Politics is an activity, not a moral prescription" — Explain.
        ''রাজনীতি হল এক ধরনের ক্রিয়া কোনও নৈতিক নির্দেশ নয়'' — ব্যাখ্যা করো।

(b) Discuss the features of behavioural approach.

আচরণবাদী দৃষ্টিভঙ্গির বৈশিষ্ট্যগুলি আলোচনা করো।

(c) What is feedback mechanism?

তথ্য প্রেরক পথ বলতে কি বোঝো ?

(d) Write a short note on the Weberian models of authority.

ওয়েবার প্রদত্ত কর্তৃত্বের মডেলগুলির ওপর একটি সংক্ষিপ্ত টীকা লেখো।

3. Answer any *three* questions taking *one* question from each module: 10×3 = 30

প্রতিটি মডিউল থেকে *একটি* করে প্রশ্ন নিয়ে মোট *তিনটি* প্রশ্নের উত্তর দাওঃ

MODULE-I

(a) Evaluate the scope of Political Science as a social science.

সামাজিক বিজ্ঞান হিসাবে রাষ্ট্রবিজ্ঞানের পরিধি মূল্যায়ন করো।

(b) Write an essay on modern politics.

আধুনিক রাষ্ট্রবিজ্ঞান সম্পর্কে একটি প্রবন্ধ লেখো।

MODULE-II

(c) Discuss the characteristics of the traditional approach to the study of Political Science.

রাষ্ট্রবিজ্ঞানের সনাতনী দৃষ্টিভঙ্গির বৈশিষ্ট্যগুলি আলোচনা করো।

(d) Discuss the post behavioural approach to the study of politics.

রাজনীতি পাঠে উত্তর আচরণবাদী দৃষ্টিভঙ্গি আলোচনা করো।

MODULE-III

(e) Critically evaluate the Systems Analysis of David Easton.

ডেভিড ইস্টনের ব্যবস্থাজ্ঞাপক বিশ্লেষণটির সমালোচনা সহ আলোচনা করো।

(f) Discuss the significance of Structural-Functional model in the analysis of Political System.

রাজনৈতিক ব্যবস্থার বিশ্লেষণে কাঠামো–কার্যগত মডেলটির তাৎপর্য আলোচনা করো।

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

PHSACOR01T-Physics (CC1)

Mathematical Physics I

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

Question No. 1 is compulsory and answer any *two* from the rest.

1.   Answer any ***ten*** questions from the following: 2×10=20

(a) Sketch: $f(\theta) = 1 + \frac{1}{2}\sin^2\theta$ for $0 \le \theta \le 2\pi$.

(b) Show that $f(x) = \frac{|x|}{x}$ is discontinuous at $x = 0$, where $f(0) = 0$.

(c) If $d\varphi(x, y) = M(x, y)\,dx + N(x, y)\,dy$, where φ is a well-behaved function of its arguments, then show that

$$\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$$

(d) Solve: $\frac{dy}{dx} + 2xy = 4x$

(e) Determine a unit vector perpendicular to the plane of $\vec{A} = 2\hat{i} - 6\hat{j} - 3\hat{k}$ and $\vec{B} = 4\hat{i} + 3\hat{j} - \hat{k}$.

(f) The position vector $\vec{r}$ of any arbitrary point on the surface satisfies the equation $|\vec{r}| = k$, a constant. Identify the geometry of the surface and justify your answer.

(g) $\vec{r}$ is the position vector of an arbitrary point in a three-dimensional space. Using Cartesian coordinate system, find gradient of $1/|\vec{r}|$ at any point away from the origin.

(h) For a vector field $\vec{F}(x, y, z, t)$ show that $dF = (d\vec{r} \cdot \vec{\nabla})\,\vec{F} + \frac{\partial\vec{F}}{\partial t}\,dt$.

(i) Show that $\vec{\nabla} \times \vec{r}f(r) = 0$ where r is the magnitude of position vector of any arbitrary point in three-dimensional space ($f(r)$ being differentiable everywhere).

(j) ϕ is a scalar function satisfying the equation $\nabla^2\phi = 0$. Show that $\vec{\nabla}\phi$ is both solenoidal and irrotational.

(k) Show that $\oiint_S d\vec{S} = 0$.

(l) A dice is thrown. What is the probability that the number obtained is a prime number?

(m) There are five green and seven red balls. Two balls are selected one by one without replacement. Find the probability that the first is green and the second is red.

(n) What is meant by a probability distribution function? Cite an example.

2. (a) Prove the identity $\vec{\nabla}.(\vec{A} \times \vec{B}) = \vec{B}.(\vec{\nabla} \times \vec{A}) - \vec{A}.(\vec{\nabla} \times \vec{B})$. Hence show that $(\vec{A} \times \vec{r})$ is solenoidal if $\vec{A}$ is irrotational.   3+1

(b) If $f(x, y, z) = 0$, then show that $\left(\dfrac{\partial x}{\partial y}\right)_z \left(\dfrac{\partial y}{\partial z}\right)_x \left(\dfrac{\partial z}{\partial x}\right)_y = -1$.   4

(c) A multiple-choice test consists of 100 questions. Answer to each question has four possible options among which only one is correct. If a student answers all the questions by guessing at random, then what is the expected number of correct answers given by him?   2

3. (a) Solve: $\dfrac{y}{x^2} + 1 + \dfrac{1}{x}\dfrac{dy}{dx} = 0$ 2

(b) Determine the constant a so that the following vector is solenoidal: 4
$$\vec{V} = (x + 3y)\hat{i} + (y - 2z)\hat{j} + (x + az)\hat{k}$$

(c) Calculate the mean and the variance of a binomial distribution.   2+2

4. (a) The relativistic sum w of two velocities u and v in the same direction is given by   4
$$\frac{w}{c} = \frac{\dfrac{u}{c} + \dfrac{v}{c}}{1 + \dfrac{uv}{c^2}}$$
If $u/c = v/c = 1 - \alpha$, where $0 \leq \alpha \leq 1$, find w/c in powers of α. Show terms only up to α^3.

(b) Find the directional derivative of $\varphi(x, y, z) = x^2 y + xz$ at $(1, 2, -1)$ along the direction of $\vec{A} = 2\hat{i} - 2\hat{j} + \hat{k}$.   3

(c) Use Green's theorem on a plane to show that the area bounded by a simple closed curve C is $\dfrac{1}{2}\oint_C (x\,dy - y\,dx)$.   3

5. (a) An integer N is chosen at random with $1 \leq N \leq 100$. What is the probability that N is a perfect square?   2

(b) Obtain the complementary function of the differential equation   3
$$\frac{d^2 y}{dx^2} + 5\frac{dy}{dx} + 4y = \cos 2x$$

(c) Evaluate the line integral of $\vec{A}(x, y, z) = x^2\hat{i} + y^2\hat{j} - z^2\hat{k}$, from the origin to (a, b, c), along the path given parametrically by $x = at^2$, $y = bt$, $z = c\sin(\pi t/2)$. Does the result depend on the path? Justify your answer.   3+2

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

PHSACOR01T-PHYSICS (CC1)

MATHEMATICAL PHYSICS I

Time Allotted: 2 Hours   Full Marks: 40

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   (d) Solve: $\frac{dy}{dx} + 2xy = 4x$

   (e) Determine a unit vector perpendicular to the plane of $\vec{A} = 2\hat{i} - 6\hat{j} - 3\hat{k}$ and $\vec{B} = 4\hat{i} + 3\hat{j} - \hat{k}$.

   (f) The position vector $\vec{r}$ of any arbitrary point on the surface satisfies the equation $|\vec{r}| = k$, a constant. Identify the geometry of the surface and justify your answer.

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(b) If $f(x,\ y,\ z) = 0$, then show that $\left(\dfrac{\partial x}{\partial y} \right)_z \left(\dfrac{\partial y}{\partial z} \right)_x \left(\dfrac{\partial z}{\partial x} \right)_y = -1$.   4

(c) A multiple-choice test consists of 100 questions. Answer to each question has four possible options among which only one is correct. If a student answers all the questions by guessing at random, then what is the expected number of correct answers given by him?   2

3. (a) Solve: $\dfrac{y}{x^2} + 1 + \dfrac{1}{x}\dfrac{dy}{dx} = 0$ 2

(b) Determine the constant a so that the following vector is solenoidal: 4
$$\vec{V} = (x+3y)\hat{i} + (y-2z)\hat{j} + (x+az)\hat{k}$$

(c) Calculate the mean and the variance of a binomial distribution.   2+2

4. (a) The relativistic sum w of two velocities u and v in the same direction is given by   4
$$\frac{w}{c} = \frac{\frac{u}{c} + \frac{v}{c}}{1 + \frac{uv}{c^2}}$$
If $u/c = v/c = 1 - \alpha$, where $0 \le \alpha \le 1$, find w/c in powers of α. Show terms only up to α^3.

(b) Find the directional derivative of $\varphi(x,\ y,\ z) = x^2 y + xz$ at $(1,\ 2,\ -1)$ along the direction of $\vec{A} = 2\hat{i} - 2\hat{j} + \hat{k}$.   3

(c) Use Green's theorem on a plane to show that the area bounded by a simple closed curve C is $\dfrac{1}{2}\oint_C (x\,dy - y\,dx)$.   3

5. (a) An integer N is chosen at random with $1 \le N \le 100$. What is the probability that N is a perfect square?   2

(b) Obtain the complementary function of the differential equation   3
$$\frac{d^2 y}{dx^2} + 5\frac{dy}{dx} + 4y = \cos 2x$$

(c) Evaluate the line integral of $\vec{A}(x,\ y,\ z) = x^2\hat{i} + y^2\hat{j} - z^2\hat{k}$, from the origin to $(a,\ b,\ c)$, along the path given parametrically by $x = at^2$, $y = bt$, $z = c\sin(\pi t/2)$. Does the result depend on the path? Justify your answer.   3+2

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WEST BENGAL STATE UNIVERSITY

B.A. Honours 1st Semester Examination, 2020, held in 2021

PHIACOR01T-PHILOSOPHY (CC1)

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.   প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি পূর্ণমান নির্দেশ করে।
Candidates should answer in their own words   পরীক্ষার্থীরা নিজের ভাষায় যথা সম্ভব শব্দসীমার মধ্যে
and adhere to the word limit as practicable.   উত্তর করিবে।

All symbols are of usual significance.

Question No. 1 and 2 are compulsory. Answer any *two* from the rest
১নং এবং ২ নং প্রশ্ন আবশ্যিক। অবশিষ্ট যে-কোনো দুটি প্রশ্নের উত্তর দাও

1.   Answer any *five* questions from the following: 2×5 = 10
      নিম্নলিখিত যে-কোনো *পাঁচটি* প্রশ্নের উত্তর দাওঃ

   (a) What is substance, according to Descartes?
       দেকার্তের মতে দ্রব্য কী ?

   (b) How many types of Idea are accepted by Descartes?
       দেকার্ত কয়প্রকার ধারণা স্বীকার করেন ও কী কী ?

   (c) Mention any two differences between the views of Descartes and Spinoza.
       দেকার্ত ও স্পিনোজার অভিমতের মধ্যে যে-কোনো দুটি পার্থক্য দেখাও।

   (d) What is the main tenet of Spinoza's metaphysics?
       স্পিনোজার অধিবিদ্যার মূল বিষয় কী ?

   (e) What does Spinoza mean by 'modes'?
       'বিকার' বলতে স্পিনোজা কী বুঝিয়েছেন ?

   (f) What is 'Intellectual love of God', according to Spinoza?
       স্পিনোজার মতে 'বুদ্ধিসঞ্জাত ঈশ্বরপ্রেম' কী ?

   (g) Why Leibnitz is called 'extreme rationalist' philosopher?
       কেন লাইবনিজকে 'চরমপন্থী বুদ্ধিবাদী' দার্শনিক বলা হয় ?

   (h) Is the notion of substance of Leibnitz differ from Cartesian view and atomistic
       view?
       লাইবনিজের দ্রব্যতত্ত্ব কি কার্তেজীয় মত ও পরমাণুবাদীদের মত থেকে ভিন্ন ?

   (i) What is the 'Law of Sufficient Reason', according to Leibnitz?
       লাইবনিজ স্বীকৃত 'পর্যাপ্ত যুক্তির নিয়ম'টি কী ?

   (j) How does Leibnitz distinguish between perception and apperception?
       লাইবনিজ প্রত্যক্ষ ও সংপ্রত্যক্ষের মধ্যে কিভাবে পার্থক্য করেছেন ?

2.   Answer any *two* questions from the following: 5×2 = 10
      নিম্নলিখিত যে-কোনো *দুটি* প্রশ্নের উত্তর দাওঃ

   (a) How does Aristotle distinguish between 'form' and 'matter'?
       অ্যারিস্টটল কিভাবে 'আকার' ও 'উপাদান'-এর মধ্যে পার্থক্য করেছেন ?

(b) What is Cartesian 'method of doubt'? Explain briefly.

দেকার্তের 'সংশয়পদ্ধতি' কী ? সংক্ষেপে আলোচনা করো।

(c) Explain the importance of criterion of truth in Descartes' philosophy.

দেকার্তের দর্শনে সত্যতার মানদণ্ডের গুরুত্বটি আলোচনা করো।

(d) 'Whatever is, is in God, and nothing can exist or can be conceived without God' – What does Spinoza mean by the statement?

'যা কিছু আছে, ঈশ্বরেই আছে এবং কোন কিছুই অস্তিত্বশীল হবে না অথবা বোধগম্য হবে না ঈশ্বর ছাড়া' – এই বাক্যের দ্বারা স্পিনোজা কী বুঝিয়েছেন ?

(e) What is the distinction between Truths of reason and Truths of fact? Explain after Leibnitz.

বুদ্ধিসংক্রান্ত সত্য এবং তথ্য সংক্রান্ত সত্যের মধ্যে পার্থক্য কী ? লাইবনিজকে অনুসরণ করে ব্যাখ্যা করো।

(f) Explain Leibnitz's view on Innate Idea.

সহজাত ধারণা সম্বন্ধে লাইবনিজের মত আলোচনা করো।

3. Critically explain Plato's theory of knowledge.   15

    প্লেটোর জ্ঞানতত্ত্ব সবিচার আলোচনা করো।

4. Explain Plato's theory of forms or ideas. What are the objections of Aristotle   8+7
    against Platonic theory of Ideas?

    প্লেটোর আকার বা ধারণাতত্ত্ব ব্যাখ্যা করো। প্লেটোর ধারণাতত্ত্বের বিরুদ্ধে অ্যারিস্টটলের আপত্তিগুলি কি কি ?

5. How does Descartes arrive at his principle "cogito ergo sum"? Can it be regarded   10+5
    as the foundation of his philosophy? – Discuss .

    দেকার্ত কীভাবে 'আমি চিন্তা করি, অতএব আমি আছি' – এই সূত্রটি আবিষ্কার করেন ? সূত্রটিকে কি তাঁর দর্শনের ভিত্তিরূপে গণ্য করা যায় ?

6. Explain Spinoza's theory of knowledge.   15

    স্পিনোজার জ্ঞানতত্ত্ব আলোচনা করো।

7. How does Spinoza define 'Substance'? Explain, following Spinoza, how substance   8+7
    is related to attributes.

    স্পিনোজা কীভাবে দ্রব্যের সংজ্ঞা দিয়েছেন ? স্পিনোজাকে অনুসরণ করে দ্রব্যের সঙ্গে গুণের সম্পর্ক ব্যাখ্যা করো।

8. What are the characteristics of Leibniz's monad? What are the different kinds of   7+3+5
    monad according to Leibniz? How does he explain their relation?

    লাইবনিজের চিৎপরমাণুর বৈশিষ্ট্য কী ? তিনি কত প্রকার চিৎপরমাণু স্বীকার করেছেন ? তিনি কীভাবে এদের সম্বন্ধ ব্যাখ্যা করেন ?

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WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2020, held in 2021

MTMACOR01T-MATHEMATICS (CC1)

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

Answer Question No. 1 and any *five* from the rest

1.   Answer any *five* questions from the following: 2×5 = 10

(a) Evaluate the limit: $\lim\limits_{x \to (\frac{\pi}{2})+} (\tan x)^{2x-\pi}$

(b) If $y = e^{m\sin^{-1} x}$, show that $(1-x^2) y_{n+2} - (2n+1)x\, y_{n+1} - (n^2+m^2)\, y_n = 0$. Also find $y_n(0)$.

(c) Find the interval where the curve $y = e^x(\cos x + \sin x)$ is concave upwards or downwards for $0 < x < 2\pi$.

(d) Find the vertical and horizontal asymptotes of the following curve:

$$f(x) = \begin{cases} \dfrac{(x+1)^2}{x^2 + 4x + 3} & ; \quad \text{if } x \neq -1 \text{ or } -3 \\ 0 & ; \quad \text{otherwise} \end{cases}$$

(e) A sphere of radius k passes through the origin and meets the axes in A, B, C. If (α, β, γ) be the centroid of the triangle ABC, then find the value of $\alpha^2 + \beta^2 + \gamma^2$.

(f) Examine the curve $x = 6t^2$, $y = 4t^3 - 3t$ for concavity and convexity.

(g) Find the arc length of the curve $y = \dfrac{e^x + e^{-x}}{2}$, $0 \le x \le 2$.

(h) Find the equation of the generating lines of the hyperboloid $yz + 2zx + 3xy + 6 = 0$ which pass through the point $(-1, 0, 3)$.

(i) Solve: $(4x^2 y - 6)\, dx + x^3 dy = 0$

(j) Test whether the equation $x\, dx + y\, dy + \dfrac{x\, dy - y\, dx}{x^2 + y^2} = 0$ is exact or not.

2. (a) Find the point of inflexion, if any of the curve $x = (\log y)^3$. 4

   (b) Trace the curve $x^3 + y^3 = 3axy$. 4

3. (a) Prove that the envelope of circle whose centres lie on the rectangular hyperbola $xy = c^2$ and which pass through its centre is $(x^2 + y^2)^2 = 16c^2xy$. 4

   (b) Find the asymptotes of the curve $x^2(x+y)(x-y)^2 + 2x^3(x-y) - 4y^3 = 0$. 4

4. (a) Assuming evolute as the envelope of normals find the evolute of the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$. 4

   (b) Find the value of a, such that $\lim\limits_{x\to 0} \dfrac{a\sin x - \sin 2x}{\tan^3 x}$ is finite. Find the limit. 4

5. (a) If $I_{m,n} = \int \cos^m x \cos nx\, dx$ then prove that, 4

   $$I_{m,n} = \frac{\cos^m x \sin nx}{m+n} + \frac{m}{m+n} I_{m-1,n-1}$$

   (b) Find the surface area formed by the revolution of $x^2 + 4y^2 = 16$ about the x-axis. 4

6. (a) Derive the reduction formula for $\int \sec^n x\, dx$ and hence evaluate $\int \sec^7 x\, dx$. 4

   (b) Show that the length of the parabola $y^2 = 4ax$ cut-off by its latus-rectum is $2a\left[\sqrt{2} + \log(1 + \sqrt{2})\right]$. 4

7. (a) Discuss the nature of the conic $x^2 + 4xy + y^2 - 2x + 2y + a = 0$ for different values of 'a'. 4

   (b) Determine the nature of the conic $r = \dfrac{1}{4 - 5\cos\theta}$. Find the eccentricity, the length of the latus rectum and directrices. 4

8. (a) Show that if a right circular cone has three mutually perpendicular generators, the semivertical angle is $\tan^{-1}\sqrt{2}$. 4

   (b) Prove that the central sections of the conicoid $(a-b)x^2 + ay^2 + (a+b)z^2 = 1$ are at right angles and that the umbilics are given by $x = \pm\sqrt{\dfrac{a+b}{2a(a-b)}}$, $y = 0$, $z = \pm\sqrt{\dfrac{a-b}{2a(a+b)}}$. 4

9. (a) Prove that the centres of spheres which touch the straight lines $y = mx, \ z = c$ and $y = -mx, \ z = -c$ lie on the surface $mxy + cz(1+m^2) = 0$.   4

   (b) Find the equation of the cylinder whose generating line is parallel to the z-axis and the guiding curve is $x^2 + y^2 = z, \ x + y + z = 1$.   4

10. (a) Solve: $y(xy + 2x^2 y^2)\,dx + x(xy - x^2 y^2)\,dy = 0$ 4

    (b) Solve: $\dfrac{dy}{dx} + \dfrac{y}{x}\log y = \dfrac{y}{x^2}(\log y)^2$ 4

11. (a) Show that the equation of the curve, whose slope at any point (x, y) is equal to $xy(x^2 y^2 - 1)$ and which passes through the point $(0, 1)$ is $x^2 y^2 = 1 - y^2$.   4

    (b) Solve: $\sec^2 y\,\dfrac{dy}{dx} + 2x\tan y = x^3$ 4

12. (a) Prove that $(x + y + 1)^{-4}$ is an integrating factor of the equation $(2xy - y^2 - y)\,dx + (2xy - x^2 - x)\,dy = 0$ and hence solve it.   4

    (b) Show that the differential equation of the circles through the intersection of the circle $x^2 + y^2 = 1$ and the line $x - y = 0$ is given by   4

    $$(x^2 - 2xy - y^2 + 1)\,dx + (x^2 + 2xy - y^2 - 1)\,dy = 0$$

13. (a) Find the surface area of the reel formed by the revolution of cycloid $x = a(\theta + \sin\theta), \ y = a(1 - \cos\theta)$ about the tangent at the vertex.   3

    (b) If $I_n = \displaystyle\int x^n \cos x\,dx$, then prove that   3

    $$I_n = x^n \sin x + nx^{n-1}\cos x - n(n-1)I_{n-2}$$

    use this to determine $\displaystyle\int x^5 \cos x\,dx$.

    (c) Find the singular solution of $9\left(\dfrac{dy}{dx}\right)^2 (2-y)^2 = 4(3-y)$.   2

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WEST BENGAL STATE UNIVERSITY
B.A. Honours 1st Semester Examination, 2020, held in 2021

HISACOR01T-HISTORY (CC1)

HISTORY OF INDIA-I (FROM EARLIEST TIMES TO C.300 BCE)

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words
and adhere to the word limit as practicable.

প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি পূর্ণমান নির্দেশ করে।
পরীক্ষার্থীরা নিজের ভাষায় যথা সম্ভব শব্দসীমার মধ্যে
উত্তর করিবে।

GROUP-A / বিভাগ-ক

Answer any *two* questions from Group-A   5×2 =10
Each answer has to be written within 250 words approximately

বিভাগ-ক থেকে যে-কোনো *দুটি* প্রশ্নের উত্তর দাও। প্রতিটি উত্তর ২৫০ শব্দের মধ্যে রাখা বাঞ্ছনীয়

1. Write a short note on the Sangam literature.

    সঙ্গম সাহিত্যের উপর একটি সংক্ষিপ্ত টীকা লেখো।

2. Comment on the trade links between the Harappan civilization and its contemporaries.

    হরপ্পা সভ্যতা ও তার সমকালীন সভ্যতাগুলির মধ্যে বাণিজ্যিক যোগাযোগের উপর মন্তব্য করো।

3. Determine the position of women in the Vedic period.

    বৈদিক যুগে নারীর অবস্থান নিরূপণ করো।

4. Describe the principal features of 'sabha' and 'samiti' in the Vedic period.

    বৈদিক যুগে 'সভা' ও 'সমিতি' –এর প্রধান বৈশিষ্ট্যগুলির বর্ণনা করো।

5. Did the Megalithic culture herald the Iron Age in South India?

    মেগালিথিক (বৃহদশ্মীয়) সংস্কৃতি কি দক্ষিণ ভারতে লৌহ যুগের সূত্রপাত করেছিলো ?

GROUP-B / বিভাগ-খ

Answer any *two* questions from Group-B   8×2 = 16
Each answer has to be written within 400 words approximately

বিভাগ-খ থেকে যে-কোনো *দুটি* প্রশ্নের উত্তর দাও। প্রতিটি উত্তর ৪০০ শব্দের মধ্যে রাখা বাঞ্ছনীয়

6. Assess the importance of inscriptions and coins as source materials for writing the history of ancient India.

    প্রাচীন ভারতীয় ইতিহাস রচনা উপাদান হিসাবে লিপি ও মুদ্রার গুরুত্ব নির্ণয় করো।

7. Discuss the religious life of the Rig Vedic people.

    ঋকবৈদিক মানুষের ধর্মীয় জীবন সম্পর্কে আলোচনা করো।

8. Write a note on the Painted Grey Ware.

   ধূসর চিত্রিত মৃৎপাত্রের উপর একটি টীকা লেখো।

9. What were the similarities and dissimilarities between Jainism and Buddhism?

   জৈন ও বৌদ্ধধর্মের মধ্যে সাদৃশ্য ও বৈসাদৃশ্যগুলি কী কী ছিলো ?

10. Write a brief note on the sixteen Mahajanapadas.

    ষোড়শ মহাজনপদ সম্পর্কে একটি সংক্ষিপ্ত টীকা লেখো।

GROUP-C / বিভাগ-গ

Answer any *two* questions from Group-C   12×2 = 24
Each answer has to be written within 600 words approximately

বিভাগ-গ থেকে যে-কোনো *দুটি* প্রশ্নের উত্তর দাও। প্রতিটি উত্তর ৬০০ শব্দের মধ্যে রাখা বাঞ্ছনীয়

11. How did the notion of early Indian history change with times?   12

    আদি ভারতীয় ইতিহাস সম্পর্কিত ধারণা কীভাবে সময়ের সাথে পরিবর্তিত হয়েছে ?

12. Discuss the geographical extent and the town planning of the Harappan   12
    civilization.

    হরপ্পা সভ্যতার ভৌগোলিক ব্যাপ্তি ও নগর পরিকল্পনা আলোচনা করো।

13. Critically analyze the different theories about the possible causes of the decline of   12
    the Harappan civilization.

    হরপ্পা সভ্যতা ধ্বংসের সম্ভাব্য কারণসমূহ সম্পর্কে বিভিন্ন মতামতগুলি বিশ্লেষণ করো।

14. Examine the problem of locating the original homeland of the Aryans.   12

    আর্যদের আদিবাস ভূমি নির্ণয়ের সমস্যাটি বিচার করো।

15. Discuss the social and economic life of the Rig Vedic Aryans. What changes do   6+6
    you notice in the later Vedic period?

    ঋকবৈদিক আর্যদের সামাজিক ও অর্থনৈতিক জীবন সম্পর্কে আলোচনা করো। পরবর্তী বৈদিক
    সময়কালে কী কী পরিবর্তন তুমি দেখতে পাও ?

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WEST BENGAL STATE UNIVERSITY

B.Com. Honours 1st Semester Examination, 2020, held in 2021

FACACOR01T-B.Com. (CC1)

FINANCIAL ACCOUNTING-I

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

GROUP-A

Answer any *two* questions from the following   10×2 = 20

1.   Write short notes on the following: (**any *two***)   5+5

(i) Principle of Conservatism

(ii) Matching Concept

(iii) Entity Concept

2.   Show Journal Entries in the books of Mr. X to rectify the following errors assuming that these are detected after the preparation of Trial Balance. Also prepare the Suspense Account.   10

(i)   Return Inward Book was overcast by Rs. 500.

(ii)   Wages paid to Mr. Z for Rs. 1,000 but debited to his personal account.

(iii) A cash sale of Rs. 1,335 duly entered in the Cash Book but posted to sales account as Rs. 2,335.

(iv) A purchase of Machinery for Rs. 1,500 was entered in the Purchase Day Book as Rs. 500.

(v)   A credit purchase of Rs. 1,000 from B. Roy has been credited to C. Roy.

3.   What do you mean by Accounting Standards? Briefly explain the benefits of Accounting Standards.   2+8

4.   X Company gives you the following details: 10

Date of Purchase	Cost of Machine (Rs.)
01.04.2018	60,000
01.10.2018	40,000
01.07.2019	20,000

On 1.1.2020, one-third of the machinery which was purchased on 1.4.2018 was sold for Rs. 6,000. The company charges depreciation on Machinery @ 10% p.a. under Straight Line Method. Prepare Machinery Account in the books of the company up to 31.12.2020 assuming that the company closes its books on 31st December every year.

5. On 1.4.2020, the godown of Vista Ltd. was destroyed by fire and a considerable part of the stock was destroyed. The stock salvaged was Rs. 40,000. Vista Ltd. had taken a fire insurance policy for Rs. 1,68,000 to cover the loss of stock by fire.   10

    The records of the company revealed the following particulars:

	Rs.
Stock on 01.01.2019	1,70,000
Stock on 31.12.2019	2,20,000
Purchases during 2019	4,10,000
Sales during 2019	5,30,000
Purchase from 01.01.2020 to the date of fire	75,000
Sales from 01.01.2020 to the date of fire	1,00,000
Wages paid during 2019	89,160
Wages paid from 01.01.2020 to the date of fire	23,500

    It was the practice of the company to value its stock at cost plus 10%. Calculate the amount of claim to be submitted to the Insurance Company.

6. Mr. Palash sends goods to his customers on Sale or Return basis. The following transactions took place during the month of March 2020:   10

    March 12, 2020 : Sent goods to customers on Sale or Return basis at cost plus 25% for Rs. 40,000.

    March 18, 2020 : Goods returned by the customers for Rs. 10,000.

    March 24, 2020 : Received sales information from customers for goods valued at Rs. 20,000.

    March 28, 2020 : Goods lying with customers and not yet confirmed for Rs. 10,000.

    Show the necessary journal entries in the books of Mr. Palash assuming that the accounts are closed on 31st March every year and Mr. Palash records the above transactions as ordinary sales.

GROUP-B

Answer any *two* questions from the following   15×2 = 30

7. What do you mean by Historical Cost Accounting? Briefly explain the limitations of Historical Cost Accounting.   2+13

8. Aslam keeps his books under Single Entry System. On 1.1.2020 his capital was   15

Rs. 69,000. An analysis of his Cash Book for the year gives the following particulars:

Debit	Amount (Rs.)	Credit	Amount (Rs.)
Collection from Sundry Debtors	60,000	Payment to Creditors	25,000
Additional Capital Introduced	5,000	General Expenses	10,000
		Wages	15,500
		Drawings	3,000
		Rent	7,400
		Balance at Bank	4,000
		Balance in Hand	100
	65,000		**65,000**

	1.1.2020 Amount (Rs.)	31.12.2020 Amount (Rs.)
Debtors	53,000	88,000
Creditors	15,000	19,500
Stock	17,000	19,000
Plant and Machinery	20,000	20,000
Furniture	1,400	1,400

Prepare a Profit and Loss Account for the year ended 31.12.2020 and a Balance Sheet at that date after providing 10% Interest on Capital, 15% depreciation on Plant and Machinery, 10% depreciation on Furniture and a Provision for Bad Debts @ 10% on Debtors.

9. From the following Trial Balance of Mr. X, prepare a Trading and Profit and Loss Account for the year ended 31.12.2020 and a Balance Sheet as on that date.   15

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Furniture	10,000	Bills Payable	5,000
Opening Stock	30,000	Purchase Return	1,200
Sundry Debtors	40,000	Capital	70,000
Machinery	50,000	Discount Received	700
Purchases	1,70,000	Sales	2,31,000
Bills Receivable	11,000	Loan from Y	10,000
Carriage Inward	1,300	Sundry Creditors	30,000
Carriage Outward	900	Provision for Bad Debts	1,600
Import Duty	1,600		

Discount Allowed	700		
Sales Return	2,000		
Salaries	12,000		
Wages	10,000		
Cash at Bank	9,000		
Cash in Hand	1,000		
Total	**3,49,500**	**Total**	**3,49,500**

Information:

(i) Goods for Rs. 8,000 were destroyed by fire and the insurance company admitted a claim of Rs. 7,500.

(ii) Value of Closing Stock: Rs. 30,000 (Cost Price) and Rs. 45,000 (Market Price).

(iii) Wages include Rs. 2,000 paid for Installation of Machinery.

(iv) Provide Depreciation at 10% p.a. on Machinery and 5% p.a. on Furniture.

(v) Write off Rs. 1,000 as bad debt and create provision for bad debts at 5% on Debtors.

(vi) The proprietor has taken over goods for Rs. 3,000 for personal use but not yet recorded in the books.

10. On 1.6.2020, X Company of Kolkata consigned 150 cases of goods to Y Company of Patna . The goods were charged at a pro forma invoice value of Rs. 15,000 including a profit of 25% on cost price. On the same date X Company paid Rs. 800 as Carriage. On 1.7.2020, Y Company paid Freight Rs. 1,200 and Godown Rent Rs. 500 and sent Rs. 6,000 as Advance to X Company. On 1.9.2020, Y Company sold 120 cases for Rs. 9,800 and sent a remittance for the balance due to X Company through a Demand Draft after deducting an ordinary commission of 5% on gross sale proceeds.   15

Prepare Consignment Account and Y Company Account in the books of X Company.

11. A summary of Receipts and Payments of MEDFARMA SOCIETY is given below: 15

Receipts and Payments A/c for the year ended 31.12.2020

Receipts	Amount (Rs.)	Payments	Amount (Rs.)
To Balance b/f	7,000	By Payment for medicine	30,000
To Subscription	50,000	By Honorarium to doctors	10,000
To Other Receipts	14,500	By Salaries	27,500
To Interest on Investment @ 7% p.a.	7,000	By Sundry expenses	500

To Charity show proceeds	10,000	By Equipment purchased	15,000
		By Charity show expenses	1,000
		By Balance c/f	4,500
	88,500		**88,500**

Additional Information:

	1.1.2020	31.12.2020
	Amount (Rs.)	**Amount (Rs.)**
Subscription due	500	1,000
Subscription received in advance	1,000	500
Stock of Medicine	10,000	15,000
Amount due to medicine suppliers	8,000	12,000
Value of Equipment	21,000	30,000
Value of Building	40,000	38,000

You are required to prepare Income and Expenditure Account for the year ended 31.12.2020 and the Balance Sheet as on that date.

12. Distinguish between Self Balancing System and Sectional Balancing System. Discuss the advantages of Self Balancing System.   6+9

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WEST BENGAL STATE UNIVERSITY

B.A. Honours 1st Semester Examination, 2020, held in 2021

ENGACOR01T-ENGLISH (CC1)

INDIAN CLASSICAL LITERATURE

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.

SECTION-I

Answer any *three* of the following in not more than 500 words   15×3= 45

1. (a) Analyze the character of Sakuntala as depicted by Kalidasa in the play *Abhijnanasakuntalam*.

OR

   (b) How do memory and recognition function in the play *Abhijnanasakuntalam*?

2. (a) Consider Sudraka's play *Mrichhchhakatikam* as a *Prakarana*.

OR

   (b) Comment on the significance of the character of Sakara in *Mrichhchhakatikam*.

3. (a) Write briefly about the significance of the dicing episode in 'The Book of the Assembly Hall'.

OR

   (b) Critically analyze Draupadi's plea for justice as she is brought to the Assembly Hall.

4. (a) Comment on Bana's depiction of the hunting episode in *Kadambari*.

OR

   (b) What role does the Parrot play in Bana's *Kadambari*?

SECTION-II

5.   Answer any *one* of the following in about 200 words each: 5×1 = 5

   (a) What is the significance of the hunt in the opening scene of Kalidasa's play *Abhijnanasakuntalam*?

(b) Write a short critical note on the term "Mrichhchhakatikam".

(c) Briefly comment on the role of Karna in the dicing episode.

(d) Describe the king's court in Bana's *Kadambari.*

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WEST BENGAL STATE UNIVERSITY

B.A. Honours 1st Semester Examination, 2020, held in 2021

EDCACOR01T-EDUCATION (CC1)

EDUCATIONAL PHILOSOPHY

Time Allotted: 2 Hours   Full Marks: 50

The figures in the margin indicate full marks.   প্রান্তিক সীমার মধ্যস্থ সংখ্যাটি পূর্ণমান নির্দেশ করে।
Candidates should answer in their own words   পরীক্ষার্থীরা নিজের ভাষায় যথাসম্ভব শব্দসীমার মধ্যে
and adhere to the word limit as practicable.   উত্তর করিবে।

All symbols are of usual significance.

1.   Answer any *two* questions from the following: 15×2 = 30

নিম্নলিখিত যে-কোনো *দুটি* প্রশ্নের উত্তর দাওঃ

   (a) Discuss about the modern concept of education according to Delor's   15
       Commission.

       Delor কমিশনের মত অনুযায়ী আধুনিক শিক্ষার ধারণাটি ব্যাখ্যা করো।

   (b) What is meant by Idealism? Discuss about the impact of idealism on aims of   3+4+4+4
       education, curriculum and methods of teaching.

       আদর্শ বলতে কি বোঝো ? শিক্ষার লক্ষ্য, পাঠ্যক্রম এবং শিক্ষাদান পদ্ধতির উপর আদর্শবাদের প্রভাব
       সম্পর্কে আলোচনা করো।

   (c) Discuss about the educational philosophy of Swami Vivekananda.   15

       স্বামী বিবেকানন্দের শিক্ষাদর্শন সম্পর্কে আলোচনা করো।

2.   Answer any *three* questions from the following: 5×3 = 15

নিম্নলিখিত যে-কোনো *তিনটি* প্রশ্নের উত্তর দাওঃ

   (a) Differentiate among Formal, Non-formal and Informal education.

       Formal, Non-formal এবং Informal শিক্ষার মধ্যে পার্থক্য নির্ণয় করো।

   (b) Write a short note on Project Method by John Dewey.

       John Dewey-এর দেয়া প্রকল্প পদ্ধতির উপর একটি সংক্ষিপ্ত টীকা লেখো।

   (c) Discuss in short on Democracy as a national value in our Constitution.

       আমাদের সংবিধানের মূল্যবোধ হিসেবে গণতন্ত্রের উপর একটি সংক্ষিপ্ত টীকা লেখো।

   (d) Explain the methods of teaching and discipline as proposed by Rabindranath
       Tagore.

       রবীন্দ্রনাথ ঠাকুর-এর মত অনুযায়ী শিক্ষার পদ্ধতি এবং শৃঙ্খলা সম্পর্কে ব্যাখ্যা করো।

3.   Answer *all* questions from the following: (Put tick mark on the right answer)   1×5 = 5

নিম্নলিখিত *সবগুলি* প্রশ্নের উত্তর দাওঃ (√ চিহ্নসহ সঠিক উত্তরটি দাও)

(a) Who said education is a man making process?

কে বলেছিলেন শিক্ষা একটি ম্যানমেকিং প্রক্রিয়া ?

(i) Rabindranath Tagore   (ii) Vivekananda

(iii) M K Gandhi   (iv) John Dewey

(b) Which Article of the Indian Constitution guarantees free and compulsory primary education?

ভারতীয় সংবিধানের কোন ধারায় প্রাথমিক শিক্ষাকে অবৈতনিক এবং বাধ্যতামূলক করা হয়েছে ?

(i) Article-15   (ii) Article-17A   (iii) Article-21A   (iv) Article-46

(c) From the following which is not a media of Informal education?

নিম্নলিখিতের মধ্যে কোনটি শিক্ষার একটি Informal মাধ্যম নয় ?

(i) School   (ii) State   (iii) Radio   (iv) Family

(d) The philosophy believes in strict discipline in education is

কোন দর্শন শিক্ষায় কঠোর শৃঙ্খলার কথা বলে ?

(i) Naturalism   (ii) Idealism   (iii) Realism   (iv) Pragmatism

(e) The term 'Education' is derived from the Latin word

ইংরেজী এডুকেশন শব্দটি কোন ল্যাটিন শব্দ থেকে এসেছে ?

(i) Educatum   (ii) Educare   (iii) Educere   (iv) i, ii and iii

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