



WEST BENGAL STATE UNIVERSITY
B.A./B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

ECOACOR06T-ECONOMICS (CC6)

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 from the following: 2×5 = 10

নিম্নলিখিত যে-কোনো **পাঁচটি** প্রশ্নের উত্তর দাওঃ

(a) What is money illusion?

‘অর্থবিভ্রম’ বলতে কি বোঝো ?

(b) What is meant by search unemployment?

অনুসন্ধানজনিত বেকারত্ব কাকে বলে ?

(c) What is inflation tax and who bears the burden of it?

‘মুদ্রাস্ফীতি কর’ কাকে বলে ? কারা এই করভার বহন করেন ?

(d) Suppose inflation rate is 2% and nominal rate of interest is 6%. If inflation rises to 10%, how the nominal rate of interest has to be changed to keep real interest rate unchanged?

ধরা যাক মুদ্রাস্ফীতির হার 2% ও আর্থিক সুদের হার 6%। মুদ্রাস্ফীতির হার বেড়ে 10% হলে, প্রকৃত সুদের হার অপরিবর্তিত রাখতে আর্থিক সুদের হার কতটা বদলানো দরকার হবে ?

(e) What is Pigou effect?

পিগু প্রভাব বলতে কি বোঝো ?

(f) What is meant by neutrality of money?

মুদ্রার প্রভাব শূন্যতা কাকে বলে ?

(g) State and explain Say’s Law of market.

‘সে’-এর বিধিটি লেখো ও ব্যাখ্যা করো।

(h) Under what circumstances disinflation can be painless?

কি কি পরিস্থিতিতে অবমূল্যস্ফীতি যন্ত্রণাহীন হতে পারে ?

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

নিম্নলিখিত যে-কোনো **চারটি** প্রশ্নের উত্তর দাওঃ

(a) What is meant by Classical Dichotomy?

ক্লাসিক্যাল দ্বিতত্ত্ববাদ বলতে কি বোঝো ?

- (b) What are the Keynesian reasons for downward rigidity of money wage at the subsistence level?

কেইঙ্গীয় তত্ত্বে আর্থিক মজুরীর ন্যূনতম মাত্রায় নিম্নদিকে অপরিবর্তনীয়তার কারণগুলি কি কি ?

- (c) What is stagflation? Use AD-AS model to explain stagflation.

‘স্থিতাবস্থার মূল্যস্ফীতি’ পরিস্থিতিটি কি ? সামগ্রিক চাহিদা-যোগান মডেল দ্বারা পরিস্থিতিটি ব্যাখ্যা করো।

- (d) Explain how current price level is influenced by current and future money supply.

বর্তমান দামস্তর কিভাবে বর্তমান ও ভবিষ্যৎ আর্থিক যোগান দ্বারা প্রভাবিত হয় ব্যাখ্যা করো।

- (e) Why the aggregate supply curve vertical according to classicals?

ক্লাসিক্যাল মতে সামগ্রিক যোগান রেখা কেন উল্লম্ব হয় ?

- (f) “With rational expectation neutrality of money always holds true” — Explain.

যুক্তিবাদী প্রত্যাশার ক্ষেত্রে সর্বদা মুদ্রার প্রভাব শূন্যতা কার্যকরী হয় — ব্যাখ্যা করো।

3. Answer any *two* questions from the following:

10×2 = 20

নিম্নলিখিত যে-কোনো দুটি প্রশ্নের উত্তর দাওঃ

- (a) (i) Using sticky-price model, explain how can you derive a positively sloping Aggregate Supply Curve.

6+4

রুদ্ধ-দাম মডেলের সাহায্যে কিভাবে ধনাত্মক ঢালসম্পন্ন সামগ্রিক যোগান রেখা বের করা যায় দেখাও।

- (ii) How can you derive Phillips curve from Aggregate Supply Curve?

সামগ্রিক যোগান রেখা থেকে কিভাবে ফিলিপ্স রেখা নিরূপণ করবে ?

- (b) What are the social costs of inflation? Discuss the costs of anticipated and unanticipated inflation.

3+7

মুদ্রাস্ফীতির সামাজিক ব্যয় বলতে কি বোঝায় ? অননুমিত মুদ্রাস্ফীতি এবং অননুমিত মুদ্রাস্ফীতির ব্যয়গুলি আলোচনা করো।

- (c) Define Phillips curve. Show that short-run Phillips curve is downward sloping, while the long run Phillips curve is vertical. Under what circumstance the short run Phillips curve can also be vertical?

2+6+2

ফিলিপ্স রেখার সংজ্ঞা দাও। দেখাও যে স্বল্পকালে ফিলিপ্স রেখাটি ঋণাত্মক ঢালসম্পন্ন হলেও দীর্ঘকালে তা উল্লম্ব আকৃতি ধারণ করে। কি পরিস্থিতিতে স্বল্পকালীন ফিলিপ্স রেখাও উল্লম্ব হতে পারে ?

- (d) What is ‘Natural Rate Hypothesis’? Justify the adoption of policies like fiscal and monetary policy in the face of ‘Natural Rate Hypothesis’.

4+6

স্বাভাবিক হারের প্রকল্পটি কি ? স্বাভাবিক হারের প্রকল্পের পরিপ্রেক্ষিতে রাজস্ব ও আর্থিক নীতির মত হস্তক্ষেপকারী আর্থিক নীতির যৌক্তিকতা ব্যাখ্যা করো।

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

CMSACOR06T-COMPUTER SCIENCE (CC6)

OPERATING SYSTEM

Time Allotted: 2 Hours

Full Marks: 40

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All symbols are of usual significance.*

Answer any four from Questions 1(a-g)

2×4 = 8

1. (a) Why SJF scheduling is called special case of Priority scheduling?
- (b) Explain batch system.
- (c) What is the need of Counting Semaphore while we are already having Binary Semaphore?
- (d) Explain the role of Process Control Block (PCB) for a process.
- (e) What is Belady's Anomaly?
- (f) What is virtual address space?
- (g) State the main difference between logical address and physical address.

Answer any four from Questions 2 to Questions 8

8×4 = 32

2. Explain CPU scheduling criteria. Consider the following set of processes:

2+6

Process	CPU Burst Time	Priority	Arrival time
P0	80	3	0
P1	20	1	10
P2	10	3	10
P3	20	4	80
P4	50	2	85

Draw the Gantt chart using RR ($t_s = 15$) and for preemptive priority scheduling. Calculate the average waiting time.

3. (a) Define dead lock. 2
- (b) State and define the necessary conditions for deadlock occurrence. 4
- (c) What is safe state? 2

4. (a) Solve the producer-consumer problem by using counting semaphore. 5
(b) What is thrashing? 1
(c) Explain the two different ways of occurrences of external fragmentation for variable length partitions. 2
5. (a) What is Semaphore? 2
(b) What are the different types of semaphore? 3
(c) Explain starvation. 3
6. (a) State the difference(s) between Seek Time and Rotational Latency in Disk Scheduling. 2
(b) Consider a disk queue with requests for I/O to blocks on cylinders 98, 183, 41, 122, 14, 124, 65, 67. The head is initially at cylinder number 53 moving towards larger cylinder numbers on its servicing pass. The cylinders are numbered from 0 to 199. If SSTF scheduling algorithm is used then find the total head movement (in number of cylinders) incurred while servicing these requests. 4
(c) What is inode? 2
7. Consider the following reference string and find out the number of page faults for FIFO, LRU and Optimal Page Replacement algorithms assuming four page frames for each method. 8
7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1
8. (a) Why Paging is needed? 2
(b) If page size is 4 kb and logical address is 22 bit then find the number of entries in the page table. 2
(c) Four jobs are to be executed on a single processor system arrive at time 0 in the order A, B, C, and then D. Their CPU burst time are 400, 100, 800, and 100 nano-seconds respectively. If the CPU scheduling policy is Round Robin with time quantum of 200 nano-seconds, then calculate the average waiting time and average turn-around time. 4

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

CEMACOR06T-CHEMISTRY (CC6)

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-I

1. (a) Write Fajan's polarization rule. Use this rule to predict which of the following will be ionic or covalent: 2+2
RbCl and AgCl
- (b) Using VSEPR theory, predict the shapes of XeO_2F_2 and BrF_4^- . Also indicate the state of hybridization of the central atom in each case. 5
- (c) Between SrSO_4 and MgSO_4 , which one is more soluble in water and why? 2
- (d) Why is the melting point of CuCl (422°C) less than that of KCl (776°C)? 2
- (e) Explain the variation in dipole moments of the following pairs: 3
(i) CO_2 and SO_2 (ii) NF_3 and BF_3
2. (a) State Bent's rule. Predict the geometry of the following species with the help of Bent's rule and VSEPR theory: 5
(i) SOF_4 , (ii) PF_2Cl_3
- (b) Between CsCl and AuCl , which one is more ionic and why? 2
- (c) $\text{N}(\text{SiH}_3)_3$ is planar while $\text{N}(\text{CH}_3)_3$ is pyramidal — Explain using $d\pi-p\pi$ overlap. 2
- (d) K^+ and F^- have comparable ionic sizes. Which one will have greater hydration energy and why? 2
- (e) Explain the following: 5
(i) B-F bond distance in BF_3 is 1.29 \AA , whereas that in $[\text{BF}_4]^-$ ion is 1.42 \AA .
(ii) HgS has a radius ratio value of 0.68 but it crystallizes in the Zinc blend structure.

UNIT-II

3. (a) Construct the MO energy level diagram of CO_2 molecule showing the arrangement of electrons. Find out the number of bonding and non-bonding electrons. 4+1

- (b) Arrange with reason, the stability order of the following species: 3
 NO, NO⁺ and NO⁻
- (c) Explain the following: (any *two*) 3+3
 (i) Alcohol is a better drying agent than acetone.
 (ii) Density of ice is less than that of water.
 (iii) *o*-nitrophenol is less soluble in water than *p*-nitrophenol.
- (d) Compare the bond lengths of O₂⁺ and N₂⁺. 2
4. (a) Draw M.O. diagram of CN⁻ and predict the bond order as well as magnetic properties. 2+2
- (b) Give molecular orbital configuration of O₂, O₂⁺ and O₂⁻. Give order of stability with appropriate reasons. 4
- (c) Using molecular orbital configurations indicate paramagnetic nature of B₂ and non-existence of Ne₂. 2+2
- (d) Between H₂O and H₂S, which one has greater boiling point and why? 2
- (e) Mention the conditions for linear combination of atomic orbital related to the formation of molecular orbital. 2

UNIT-III

5. (a) What do you mean by nuclear binding energy? What information can be obtained from the binding energy curve about nuclear fission and nuclear fusion? 4
- (b) Cite an example of mirror nucleus. 1
- (c) A sample of radioactive isotope shows an activity of 9500 counts/min at one time and 8050 counts/min 1 hour later. Calculate its half life. 3
6. (a) The n/p ratio of ${}_{9}\text{F}^{18}$ is unity. Comment on its stability. 1
- (b) Complete and interpret the following reaction: 2
 ${}^{10}\text{B}_5 + {}^4\text{He}_2 = {}^{13}\text{N}_7^* + ? = {}^{13}\text{C}_6 + ?$
- (c) If ${}_{7}\text{N}^{13}$ decays by positron emission and the maximum kinetic energy of the positron emission is 1.20 MeV, what is the mass of ${}_{7}\text{N}^{13}$ nucleus? (Given: mass of the nucleus for $\text{C}^{13} = 13.00335$ amu and mass of electron = 0.00055 amu.) 3
- (d) What do you understand by magic numbers? Explain their significance. 2

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

BOTACOR06T-BOTANY (CC6)

ECONOMIC BOTANY

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words as far as practicable
All symbols are of usual significance.*

1. Answer **all** the following questions: 1×6 = 6
- (a) Name two byproducts obtained from Sugarcane industry.
- (b) Write the scientific name of the plant that yields morphine.
- (c) Write two examples of major plant introduced according to Vavilov's work.
- (d) Expand IRRI.
- (e) What is coconut milk?
- (f) From where the cotton of commerce is yielded?
2. Answer any **eight** of the following questions: 3×8 = 24
- (a) Write the names of the six centres of 'Old World' as described by Vavilov. 3
- (b) Describe briefly the propagation and uses of potato. 3
- (c) What are the health implications of Tea and Coffee? 3
- (d) Mention scientific name, family, active constituents and morphological nature of plant parts where from 'Charas' is obtained. 1+ $\frac{1}{2}$ +1+ $\frac{1}{2}$
- (e) Write the scientific name and family of Turmeric and Asafoetida. 3
- (f) Differentiate spices from condiments citing examples. What is the morphological nature of spice clove? 2+1
- (g) Write the botanical name, family and uses of Coconut. 1+ $\frac{1}{2}$ +1+ $\frac{1}{2}$
- (h) What is plant introduction? Give two examples of primary introduced plant species (scientific name) in India. 1+2
- (i) Briefly describe the tapping method for rubber cultivation. 3
- (j) How is Groundnut oil extracted? 3
- (k) Differentiate between Teak wood and Pine wood. 3
- (l) Give the scientific name of Tossa jute and White jute. State their differences. 1+1+1

3. Answer any *two* of the following questions: 5×2 = 10
- (a) Classify fibers based on their origin. Describe the process of extraction of Cotton. 2+3
- (b) Describe the cultivation practices of any Rice variety. 5
- (c) What are beverages? Enumerate the steps involved in the processing of any one non-alcoholic beverage studied by you. 1+4
- (d) Write the botanical name, their respective families, parts used, and uses of Teak and Linseed. $(1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2})$
× 2

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WEST BENGAL STATE UNIVERSITY
B.A. Honours 3rd Semester Examination, 2020, held in 2021

BNGACOR06T-BENGALI (CC6)

বাংলা নাটক ও রঙ্গমঞ্চ

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।

৫নং প্রশ্ন আবশ্যিক এবং প্রতিটি একক থেকে একটি করে প্রশ্ন নিয়ে আরও চারটি প্রশ্নের উত্তর দাও
(শব্দসংখ্যা অনধিক ৩০০ হওয়া বাঞ্ছনীয়)

একক - ১

১। কবে, কোথায়, কাদের উদ্যোগে ন্যাশনাল থিয়েটার প্রতিষ্ঠিত হয়? যে নাটক অভিনয়ের মাধ্যমে এই নাট্যশালার সূচনা তার অভিনয় ইতিহাস সংক্ষেপে লিপিবদ্ধ করো। ৩+৭

অথবা

জোড়াসাঁকো নাট্যশালা কবে প্রতিষ্ঠিত হয়? কমিটি অফ ফাইভে কারা ছিলেন? এই থিয়েটারে যে যে নাটক অভিনীত হয়েছিল সেগুলির অভিনয় বৃত্তান্ত লেখো। ১+২+৭

একক - ২

২। কৃষ্ণকুমারী একটি সার্থক ঐতিহাসিক ট্রাজেডি — আলোচনা করো। ১০

অথবা

‘কৃষ্ণকুমারী’ নাটকের মদনিকা ও বিলাসবতী চরিত্র দুটির সঙ্গে শূদ্রকের কোন নাটকের কোন চরিত্র দুটির সাদৃশ্য আছে? মদনিকা ও বিলাসবতী চরিত্র দুটির নাট্যগত উপযোগিতা আলোচনা করো। ৩+৭

একক - ৩

৩। ‘রাজা’ নাটকের উৎস কী? এই নাটকের অভিনয়যোগ্য সংস্করণের নাম কী? এই নাটকের শ্রেণিক্রম বিচার করো। ১+১+৮

অথবা

‘রাজা’ নাটকের সুদর্শনা ও সুরঙ্গমা চরিত্র দুটির তুলনামূলক আলোচনা করো। ১০

একক - ৪

৪। পঞ্চাশের মন্বন্তর ও সমকালীন সামাজিক প্রেক্ষাপট ‘নবান্ন’ নাটকে যোভাবে প্রতিফলিত হয়েছে তার পরিচয় দাও। ১০

অথবা

‘নবান্ন’ নাটকের সংলাপের অভিনবত্ব ও বৈশিষ্ট্য আলোচনা করো। ১০

- ৫। নিম্নলিখিত যে-কোনো দুটি বিষয় সম্পর্কে সংক্ষিপ্ত পরিচয় দাওঃ ৫×২= ১০
- (ক) যে-কোনো একটি বিষয় সম্পর্কে টীকা লেখোঃ ৫×১=৫
(অ) বাগবাজার এমেচার থিয়েটার (আ) গণনাট্য (ই) নবনাট্য
- (খ) ‘আমি ত তোমার কাকা নই, আমি চণ্ডাল, আমি তোমার কাল হয়ে এসেছিলাম’ – কে, কাকে এই উক্তি করেছে ? বক্তার এরূপ উক্তির কারণ কী ? ১+১+৩
- (গ) ‘আমি কারও প্রশংসা গ্রহণ করি নে।
আমার সঙ্গে সকলের হাসির সম্বন্ধ।’ ১+১+১+২
— কে, কাকে বলেছে ? কোন প্রসঙ্গে এরূপ মন্তব্য ? ‘হাসির সম্বন্ধ’ বলতে বক্তা কী বুঝিয়েছেন ?
- (ঘ) ‘তা ভালো কঙ্কালের ছবির কারবার’ – বক্তা কে ? কার উদ্দেশে এরূপ উক্তি ? বক্তার মনোভাব বিশ্লেষণ করো। ১+১+৩

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

ZOOACOR06T-ZOOLOGY (CC6)

PHYSIOLOGY: CONTROLLING AND COORDINATING SYSTEMS

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.*

1. Answer any **eight** questions from the following: 2×8 = 16
- (a) What is basal lamina?
 - (b) Define sarcomere.
 - (c) Give example of one glycoprotein hormone and one tyrosine-containing hormone.
 - (d) What is node of Ranvier?
 - (e) Distinguish between Basophils and Acidophils with one example of each.
 - (f) How does fibrocartilage differ from hyaline cartilage?
 - (g) What is corpus luteum?
 - (h) Differentiate between smooth and striated muscle.
 - (i) What is neurotransmitter? Give example.
 - (j) Where do you find yellow elastic connective tissue?
 - (k) What is transitional epithelium? Give example.
 - (l) Name a hormone affecting BMR.
2. Answer any **three** questions from the following: 3×3 = 9
- (a) Classify and describe different types of epithelial tissue. 3
 - (b) Where do you find sertoli cells? State their functions. 2+1
 - (c) How action potential is generated in a neuron? 3
 - (d) Compare the two types of bone with respect to structure and location. 3
 - (e) Enumerate the histology of endocrine pancreas with diagram. 3

3. Answer any *three* questions from the following: 5×3 = 15
- (a) State briefly the ultrastructure of skeletal muscle with labelled diagram. 3+2
 - (b) Describe the structure of neuromuscular junction with suitable diagram. 3+2
 - (c) State the mechanism of action of steroid hormone with illustration. 5
 - (d) Describe the histological structure of mammalian seminiferous tubule with a labelled diagram. 3+2
 - (e) Illustrate Haversian system of a mature mammalian bone with a labelled diagram. 3+2

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WEST BENGAL STATE UNIVERSITY
B.A. Honours 3rd Semester Examination, 2020, held in 2021

PLSACOR06T-POLITICAL SCIENCE (CC6)

PERSPECTIVES ON PUBLIC ADMINISTRATION

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: (Each within 30 words) 2×5 = 10
নিম্নলিখিত যে-কোনো **পাঁচটি** প্রশ্নের উত্তর দাওঃ (প্রতিটি ৩০ শব্দের মধ্যে)
- (a) What do you mean by Public Administration?
জনপ্রশাসন বলতে কী বোঝো ?
- (b) Explain the term POSDCORB.
POSDCORB শব্দটি বলতে কী বোঝো ?
- (c) What is Coordination in administration?
প্রশাসনে সমন্বয়সাধন কাকে বলে ?
- (d) Name the chief proponents of Classical Management Theory.
পরিচালনের সনাতনী তত্ত্বের মূল প্রবক্তাদের নাম লেখো।
- (e) Who wrote the book *General and Industrial Management*?
জেনারেল অ্যান্ড ইন্ডাস্ট্রিয়াল ম্যানেজমেন্ট বইটি কার লেখা ?
- (f) What do you mean by Delegation in Public Administration?
জনপ্রশাসনে প্রত্যাৰ্পণ বা প্রত্যভিযোজন বলতে কী বোঝো ?
- (g) State two limitations of Max Weber's vision of Bureaucracy.
ওয়েবেরীয় আমলাতন্ত্রের দুটি সীমাবদ্ধতার কথা উল্লেখ করো।
- (h) Who had developed the Prismatic-Sala model?
প্রিজম সদৃশ 'সালা' মডেলটি কে নির্মাণ করেছিলেন ?
- (i) What do you mean by Feminist Approach to Public Administration?
জনপ্রশাসনে নারীবাদী দৃষ্টিভঙ্গি কাকে বলে ?
2. Answer any **two** questions from the following: (within 100 words each) 5×2 = 10
নিম্নলিখিত যে-কোনো **দুটি** প্রশ্নের উত্তর দাওঃ (প্রতিটি ১০০ শব্দের মধ্যে)
- (a) What is the difference between Public Administration and Private Administration?
সরকারি এবং বেসরকারি প্রশাসনের মধ্যে পার্থক্য কি ?

- (b) What is meant by Hierarchy in Public Administration?
জনপ্রশাসনে ক্রমোচ্চ স্তরবিন্যাস বলতে কী বোঝায় ?
- (c) Discuss the influence of ecology in Public Administration.
জনপ্রশাসনে পরিবেশের প্রভাব আলোচনা করো।
- (d) What do you mean by good governance?
সুশাসন বলতে কি বোঝো ?

3. Answer any **three** questions taking **one** question from each module: (Each within 10×3 = 30 350 words)

প্রতিটি মডিউল থেকে **একটি** করে প্রশ্ন নিয়ে যে-কোনো **তিনটি** প্রশ্নের উত্তর দাওঃ (প্রতিটি ৩৫০ শব্দের মধ্যে)

MODULE-I

- (a) Discuss the nature and scope of Public Administration.
জনপ্রশাসনের প্রকৃতি ও পরিধি আলোচনা করো।
- (b) Explain the evolution of Public Administration as a separate discipline.
একটি স্বতন্ত্র শাখা হিসেবে জনপ্রশাসনের বিবর্তন ব্যাখ্যা করো।

MODULE-II

- (c) Analyse Herbert Simon's theory of Decision Making.
হার্বার্ট সাইমনের সিদ্ধান্তগ্রহণ তত্ত্বটি পর্যালোচনা করো।
- (d) Discuss the nature and scope of Development Administration.
উন্নয়ন প্রশাসনের প্রকৃতি ও পরিধি আলোচনা করো।

MODULE-III

- (e) What is New Public Administration? Elucidate.
নয়া জনপ্রশাসন কাকে বলে ? বিশদে ব্যাখ্যা করো।
- (f) Discuss the basic concept of New Public Management.
নয়া জনপরিচালন তত্ত্বের মূল ধারণাটি আলোচনা করো।

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

PHSACOR06T-PHYSICS (CC6)
THERMAL PHYSICS

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.
All symbols are of usual significance.*

Answer Question No. 1 and any two questions from the rest

1. Answer any *ten* questions from the following: 2×10=20
- “Internal Energy is a state function and not a path function” — Explain.
 - 1 kg of ice at 0°C is melted and converted to water at constant temperature. Compute its change in entropy, assuming that melting is done reversibly. The heat of fusion of water is 3.34×10^5 J/kg.
 - Define zero on absolute scale of temperature.
 - State the principle of equipartition of energy applicable to ideal gas molecules.
 - Prove that $\left(\frac{\partial T}{\partial P}\right)_S = \frac{TV\alpha}{C_p}$, where the symbols have their usual meaning.
 - State the differences between first order and second order phase transitions.
 - Calculate the molecular diameter of nitrogen molecule if its number density $n = 2.7 \times 10^{25}/\text{m}^3$ and the mean free path $\lambda = 8 \times 10^{-8}$ m.
 - Prove that in a T - S diagram the slope of isochoric curve is T/C_V .
 - Using Maxwell's relations prove that $\left(\frac{\partial C_V}{\partial V}\right)_T = T \left(\frac{\partial^2 P}{\partial T^2}\right)_V$.
 - “The Brownian motion of large particles is practically unnoticeable” — Explain.
 - Define ‘Boyle temperature’ and ‘critical temperature’ of a real gas.
 - State the Kelvin-Planck statement of second law of thermodynamics.
 - Show that for a gas possessing f degrees of freedom the ratio of two specific heats $\frac{C_P}{C_V} = 1 + 2/f$.
 - Find the Joule-Thomson coefficient for an ideal gas.

2. (a) For a group of particles (n_i is the number of particles with speed v_i): 2+2+1

n_i	v_i (m/s)
2	1.0
4	2.0
8	3.0
6	4.0
3	5.0

- (i) Compute the average speed.
 (ii) Compute the rms speed.
 (iii) Find out the most probable speed.
- (b) Prove that, working between the same two heat reservoirs, no engine can be more efficient than a Carnot engine. 3
- (c) Show that for a hydrostatic system 2

$$\frac{dV}{V} = \beta_p dT - \frac{1}{B_T} dP$$

where β_p is the coefficient of volume expansion at constant pressure and B_T is the isothermal bulk modulus.

3. (a) How much work is performed by 1 mole of van der Waals gas during an isothermal expansion from volume V_1 to V_2 at temperature T ? Compare it with the work done by a perfect gas. 3+1
- (b) Using kinetic theory of gas, show that the coefficient of self-diffusion $D = \frac{1}{3} \lambda \bar{c}$, 4
 where λ is the mean free path and \bar{c} is the average thermal velocity.
- (c) Explain the concept of entropy in terms of disorder. 2

4. (a) Prove the following thermodynamic relations 3+3

(i) $T dS = C_V dT + T \left(\frac{\partial P}{\partial T} \right)_V dV$

(ii) $C_P - C_V = -T \left(\frac{\partial V}{\partial T} \right)_P^2 \left(\frac{\partial P}{\partial V} \right)_T$.

- (b) What is inversion temperature? Show that the expression for inversion temperature 1+3
 for a van der Waals gas is $T_i = \frac{2a}{Rb}$.

5. (a) The Maxwell's velocity distribution for a two dimensional perfect gas is given by 2+2+2

$$dn = n \left(\frac{m}{2\pi KT} \right) e^{-\frac{(u^2+v^2)}{KT}} du dv$$

Here n is the number of molecules per unit area and u, v are the components of the velocity (K being the Boltzmann constant).

- (i) Obtain the distribution of molecular speed between c to $c+dc$, where $c = \sqrt{u^2 + v^2}$.
- (ii) Find the mean square speed $\overline{c^2}$ and the most probable speed c_m .
- (b) Calculate the rise in temperature of a diatomic ideal gas initially at 27°C if its pressure gets suddenly doubled. 2
- (c) Show that the pressure of an ideal gas is equal to $2/3$ of the translational kinetic energy of the molecules per unit volume. 2

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

PHSACOR06T-PHYSICS (CC6)
THERMAL PHYSICS

Time Allotted: 2 Hours

Full Marks: 40

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

PHYACOR06T-PHYSIOLOGY (CC6)

CIRCULATION

Time Allotted: 2 Hours

Full Marks: 40

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Answer any five questions from the following

8×5 = 40

1. (a) Write about the natural pacemaker of the heart. What is an ectopic beat? (2+1)+5
(b) Describe the origin and conduction of cardiac impulse.
2. (a) What are special junctional tissues of heart? 4+2+(1+1)
(b) State the signification of heart sound.
(c) What is cardiac index? What is apex beat?
3. (a) Describe the factors controlling cardiac output. How would you determine it? (3+2)+2+1
(b) Define Starling's law of heart.
(c) What is Stannius ligature?
4. (a) Describe the peculiarities of coronary circulation. 4+2+2
(b) Discuss the role of baroreceptor in the control of arterial blood pressure.
(c) State the significance of electrocardiographic leads.
5. (a) Describe the factors controlling hepatic circulation. 4+2+2
(b) What do you mean by autoregulation of renal circulation?
(c) What is Einthoven's law?
6. (a) What is circle of Willis? 2+2+4
(b) What do you mean by jugular venous pulse?
(c) Describe the pressure and volume change in ventricles during cardiac cycle.

7. (a) What is streamline flow? Write its significance in cardiac blood flow. 2+2+2+2
(b) “Higher the value of Re, greater the probability of turbulence” – Explain.
(c) What is diastasis?
8. Write short notes on (any *two*): 4+4
(a) Foetal circulation
(b) Vectorcardiogram
(c) Cardiac arrhythmia.

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WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 3rd Semester Examination, 2020, held in 2021

MTMACOR06T-MATHEMATICS (CC6)

Time Allotted: 2 Hours

Full Marks: 50

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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) Let (S, \cdot) be a semigroup. If for any $x, y \in S$, $x^2 \cdot y = y = y \cdot x^2$, then prove that (S, \cdot) is a group.
- (b) Let G be a group such that $xy = yz \Rightarrow x = z$ for all $x, y, z \in G$. Show that G is an abelian group.
- (c) Let G be a commutative group and $H = \{a \in G : O(a) \text{ is finite}\}$. Prove that H is a subgroup of G . [For $a \in G$, $O(a)$ stands for the order of a .]
- (d) Define the center $Z(G)$ of a group G . What is the center of the Klein's 4-group K_4 ? Justify your answer.
- (e) Determine the number of generators of a cyclic group G of order 28.
- (f) Let $\alpha = (1 \ 4 \ 2 \ 3)$ and $\beta = (1 \ 3)(2 \ 4)$ be two permutations in the symmetric group S_4 of degree 4. Compute the product $\alpha\beta^{-1}$ in S_4 .
- (g) Let $G = H \times K$ be the external direct product of two groups H and K . Prove that the set $S = \{(a, e) \in G : a \in H \text{ and } e \text{ is the identity of the group } K\}$ is a normal subgroup of G .
- (h) If H is a subgroup of a group G such that $x^2 \in H$, for all $x \in G$, prove that H is a normal subgroup of G .
- (i) Let G be any finite group of order 70 and H be a normal subgroup of G . If H contains 14 elements, show that the factor group G/H is a commutative group.
- (j) Show that there is no non-trivial homomorphism from the cyclic group \mathbb{Z}_4 to the cyclic group \mathbb{Z}_7 .
2. (a) Let $a = (1 \ 2)(3 \ 4)$, $b = (1 \ 3)(2 \ 4)$ and $c = (1 \ 4)(2 \ 3)$ be three permutations of the set $I_4 = \{1, 2, 3, 4\}$. Suppose e denotes the identity permutation of I_4 . Write down the Cayley table for the composition of permutations in $S = \{e, a, b, c\}$. Using this Cayley table, justify that S is a commutative group under the composition of permutations. [The associativity of composition of permutations may be assumed.] 5
- (b) If a finite semigroup (S, \circ) satisfies both sided cancellation laws, then prove that (S, \circ) is a group. 3

3. (a) Examine whether the set $G = \left\{ \begin{bmatrix} x & x \\ x & x \end{bmatrix} : x \in \mathbb{R}, \text{ with } x \neq 0 \right\}$ forms a group under usual matrix multiplication. 4
- (b) Define quasigroup. Prove that every group is a quasigroup. Is the converse true? Justify your answer. 1+2+1
4. (a) Prove that every element of a finite group is of finite order. 2
- (b) Give example of an infinite group whose every element is of finite order. 2
- (c) Let (G, \circ) be a group and $a \in G$ be such that $a^2 \circ x = x \circ a$ for some $x \in G$. Show that the order of a can never be 4. 2
- (d) Determine all the elements of order 12 in the additive group \mathbb{Z}_{36} of integers modulo 36. 2
5. (a) Let G be a group and H be a nonempty finite subset of G . Prove that H is a subgroup of G if and only if $ab \in H$ for all $a, b \in H$. 4
- (b) Let G be a group. Then, show that the set $c(a) = \{x \in G : ax = xa\}$ is a subgroup of G , for every $a \in G$. Using this result, prove that the center $Z(G)$ of G is a subgroup of G . 4
6. (a) Give an example of a group in which the union of two subgroups may not be a subgroup in it. Give reasons in support of your choice of group. 1
- (b) If H, K are subgroups of a group G and $HK = KH$ then show that HK is also a subgroup of G . 3
- (c) Let H be a subgroup of a group G . Show that, for any $g \in G$, the set $K = \{ghg^{-1} : h \in H\}$ is a subgroup of G . Also show that $|K| = |H|$. 4
7. (a) Define a k -cycle on the set $I_n = \{1, 2, \dots, n\}$. 1
- (b) Let $\sigma \in S_n$ ($n \geq 2$) be a cycle. Show that σ is a k -cycle if and only if order of σ is k in S_n . 4
- (c) Find the order of the permutation α in S_8 , where 3
- $$\alpha = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ 7 & 2 & 6 & 5 & 3 & 1 & 4 & 8 \end{pmatrix}$$
- Examine whether α is an even permutation.
8. (a) Define a cyclic group. Show that the additive group Q of rational numbers is not a cyclic group. 3
- (b) Show that every subgroup of a cyclic group is cyclic. 4
- (c) Find the number of subgroups of a cyclic group of order 35. 1

9. (a) Let $G = \left\{ \begin{bmatrix} a & b \\ 0 & c \end{bmatrix} : a, b, c \text{ are real and } ac \neq 0 \right\}$ be a group under matrix multiplication. Show that $N = \left\{ \begin{bmatrix} 1 & x \\ 0 & 1 \end{bmatrix} : x \in \mathbb{R} \right\}$ is a normal subgroup of G . 3
- (b) Let G be a finite group and N be a normal subgroup of G . Suppose that the order of N is relatively prime to the index m of N in G . Prove that $N = \{g^m : g \in G\}$. 3
- (c) Show that the set of all even permutations in S_n , form a normal subgroup of S_n . 2
- 10.(a) State Lagrange's theorem for finite groups. 1
- (b) Let p be a prime integer and a be an integer such that p does not divide a . Apply Lagrange's theorem to show that $a^{p-1} \equiv 1 \pmod{p}$. 2
- (c) Prove that every group of prime order is cyclic. 2
- (d) Let G be a group. Suppose that the number of elements in G of order 7 is 48. Determine the number of distinct subgroups of G of order 7. 3
- 11.(a) Let G denote the external direct product of the groups G_1, G_2, \dots, G_n ($n \geq 2$). Show that the center of the group G is the external direct product of the centers of the groups G_1, G_2, \dots, G_n . 2
- (b) Let G be a finite abelian group of order n . If m is a positive integer such that n is divisible by m , then show that G has a subgroup of order m . 4
- (c) Let N be a normal subgroup of a group G , and let T be a subgroup of the quotient group G/N . Prove that there is a subgroup H in G such that $N \subseteq H$ and $T = H/N$. 2
- 12.(a) Let f be a homomorphism from a group G to a group G' . Then show that 2+2
- (i) $f(a^{-1}) = f(a)^{-1}$, for all $a \in G$ and
- (ii) if $a \in G$ is such that $O(a) = n$, then $O(f(a))$ divides n .
- (b) State and prove that First Isomorphism Theorem for Groups. 1+3
- 13.(a) Let G be the multiplicative group of complex numbers and $N = \{z \in G : |z| = 1\}$. Show that $G/N \simeq \mathbb{R}^+$, where \mathbb{R}^+ is the multiplicative group of positive real numbers. 4
- (b) Prove that every finite cyclic group of order n is isomorphic to \mathbb{Z}_n . 4

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WEST BENGAL STATE UNIVERSITY
B.A. Honours 3rd Semester Examination, 2020, held in 2021

HISACOR06T-HISTORY (CC6)

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 the following

5×2 = 10

Each question has to be written within 250 words approximately

নিম্নলিখিত যে-কোনো দুটি প্রশ্নের উত্তর দাও
প্রতিটি উত্তর ২৫০ শব্দের মধ্যে রাখা বাঞ্ছনীয়

1. What was the impact of the 'Black Death' on the European economy?
ইউরোপীয় অর্থনীতির ওপর 'কৃষ্ণমৃত্যু'র কী প্রভাব পড়েছিল ?
2. Discuss the main features of Humanist education.
মানবতাবাদী শিক্ষাব্যবস্থার প্রধান বৈশিষ্ট্যগুলি আলোচনা করো।
3. Who were the Huguenots?
হিউগেনো কারা ছিলেন ?
4. Comment on the social roots of the Renaissance.
রেনেসাঁসের সামাজিক ভিত্তি সম্বন্ধে মন্তব্য করো।
5. Write a short note on Petrarch.
পেত্রার্ক সম্পর্কে একটি সংক্ষিপ্ত টীকা লেখো।

GROUP-B

বিভাগ-খ

Answer any *two* questions from the following

8×2 = 16

Each question has to be written within 400 words approximately

নিম্নলিখিত যে-কোনো দুটি প্রশ্নের উত্তর দাও
প্রতিটি উত্তর ৪০০ শব্দের মধ্যে রাখা বাঞ্ছনীয়

6. Why is the fall of Constantinople considered to be a turning point in European history?
কন্সট্যান্টিনোপলের পতনকে ইউরোপের ইতিহাসের একটি সন্ধিক্ষণ মনে করা হয় কেন ?

7. How did increasing production for markets transform agriculture in the 16th Century Europe?
ষোড়শ শতকে ইউরোপের বাজারের জন্য উৎপাদন বৃদ্ধি কীভাবে কৃষির পরিবর্তন এনেছিল ?
8. Was Machiavelli a typical political thinker of the Renaissance?
মেকিয়াভেলি কি রেনেসাঁসের একজন আদর্শ চিন্তাবিদ ছিলেন ?
9. Discuss the condition of the Catholic Church on the eve of the Reformation.
ধর্মসংস্কার আন্দোলনের প্রাক্কালে ক্যাথলিক চার্চের অবস্থা আলোচনা করো।
10. Comment on the social and economic effects of the dissolution of monasteries in England.
ইংল্যান্ডে মঠগুলির উচ্ছেদসাধনের সামাজিক ও অর্থনৈতিক প্রভাবগুলির মূল্যায়ন করো।

GROUP-C

বিভাগ-গ

Answer any *two* questions from the following

12×2 = 24

Each question has to be written within 600 words approximately

নিম্নলিখিত যে-কোনো দুটি প্রশ্নের উত্তর দাও
প্রতিটি উত্তর ৬০০ শব্দের মধ্যে রাখা বাঞ্ছনীয়

11. Why did feudalism flourish in Eastern Europe when it collapsed in Western Europe? 12
যখন পশ্চিম ইউরোপে সামন্ততন্ত্রের পতন ঘটছে তখন পূর্ব ইউরোপে তা কেন বিকশিত হয়ে উঠছিল ?
12. How did humanism create a secular vision of life? To what extent was it reflected in Renaissance painting and sculpture? 6+6
মানবতাবাদ কীভাবে জীবন সম্পর্কে একটি ধর্মনিরপেক্ষ দৃষ্টিভঙ্গী গড়ে তুলেছিল ? রেনেসাঁসের চিত্রশিল্প ও ভাস্কর্যে এই দৃষ্টিভঙ্গী কতখানি প্রতিফলিত হয়েছিল ?
13. Assess the role of anti-clericalism in setting the stage for Reformation. 12
ধর্মসংস্কার আন্দোলন গড়ে তোলার ক্ষেত্রে যাজক-বিরোধী মনোভাবের ভূমিকার মূল্যায়ন করো।
14. Do you agree with Geoffrey Elton that the English Reformation was primarily an 'Act of State'? 12
তুমি কি জিওফ্রে এলটনের সঙ্গে এ বিষয়ে একমত যে, ইংল্যান্ডের ধর্মসংস্কার ছিল একটি 'রাষ্ট্রীয় পদক্ষেপ' ?
15. Describe the various activities of the merchants in the 16th century. How did they begin to control artisanal production? 8+4
ষোড়শ শতকের বণিকদের বিচিত্র কর্মকাণ্ডের বিবরণ দাও। এই বণিকেরা কীভাবে কারিগরি উৎপাদন ব্যবস্থাকে নিয়ন্ত্রণ করতে শুরু করেছিলেন ?

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WEST BENGAL STATE UNIVERSITY
B.Com. Honours 3rd Semester Examination, 2020, held in 2021

FACACOR06T-B.COM. (CC6)

DIRECT TAXATION

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. (a) Mrs. Kuhu joins an Indian company on January 10, 2020. Prior to January 10, 2020, she is in her first employment with ABC Ltd., an Indian company, since May 28, 2019. She does not have any other source of income. State the previous years applicable to Mrs. Kuhu in connection with the assessment years 2020-21 and 2021-22. 2
- (b) Donald Duck, a US national joined HCC Ltd. as an engineer in India on 1st May, 2009. On 31st December 2011 he went to Vietnam on deputation. On 1st April 2014 he came back to India and left for Vietnam again on 31st March, 2016. He returned to India and resumed his office on 1st October, 2019. Determine his residential status for the A.Y. 2020-21. 5
- (c) Classify the following into appropriate category of persons: 3
 - (i) West Bengal State University
 - (ii) Kolkata Municipal Corporation
 - (iii) ABC LLP.
2. (a) Write a note on 'profit in lieu of salary'. 4
- (b) From the following particulars compute the income from salary of Mr. Amit Das for the Assessment Year 2020-2021: 6
 - (i) Net salary including all allowances is Rs. 8,20,000 after deducting (A) Employee's contribution to R.P.F. Rs. 1,20,000, (B) Professional tax: Rs. 2,400, (C) For Loan: Rs. 80,000.
 - (ii) House rent allowance received Rs. 48,000. Mr. Das lives in Kolkata in a flat for a rent of Rs. 10,000 p.m.
 - (iii) D.A. 30% of basic pay (not forming part of the salary).
3. (a) From the following details for the year 2019-20, compute depreciation allowance and capital gain (or loss), if any, for the relevant assessment year: 7

	Rs.
W.D.V. of the Block of Plant and Machinery on April 1, 2019 (consisting of plant A and plant B: Depreciation rate 15%)	1,50,000
Cost of plant C acquired on November 12, 2019 (depreciation rate 15%)	50,000
Plant A was sold for either at (i) Rs. 1,40,000 or (ii) Rs. 2,50,000.	

(b) Mention any three cases of non-capital assets under the Income Tax Act. 3

4. Mr. Kumar has three house properties. The first house is in Patna, which is used for his residential purpose. The second and third houses are in Ranchi, which are let out for residential purposes. 10

The particulars of the house are as follows:

	First House	Second House	Third House
Municipal value (Rs.)	2,00,000	3,00,000	4,00,000
Municipal tax (50% borne by the tenant)	10%	15%	15%
Annual rent (Rs.)	—	4,80,000	4,50,000
Vacancy Period	—	2 months	—
Interest on loan taken for purchase (Rs.)	2,10,000	2,30,000	1,40,000

Compute Mr. Kumar's income from house property for the assessment year 2020-21.

5. (a) Mr. Mantu makes the following savings/investments during the previous year 2019-20: 7

	Rs.
Life insurance Premium paid on own life (sum assured Rs. 40,000)	8,500
Life insurance Premium paid on the life of his father	14,500
Life insurance Premium paid on the life of his wife	14,000
Life insurance Premium paid on the life of his major son	3,500
Contribution towards Public Provident Fund	88,000
Repayment of House Building Loan (Principal: Rs. 35,000; Interest: Rs. 20,000)	55,000
Tuition Fees for his son (This excludes Rs. 10,000 as development fee)	22,000

You are required to find out the allowable amount of deduction u/s 80C to Mr. Mantu for the assessment year 2020-21.

(b) State any three exceptions in respect of inter-source adjustment of losses u/s 70. 3

6. (a) What do you mean by advance tax? 2

(b) From the following estimated income details provided by Mrs. Mehendi (age: 35 years) in relation to the previous year 2019-20, find out the amount of advance tax payable (with the amount of installments by different due dates) by her for the assessment year 2020-21. 8

Business Income	Rs. 8,50,000
Loss from self-occupied house	Rs. 40,000
Other Income	Rs. 30,000
Savings in PPF	Rs. 1,60,000
Tax Deducted at Source (TDS)	Rs. 25,000

GROUP-B

Answer any two questions from the following

15×2=30

7. (a) State why determination of residential status is important. 3
- (b) State with reasons which of the following income are agricultural income: 4
- (i) Salary received by an acting partner from a firm the entire income of which is agricultural income.
 - (ii) Dividend received by a shareholder from a company engaged in agricultural activities.
 - (iii) Income derived from lease of a land in Bangladesh for grazing of cattle required for agricultural operations.
 - (iv) Profit earned from the sale of agricultural land.
- (c) Mr. Ashok, an employee of AG Co. Ltd., received Rs. 7,20,000 as gratuity under the Payment of Gratuity Act, 1972 and a pension of Rs. 20,000 per month. He retired on January 31, 2020 after rendering service of 30 years and 4 months. At the time of retirement, his monthly salary was Rs. 26,000 and he commuted 60 percent of his pension to receive Rs. 4,80,000 as commuted pension. Compute amount of gratuity and pension chargeable to tax for the assessment year 2020-21 in the hands of Mr. Ashok. 8
8. From the following particulars of income of Mr. Roddur (working in a private company) for the previous year 2019-20, compute his income from salary for the assessment year 2020-21. 15
- (i) He was appointed on 1st January, 2018 in the scale of Rs. 25,000-500-35,000.
 - (ii) Dearness allowance 50 percent of the basic salary as per the terms of employment.
 - (iii) Transport allowance for commuting between office and residence: Rs. 1,000 p.m.
 - (iv) Children education allowance for each child @ Rs. 500 p.m. (Mr. Roddur has two sons and one daughter).
 - (v) He encashed one month earned leave and received Rs.10,000.
 - (vi) He contributed 15% of his salary to Recognized Provident Fund. His employer also contributed an equal amount.
 - (vii) Interest credited to Recognized Provident Fund @ 11% is Rs. 12,100 during the year.
 - (viii) He was provided by his employer with a rent-free furnished house in Kolkata. Employer pays rent for the house Rs. 10,000 per month and the cost of furniture provided is Rs. 50,000.
 - (ix) Medical bill for private check-up reimbursed by the employer Rs. 25,000.
 - (x) Professional tax: Rs. 200 per month is paid by the employer.

9. Mrs. Mamai furnished the following Profit and Loss Account for the year ended 31st March, 2020. Compute her taxable business income for the assessment year 2020-21.

15

	Rs.		Rs.
To Opening Stock	2,88,000	By Sales	50,00,000
„ Purchase	32,00,000	„ Closing Stock	3,60,000
„ Wages	1,60,000		
„ Freight	1,20,000		
„ Gross Profit c/d	15,92,000		
	53,60,000		53,60,000
To Staff Salaries	3,60,000	By Gross Profit b/d	15,92,000
„ Reserve for bad debts	32,000	„ Sale of old machine	30,000
„ Depreciation	40,000	„ Interest on Bank Deposit	35,000
„ Advertisement	40,000	„ Bad debt recovered	10,000
„ Income Tax	1,00,000	(previously disallowed)	
„ Contribution to Staff Welfare Fund	44,000		
„ Interest on Capital	32,000		
„ Audit Fee	60,000		
„ Donations	30,000		
„ Insurance	10,000		
„ Net Profit	9,19,000		
	16,67,000		16,67,000

Other information:

- (i) Both opening and closing stocks are undervalued by 10 percent.
- (ii) Purchase includes a payment of Rs. 90,000 paid by a bearer cheque.
- (iii) Freight includes penalty for violation of laws of Rs. 20,000.
- (iv) Depreciation as per Income Tax rules amounts to Rs. 30,000.
- (v) Advertisement includes Rs. 5,000 for a new signboard.
- (vi) Insurance includes 30% paid for the insurance of business assets and the balance paid as life insurance premium for Mrs. Mamai's life.

- 10.(a) Mr. Jhalak owns the following assets:

6

	Shares (non-listed)	Shares (listed)
Cost of acquisition	Rs. 1,48,500	Rs. 1,56,000
Date of acquisition	Mar 16, 2018	Mar 16, 2018
Sales Consideration	Rs. 2,12,000	Rs. 2,23,500
Date of sale	Jan 25, 2020	July 26, 2019

Compute income from capital gains from the above transfers for the assessment year 2020-21.

[CII for 2018-19 = 280; 2019-20 = 289]

- (b) From the following information compute income from other sources of Mr. Babai for the assessment year 2020-21: 9
- Income from sale of forest trees of spontaneous growth Rs. 12,900.
 - Family pension received Rs. 2,40,000
 - Interest from Post Office Savings Bank Account Rs. 12,000.
 - Winnings from lottery (net after deduction of tax @ 31.2%) Rs. 82,560.
 - Rent received from sub-letting a flat for Rs. 78,000. Rent payable by Mr. Babai for the house is Rs. 5,000 per month.

- 11.(a) From the following incomes and losses for the previous year 2019-20, compute Gross Total Income of Mr. Talukdar for the assessment year 2020-21: 7

	Rs.
Long Term Capital Gains	70,000
Dividend from Indian company	22,000
Income from medicine business	6,00,000
Short term Capital Loss	24,000
Loss from stationery business	1,30,000
Brought forward losses of the year 2018-19 are as follows:	
Loss from stationery business	42,000
Long Term Capital Loss	20,000

- (b) The gross total income of Mr. Dutta for the previous year 2019-20 is Rs. 7,50,000. He has made the following donations during the previous year: 8
- Rs. 15,000 to Jawahar Lal Nehru Memorial Fund.
 - Rs. 10,000 to Prime Minister's National Relief Fund.
 - Rs. 40,000 for repairs of notified Church.
 - Clothes worth Rs. 16,000 given to an approved blind school.
 - Rs. 50,000 to Kolkata Municipal Corporation for promoting family planning.
 - Rs. 18,000 to Zilla Saksharata Mission.

Compute the amount of deduction available to Mr. Dutta from his gross total income u/s 80G for the assessment year 2020-21.

12. Write short notes on: 5+5+5
- Best Judgement Assessment
 - Revised Return
 - Due dates for filing of income tax returns.

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WEST BENGAL STATE UNIVERSITY
B.A. Honours 3rd Semester Examination, 2020, held in 2021

ENGACOR06T-ENGLISH (CC6)

POPULAR 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 questions from the following

15×3 = 45

1. (a) In the context of Victorian perspectives on childhood, critically comment on Alice's portrayal in Lewis Carroll's *Through the Looking Glass*.

OR

- (b) Comment on the representation of an alternative universe in *Through the Looking Glass* by Lewis Carroll.

2. (a) Poirot says that it's important, while investigating, to "always bear in mind that the person who speaks may be lying". Why is this an important attitude, and how does it help Poirot solve the murder in *The Murder of Roger Ackroyd*?

OR

- (b) How does Christie challenge or subvert the format of a typical detective novel in *The Murder of Roger Ackroyd*? Substantiate with reference to the text.

3. (a) Discuss the role of friendship in J.K. Rowling's *Harry Potter and the Philosopher's Stone*.

OR

- (b) How does Rowling present the difference between the wizarding world and the Muggle world in the novel *Harry Potter and the Philosopher's Stone*? Why does she choose to highlight these differences?

4. (a) Shyam Selvadurai's *Funny Boy* brings out the suffering of a 'different' individual in the context of civil strife. Discuss your views with regard to the above statement.

OR

- (b) Discuss the narrative strategies deployed in Shyam Selvadurai's *Funny Boy*. How do the strategies help in highlighting the theme of the novel?

SECTION-II

5. Answer any **one** question from the following in about 200 words: 5×1 = 5
- (a) What happens to Humpty Dumpty in *Through the Looking Glass*? How is this carried forward in the next course of events?
 - (b) How and when does Dr. Sheppard first meet Poirot in *The Murder of Roger Ackroyd*? What does this meeting tell us about Dr. Sheppard's character?
 - (c) How does the death of his parents influence Harry's character and the decisions that he makes over the course of the book?
 - (d) How does the epilogue function in the greater context of the novel *Funny Boy*?

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WEST BENGAL STATE UNIVERSITY
B.A. Honours 3rd Semester Examination, 2020, held in 2021

EDCACOR06T-EDUCATION (CC6)
EDUCATION IN POST-INDEPENDENCE INDIA

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 **two** questions from the following: 15×2 = 30
নিম্নলিখিত যে-কোনো দুটি প্রশ্নের উত্তর দাওঃ
- (a) State the aims of higher education as stated by Radhakrishnan Commission (1948-49). Write down any two limitations of this Commission. 9+6
রাধাকৃষ্ণণ কমিশন নির্দেশিত উচ্চ শিক্ষার লক্ষ্যগুলি লেখো। এই কমিশনের যে-কোনো দুটি সীমাবদ্ধতা লেখো।
- (b) What were the recommendations of Kothari Commission (1964-66) regarding aims, structure, curriculum and medium of instruction of secondary education? 4+4+4+3
মাধ্যমিক শিক্ষার লক্ষ্য, কাঠামো, পাঠ্যক্রম এবং শিক্ষার মাধ্যম সম্পর্কে কোঠারী কমিশন (১৯৬৪-৬৬) -এর সুপারিশগুলি কি কি ?
- (c) Discuss the recommendations or Right to Education Act, 2009 with respect to the role of Centre, State, Local Bodies and Parents in providing education. 4+4+4+3
শিক্ষার অধিকার আইন, ২০০৯ অনুযায়ী কেন্দ্র, রাজ্য, স্থানীয় প্রশাসন এবং পিতামাতার দায়িত্ব সংক্রান্ত সুপারিশগুলি আলোচনা করো।
2. Answer any **three** questions from the following: (Each within 200 words) 5×3 = 15
নিম্নলিখিত যে-কোনো তিনটি প্রশ্নের উত্তর দাওঃ (প্রতিটি উত্তর ২০০ শব্দের মধ্যে)
- (a) What were the recommendations of Radhakrishnan Commission regarding Rural Universities?
গ্রামীণ বিশ্ববিদ্যালয় সম্পর্কে রাধাকৃষ্ণণ কমিশনের সুপারিশগুলি কি কি ?
- (b) What were the recommendations of Mudaliar Commission regarding curriculum?
পাঠ্যক্রম সম্পর্কে মুদালিয়ার কমিশনের সুপারিশগুলি কি কি ?
- (c) Write a short note on examination and evaluation as stated by Kothari Commission.
কোঠারী কমিশন নির্দেশিত পরীক্ষা ও মূল্যায়ন ব্যবস্থার উপর একটি সংক্ষিপ্ত টীকা লেখো।
- (d) State the recommendations of National Policy on Education, 1986 with respect to women education.
নারীশিক্ষা সম্পর্কে জাতীয় শিক্ষানীতি, ১৯৮৬ - এর সুপারিশগুলি লেখো।

(e) State the objectives of Sarva Shiksha Abhijan.

সর্বশিক্ষা অভিযানের উদ্দেশ্যগুলি লেখো।

3. Answer **all** questions from the following:

1×5 = 5

নিম্নলিখিত **সবগুলি** প্রশ্নের উত্তর দাও:

(a) Radhakrishnan Commission is also known as

- (i) University Commission (ii) Indian Universities Commission
(iii) Indian Education Commission (iv) Education Commission

রাধাকৃষ্ণন কমিশন অন্য যে নামে পরিচিত সেটি হল

- (i) বিশ্ববিদ্যালয় কমিশন (ii) ভারতীয় বিশ্ববিদ্যালয় কমিশন
(iii) ভারতীয় শিক্ষা কমিশন (iv) শিক্ষা কমিশন

(b) Mudaliar Commission is also known as

- (i) Education Commission
(ii) Primary Education Commission
(iii) Secondary Education Commission
(iv) None of the above

মুদালিয়ার কমিশন অন্য যে নামে পরিচিত সেটি হল

- (i) শিক্ষা কমিশন (ii) প্রাথমিক শিক্ষা কমিশন
(iii) মাধ্যমিক শিক্ষা কমিশন (iv) কোনোটিই নয়

(c) The chairperson of Kothari Commission was

কোঠারী কমিশনের সভাপতি ছিলেন

- (i) V.S. Kothari (ii) V.R. Kothari
(iii) S. Kothari (iv) None of these

(d) What is POA?

POA কি ?

- (i) Phase of action (ii) Part of action
(iii) Plan of action (iv) Programme of action

(e) What is the target group of SSA?

SSA-এর target group কি ?

- (i) 5-10 years (ii) 5-14 years
(iii) 6-14 years (iv) 4-14 years

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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