

Parvatibai Chowgule College of Arts and Science
Autonomous

BSc Semester End Examination, February 2022

Semester: V

Subject: Botany

Title: Plant drug technology and Pharmacognosy (Elective)

Duration: 2 Hours

Max. Marks: 45

Instructions:

1. All questions are compulsory
2. Numbers to the right indicate marks for each question.
3. Draw diagrams wherever necessary.

Q. 1] Answer ANY THREE of the following:

(09)

1. Chemical constituents of *Rauwolfia*
2. Pharmacognosy
3. NMR
4. Pigments

Q. 2] Answer ANY TWO of the following:

(12)

1. Comment on the biosynthesis of alkaloids and biological factors affecting the same.
2. Discuss methods of Characterization: GC-MS
3. Describe the cultivation practices followed for *Adathoda*.

Q. 3] Answer ANY TWO of the following:

(12)

1. What do you mean by Alkaloids? Describe the MIC methods followed for its antimicrobial activity.
2. Enumerate the methodology of Fingerprint technique in identification of plant drugs.
3. Explain the Extraction methods and principles. How does solvent selection and polarity affect the extraction.

Q. 4] Answer ANY ONE of the following:

(12)

1. Siddhi went for the field trip and collected some medicinal plants. What different methods she can follow for Classification of drugs? Explain in detail

OR

2. Deepak wants to cultivate medicinal plants in his farm. Provide him the information required to grow *Clove* and *Ocimum* along with its chemical constituents.

Parvatibai Chowgule College of Arts and Science

Autonomous

BSc Semester End Examination, February 2022

Semester: V

Subject: Chemistry (Core)

Title: Advanced Chemistry –I : Physical and Inorganic Chemistry

Duration: 2 Hours

Max. Marks: 45

Instructions: 1. All Questions Are Compulsory.

2. Figures To The Right Indicate Full Marks.

3. Use Of Calculators Is Allowed.

4. Physical constants: $R = 0.08314 \text{ L. bar.K}^{-1} \text{ mol}^{-1}$, $C = 3 \times 10^8 \text{ m.s}^{-1}$, $N = 6.023 \times 10^{23}$

1. a Answer any 2 6
- (i) Calculate the zero point energy of a molecule in joules for a molecule vibrating at a frequency of 3120 cm^{-1}
- (ii) With the help of an appropriate derivation, prove that the frequencies of the fundamental band and the second overtone band in IR spectra are in the ratio of 1: 3
- (iii) Give any 6 biological effects of Nuclear radiation. 3
- b Answer any 1
- (i) Mention the limitations of VBT
- (ii) Explain the peak involved in $[\text{Ti}(\text{H}_2\text{O})_6]^{+3}$
2. Answer any 2 12
- a (i) State Hooke's Law. Differentiate between Raman and IR Spectroscopy (Any 4 points)
- (ii) If efficiency is 0.70, when the molecules absorb 600 nm radiation and decrease in concentration of substance is 0.04 mol/L. Calculate the energy.
- b (i) When Raman spectrum of HCl gas is excited with Hg vapours of wavelength 5737 \AA^0 , a spectrum line appears at 3377 \AA^0 . State the type of Raman line and calculate the frequency of the other line.
- (ii) Explain the principle and working of GM counter. (Diagram is not expected)
- c (i) Calculate the EMF of the following cell at 25°C if the transport number of Cl^- is 0.17.
- $$\text{Pt, Cl}_2(\text{g}) / \text{HCl} \quad / \quad \text{HCl} \quad / \quad \text{Cl}_2(\text{g}), \text{Pt}^+$$
- $$\gamma = 0.090487 \quad \gamma = 0.1751$$
- $$m = 0.115 \quad m = 0.203$$
- (ii) With the help of a neat and labelled diagram explain

Q4. Answer ANY ONE of the following:

(12)

- a. i) Find out the average waiting time and turnaround time for the table given below using Shortest Remaining Time First CPU Scheduling Algorithm.

Process	Arrival Time	Burst Time
P1	0	12
P2	1	5
P3	2	9
P4	3	4
P5	4	2

- ii) Draw and explain the resource allocation graph with 4 Processes and 4 resources with multiple instances for each resource, wherein there exists one cycle with Deadlock and another cycle with no deadlock.

OR

- b. i) What is Optimal Replacement Algorithm? For the given reference string find the number of page faults for Optimal Replacement Algorithm for 4 free frames.

6, 4, 3, 7, 6, 4, 2, 0, 1, 4, 5, 4, 7, 5, 2, 1, 0, 3, 6, 2

- ii) Draw the diagram for handling Page faults and explain the process in detail.

Parvatibai Chowgule College of Arts and Science
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BSc Semester End Examination, February 2022

Semester: V

Subject: Chemistry (Core)

Title: Advanced Chemistry –I : Physical and Inorganic Chemistry

Duration: 2 Hours

Max. Marks: 45

-
- Instructions:** 1. All Questions Are Compulsory.
2. Figures To The Right Indicate Full Marks.
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4. Physical constants: $R = 0.08314 \text{ L.bar.K}^{-1}.\text{mol}^{-1}$, $C = 3 \times 10^8 \text{ m.s}^{-1}$, $N = 6.023 \times 10^{23}$
-

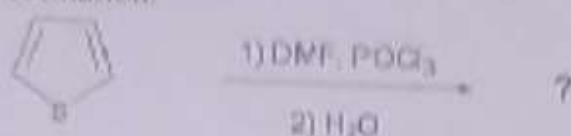
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- (i) Calculate the zero point energy of a molecule in joules for a molecule vibrating at a frequency of 3120 cm^{-1}
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- $\text{Pt, Cl}_2(\text{g}) / \text{HCl} \quad / \quad \text{HCl} \quad / \quad \text{Cl}_2(\text{g}), \text{Pt}^+$
- $\gamma = 0.090487 \quad \gamma = 0.1751$
- $m = 0.115 \quad m = 0.203$
- (ii) With the help of a neat and labelled diagram explain

y) Reaction of furan with trifluoroacetic anhydride at room temperature

z) Reaction of thiophene with bromine, diethyl ether in presence of 48% HBr at -25°C to 5°C

C. i) Give all the resonating structures of pyrrole and identify one resonating structure contributing least to the resonance hybrid.

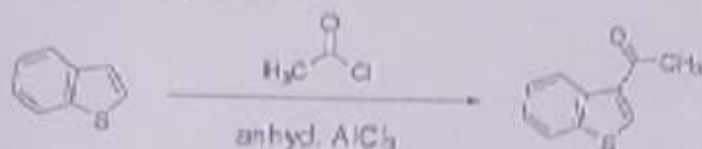
ii) Predict the major product for the following reaction and give the stepwise mechanism for its formation.



Q.3. Answer ANY TWO from the following:

A. i) *m*-Ethoxy aniline reacts with acrolein on heating in nitrobenzene to give **M** as the major product whereas *m*-nitroaniline reacts with acrolein on heating in nitrobenzene to give **N** as the major product. Give the structures of both **M** and **N** products and explain the reason for their formation as major products in each case.

ii) Mention any two physical properties of benzothiophene and give the stepwise mechanism for the following reaction.



B. i) Give suitable reagent(s) used for the following conversions.

p) Isoquinoline to 5-nitroisoquinoline

q) Quinoline to 3-bromoquinoline

r) Isoquinoline to cinchoneric acid

ii) The electrophilic substitution reaction in quinoline is favoured at C-5 position than C-6 position. Show the two electrophilic attacks with mechanism and justify the statement.

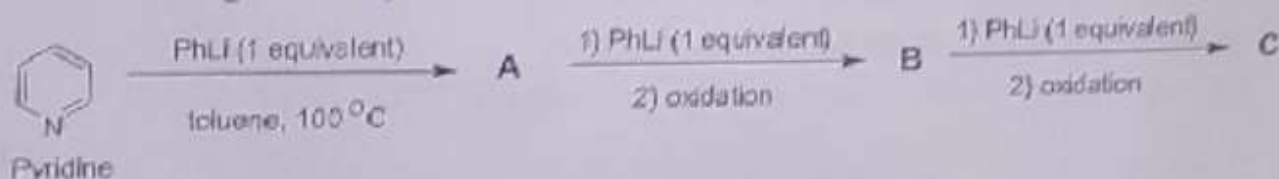
C. i) Using the appropriate starting material(s) and reagent(s), give one suitable reaction for the preparation of: a) 3-iodoindole b) skatole c) *N*-acetylindole.

ii) Indole reacts with formaldehyde and dimethylamine, in aqueous medium at 0°C to give *N*-substituted product. Identify the structure of the product and give the stepwise mechanism for its formation.

Q.4. Answer ANY ONE from the following:

A. i) Pyrrolidine on reaction with acetophenone in presence of acid catalyst gave an enamine compound **X** which on further reaction with ethyl iodide gave compound **Y** which finally on hydrolysis with H_3O^+ gave compound **Z** and pyrrolidine. Give the structures of compounds **X**, **Y** and **Z**. Also write the stepwise mechanism for the formation of product **X**.

ii) Complete the following reaction sequence with an appropriate structure of the compounds **A**, **B** and **C**. Also give the stepwise mechanism for the formation of **A** from pyridine.

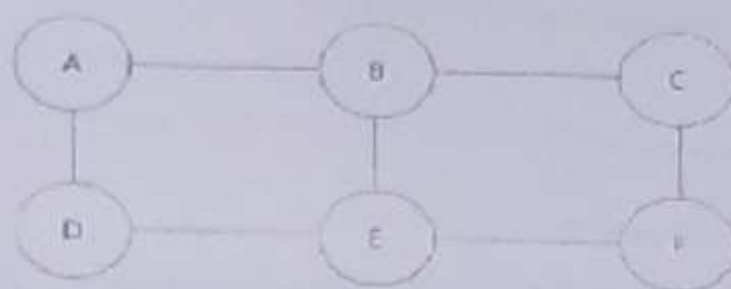


c) Explain any two feature selection methods.

Q.4. Answer **ANY ONE** of the following questions:

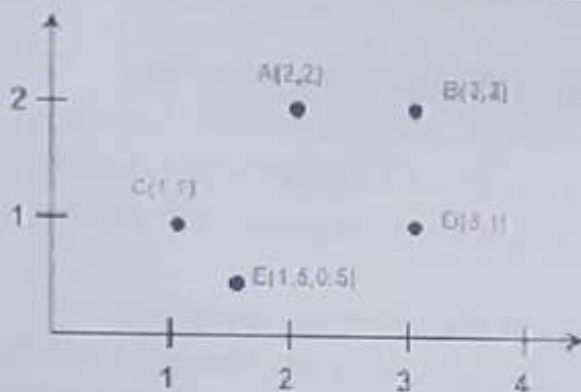
[12]

A) Give an example scenario where a multiple linear regression model is necessary and for the given graph calculate the betweenness centrality for the edges, solve using Girvan-Newman Algorithm.



OR

B) Explain K-mean Algorithm and Consider the below given scatter plot, assume $A(2, 2)$ and $C(1, 1)$ are centers of the two clusters and Use K-Means Algorithm to create two clusters.



Parvatibai Chowgule College of Arts and Science
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B.Sc. Semester End Examination, Jan./Feb. 2022

Semester: V

Subject: Computer Science

Course Title: Introduction to Data Science

Duration: 2 Hours

Max. Marks: 45

Instructions:

1. All Questions are compulsory.

Q. 1. Answer ANY THREE of the following questions: [9]

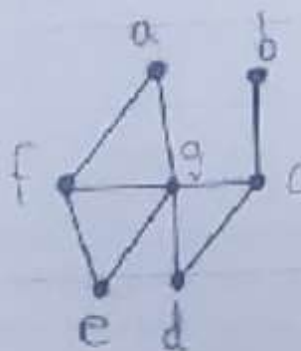
- a) Write a program to find product of vector elements in R.
- b) Explain the significance of exploratory data analysis (EDA) in data science.
- c) What are the uses of Mining Social-Network Graphs in Data science?
- d) Describe what Data Science is and the skill sets needed to be a data scientist.

Q.2. Answer ANY TWO of the following questions: [12]

- a) With a neat diagram explain Data Science Process.
- b) Explain with an example Classification Vs Linear regression.
- c) Explain ethical challenges of data science practitioner.

Q.3. Answer ANY TWO of the following questions: [12]

- a) Write any two differences between Bernoulli and Binomial Distribution? Consider that 80% of all business startups in the IT industry report that they generate a profit in their first year. If a sample of 10 new IT business startups is selected, find the probability that exactly seven will generate a profit in their first year.
- b) Find closed and open neighborhoods for the vertices a, f, g, e, d, c from the given graph:



Q4. Answer ANY ONE of the following:

(12)

- a. i) Find out the average waiting time and turnaround time for the table given below using Shortest Remaining Time First CPU Scheduling Algorithm.

Process	Arrival Time	Burst Time
P1	0	12
P2	1	5
P3	2	9
P4	3	4
P5	4	2

- ii) Draw and explain the resource allocation graph with 4 Processes and 4 resources with multiple instances for each resource, wherein there exists one cycle with Deadlock and another cycle with no deadlock.

OR

- b. i) What is Optimal Replacement Algorithm? For the given reference string find the number of page faults for Optimal Replacement Algorithm for 4 free frames.

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- ii) Draw the diagram for handling Page faults and explain the process in detail.

Q4. Answer ANY ONE of the following:

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- ii) Draw the diagram for handling Page faults and explain the process in detail.

Q. 5 A loan of Rs 50,000 is to be repaid by annual instalment of principal and interest over a period of 15 years. The rate of interest is 10% p.a.

Find (i) the annual instalment;

(ii) interest contained in the 9th payment;

(iii) the principal outstanding after 10th payment

(8)

Q. 6 a) In an experiment of drawing a card from a well-shuffled pack, all the events are equally likely. The event of getting a Heart is denoted by H and that of an Ace is denoted by A. explain the events H Intersection A, and H Union A and find their probabilities. (4)

b) Fill up the blanks in the following life table:

(4)

Age	l_x	d_x	q_x	p_x
31	10,000	-	00.0032	-
32	-	28	-	-
33	-	-	-	0.9975
34	-	-	-	0.9950
35	-	-	0.0020	-

Q. 7 a) Explain the need for financial planning and forecasting in a business highlighting the advantages of financial planning and forecasting. (4)

b) Assess the role of IRDA in regulating insurance business in India. (4)

Parvatibai Chowgule College of Arts and Science
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B.A. Semester End Examination, *May* 2022

Semester: V

Subject: Economics

Title: Introduction to Econometrics (Elective)

Time: 2 Hours

Max. Marks: 60

Instructions to the Candidate:

1. Question No. 1 is compulsory.
 2. Answer **ANY FOUR** questions from Question No. 2 to Question No. 7
 3. All questions carry equal marks.
 4. Figures to the right indicate marks allotted.
 5. Use of calculator is allowed.
-

Q.1. "Econometricians test economic theories and hypotheses by using statistical tools such as probability, statistical inference, regression analysis, frequency distributions, and more. After testing economic theories, econometricians can compare the results with real data and observations, which can be helpful in forecasting future economic trends." In the light of this statement explain step by step how you will use the various econometric methods which you studied in the course to test a simple economic theory. (12)

Q.2. Prove that for the regression model

$$Y_i = \alpha + \beta x_i + u_i,$$

Ordinary Least Square (OLS) estimators are best linear unbiased and also discuss the assumptions of classical linear regression model. (12)

Q.3. In a random sample of 2,000 families from the city of Delhi, it was found that the average income as obtained from the sample is ₹ 4,000/, it is further known that the population standard deviation is ₹ 420. (12)

Calculate:

95% and 99% confidence interval to population mean and interpret the results.

Q.4. Consider the following multiple regression equation (12)

$$Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k + u_i$$

Here, u_i is the error term.

- (a) Explain the need for including the u_i in the model.
- (b) Bring out the properties of OLS Estimators of Multiple Regression.

Parvatibai Chowgule College of Arts & Science
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B.A. Semester End Examination January-February, 2022

Semester: V

Subject: Economics

Title: Actuarial Economics (Elective)

Duration: Two Hours.

Max. Marks: 40

Instructions: 1. Question No. 1 is compulsory.

2. From Question No. 2 to Question No. 7 answer any Four.

3. Use of simple calculator is allowed.

3. Figures to the right indicate marks assigned.

Q. 1 Answer the following: (4 * 2)

a) Find simple interest on Rs.6,000 from 15th February 2020 to 14th November 2020 at 6% per annum.

b) Find the accumulated value of an investment of Rs.7,500 for a period of 5 years at the rate of interest of 6% p.a.

c) When a dice numbered 1 to 6 is thrown, find the probability of getting an even number.

d) Find the present value of an amount of Rs.8,000 payable after 10 years at the rate of interest of 8% p.a.

Q. 2 a) Find the compound interest on Rs.1,200 at 8% p.a. for 3 years if (i) interest is calculated quarterly; (ii) interest calculated monthly. (4)

b) Mr. X wants to invest certain money @ 6% p.a. compounded rate of interest to get an amount of Rs.1,00,000 after 3 years. What amount should Mr. X invest presently? (4)

Q. 3 a) An amount of Rs.6,000 p.a. is payable at the beginning of each year for a period of 5 years. Find the present value of this annuity @ 6% p.a. (4)

b) An amount of Rs.8,000 p.a. is payable at the beginning of each year for a period of 8 years. Find the accumulated value of this annuity @ 6% p.a. (4)

Q. 4 a) The Indian Government floated a scheme, under which on payment of a certain lump sum amount, the person is entitled to Rs.24,000 p.a. infinitely, the first payment being paid at the end of year. Find out the lump sum to be paid, assuming rate of interest 9% p.a. (4)

b) Find the present value and accumulated value of Rs.6,000 p.a. payable at the end of each quarter for 8 years @ 8% p.a. convertible quarterly. (4)

Parvatibai Chowgule College of Arts & Science
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B.A. Semester End Examination January-February, 2022

Semester: V

Subject: Economics

Title: Actuarial Economics (Elective)

Duration: Two Hours.

Max. Marks: 40

Instructions: 1. Question No. 1 is compulsory.

2. From Question No. 2 to Question No. 7 answer any Four.

3. Use of simple calculator is allowed.

3. Figures to the right indicate marks assigned.

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- b) Find the present value and accumulated value of Rs.6,000 p.a. payable at the end of each quarter for 8 years @ 8% p.a. convertible quarterly. (4)

Parvatibai Chowgule College of Arts and Science
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B.A. Semester End Examination, January 2022

Semester: V

Subject: Economics

Title: Microeconomic Analysis (Elective)

Time: 2 Hours

Max. Marks: 60

Instructions to the Candidate:

1. Question No. 1 is compulsory.
2. Answer **ANY FOUR** questions from Question No. 2 to Question No. 7
3. All questions carry equal marks.
4. Figures to the right indicate marks allotted.
5. Draw neat labelled diagram where required.

- Q.1. "Microeconomic analysis attempts to explain the behavior of individuals and organizations in a given economy." In the light of this statement explain the overall understanding of this course. (12)
- Q.2. "Pareto optimality is a necessary but not sufficient condition for welfare maximization." Develop this idea highlighting the role of social welfare contours' and utility possibility contours' in welfare maximizing state. (12)
- Q.3. Explain the demand curve of a firm for input under perfect competition with the help of schedule and diagram. (12)
- Q.4. "Society is a cooperative venture between free and equal persons for the purpose of mutual advantage". With the reference to the statement discuss the relevance of Rawls theory of Justice for third world countries. (12)
- Q.5. 'Prisoner's dilemma in a game theory model, which shows how rivals could act in a way, which could be mutually disadvantageous to both of them'. Substantiate your answer with the help of payoff matrix. (12)
- Q.6.A) Analyze the model of price leadership by a dominant firm, diagram is a must. (6)
B) Bring out the ways by which labour unions can increase and reduce labour productivity? (6)
- Q.7.A) What is the difference between partial and general equilibrium analysis. (6)
B) Discuss the approaches adopted by Pigou for analyzing the problem of welfare economics. (6)

Q.4. Answer ALL of the following

(12)

- a) What is a Astable multivibrator? Draw the circuit of transistorized astable multivibrator. Explain its working with the help of output and capacitor waveforms.
- b) i) Explain with a neat diagram the application of op-Amp as Schmitt trigger.
ii) Draw the circuit diagram and explain the working of pulse wave generator.

OR

Q.4. Answer ALL of the following

(12)

- a) i) Explain with a neat diagram the application of op-Amp as inverting window comparator.
ii) Analyze the small signal circuit for BJT with appropriate sketch.
- b) Simplify and realise (draw logic diagrams) the following Boolean expressions, using two i/p NAND gates
 - i) $ABC + A\bar{B}C$
 - ii) $(AB + ABC) \cdot (A\bar{B}C + \bar{A}BC)$

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Parvatibai Chowgule College of Arts and Science
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B.A. Semester End Examination, January 2022

Semester: V

Subject: French (Elective) FRE.E-14

Title: Business Communication in French.

Duration: 1.5 hours

Max. Marks: 40

Instructions: 1. All answers should be written in French.
2. Figures to the right indicate full marks.

Q.I. Répondez aux questions suivantes : (TROIS AU CHOIX)

(3x4=12)

Répondez en deux ou trois phrases chacune :

- A. i) Distinguez entre un salarié et un travailleur indépendant.
ii) A quoi l'employée a-t-il droit en cas de licenciement ? Que pourra-t-il faire en cas de licenciement sans motif réel ?
- B. i) Nommez trois situations qui peuvent donner lieu à réclamation de la part du client.
ii) Une réclamation peut être traitée comme une chance/ une opportunité pour l'entreprise. Pourquoi ?
- C. i) L'après-vente faire vendre. Expliquez.
ii) La publicité à la radio convient bien aux produits de grande consommation. Pourquoi ?
- D. i) Comment le Client peut-il passer une commande ? De quoi s'agit un accusé de réception de la commande ?
ii) Quels sont les qualités d'un bon message de publicité radiophonique ?
- E. i) Citez quatre différences entre les grands commerçants et les petits commerçants.
ii) Expliquer les termes : a) Un risque b) Déclarer un sinistre c) Une indemnité.

Q.II. Répondez aux questions suivantes. (TROIS AU CHOIX).

(3x4=12)

- A. Pour bien réussir un entretien de vente quels sont les étapes que le vendeur a intérêt à respecter ?
- B. Expliquer le terme « Positionner un produit ». Nommer les trois caractéristiques d'un bon positionnement d'un produit.

- C. Les avantages et les inconvénients de faire des achats en ligne.
- D. Comment peut-on intéresser les travailleurs à leur travail pour faire en sorte qu'ils ne s'ennuient pas.
- E. Dites pourquoi les hypermarchés placent les produits les plus rentables au niveau des yeux et pourquoi placent-ils les produits de première nécessité au fond du magasin ?

III. Répondez aux questions suivantes ; (UN AU CHOIX)

- A. Expliquer le concept de 'Travail à la chaîne'. Comment fonctionne-t-on dans une telle situation. Discutez les avantages et les inconvénients de ce méthode de travail. Peut-il avoir des effets négatifs pour l'entreprise ?

OU

- B. Préciser quelques aspects d'un contrat de travail. Nommez quelques obligations principales qu'un salarié est obligé à exécuter. Discuter la réglementation du droit de Grève.

Q.IV. Répondez aux questions suivantes : (UN AU CHOIX)

- A. Corinne Dubreuil s'apprête à faire un voyage d'affaires en Amérique. Au dernier moment, son agent de voyage lui annonce un changement dans son vol. Son vol de Paris du matin est annulé et reporté à 16hrs du soir. Corinne doit transmettre ce changement à son correspondant à New York et lui demander de rééchelonner le rendez-vous, de réserver de nouveau une chambre d'hôtel, d'annuler les autres réservations déjà faites ou de les refaire pour un autre jour. Mettez-vous à la place de Corinne et rédigez un e-mail à Michel Trudeau, le correspondant à New York.

OU

- B. Il y avait un cambriolage dans votre entrepôt. Conséquemment il vous manque une grande quantité de marchandise. Aussitôt, Vous devez informer la compagnie d'assurance de la survenance d'un sinistre et des dégâts conséquents (destruction des biens, perte d'argent etc.). Rédigez une lettre au directeur de la compagnie 'L'Assurance Nationale de l'Inde', pour faire une demande de versement d'indemnité dû au sinistre qui vous a coûté cher. (n'oubliez pas des pièces jointes).

B. Rédigez une carte postale :

Aarti écrit une carte postale à son amie française, Céline, lui décrivant une fête typique d'Inde.
Rédigez la carte postale.

C. Rédigez un courriel électronique :

Vous travaillez dans une agence de voyage. Une cliente, Mme Dubois vous envoie un courriel électronique demandant les renseignements sur les vêtements à porter au mois d'avril en Inde.
Répondez-lui.

D. Que diriez-vous dans les situations suivantes ? Imaginez dans chaque cas, la question du client et la réponse de l'employé. Faites des mini-dialogues.

- (i) Le client s'inquiète à propos de son allergie aux crevettes.
- (ii) Un touriste veut savoir l'indicatif pour Berlin.

Q. 3. Rédigez un dialogue :

A) Vous êtes responsable du service de nettoyage. Un client, M. Fortin, avait donné quelques vêtements au service du nettoyage. Il lui fallait ses vêtements avant 7h00 parce qu'il a un vol à prendre. Il est déjà 7h00. Il n'a pas encore reçu ses vêtements. Il vous téléphone pour se plaindre.

OU

B) Vous travaillez au guichet à la gare. Une cliente, Mme Leblanc, veut réserver des billets pour un train matinal direct. Malheureusement, le train est complet. Aidez le client à choisir en lui proposant des alternatives.

Q. 4.

A) Préparez un circuit pour un groupe de touristes qui voudrait passer 4 jours dans votre région. Rédigez un programme pour toute la journée en indiquant aussi toutes les activités qu'ils vont entreprendre.

OU

B) Ecrivez une lettre à votre ami lui décrivant votre visite à un pays étranger et ce que vous y avez fait.

(08)

(08)

Parvatibai Chowgule College of Arts and Science

Autonomous

B.A Semester End Examination, March 2022

Semester: V

Subject: French

Title: French for Tourism and Hospitality Part 1 (Elective)

Duration: 2 hrs

Max marks: 40

Instructions: 1. All answers should be written in French.
2. Figures to the right indicate full marks.

Q. 1. Faites les exercices suivants : (TROIS AU CHOIX)

(3x4=12)

A. Donnez des conseils dans les situations suivantes. Justifiez vos réponses :

- (i) Un touriste va boire l'eau du robinet.
- (ii) Mme Lebrun veut prendre des photos dans un temple.
- (iii) Une cliente veut voyager en Inde. Elle aime les sites historiques. Elle ne sait pas quelle ville visiter.
- (iv) M. Favart cherche de la bijouterie pour sa femme.

B. Décrivez les métiers suivants :

- (i) Une hôtesse de l'air
- (ii) Un cuisinier
- (iii) Un guide
- (iv) Un serveur

C. Rédigez un message télécopie :

Renée est directrice de l'agence « Bon Voyage ». Elle demande au directeur de « Luxury Travels » de lui donner des renseignements pratiques pour préparer un circuit pour un groupe de touristes qui vont passer une semaine en Inde. Rédigez le message télécopie.

D. Préparez une fiche de réservation.

Q. 2. Faites les exercices suivants : (TROIS AU CHOIX)

(3x4=12)

A. Laisser un message:

Vous êtes réceptionniste. Le 31 janvier à 16h, Mme Renoir téléphone. Elle veut parler à son chef, M. Legris. Il n'est pas là. Alors, elle lui laisse un message. Imaginez le message et notez-le.

Parvatibai Chowgule College of Arts and Science
Autonomous

B.A. Semester End Examination, P.V.C.S., 2022

Semester: V

Subject: Geography

Title: GUG-1: 10. Oceans: Issues and Challenges (Elective)

Duration: 2 Hours

Max. Marks: 45

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- Instructions:** 1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Illustrate your answers with suitable examples/diagrams.
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Q.1. Answer ANY THREE of the following: (09)

- A. What is acidification of ocean water?
- B. Define Exclusive Economic Zone
- C. What is territorial sea base line?
- D. What is Coastal Regulation Zone

Q.2. Answer ANY TWO of the following: (12)

- A. Explain the importance of United Nations Convention on Law of the Sea.
- B. Explain the impacts of sea level change on coastal areas.
- C. Discuss the significance of coastal regulation zone in India.

Q.3. Answer ANY TWO of the following: (12)

- A. Explain the impact of global warming on the marine resources.
- B. Write a note on the EEZ of Indian ocean with respect to India
- C. Write a note on maritime zones recognized under international law.

Q.4. Answer ANY ONE of the following: (12)

- A. Describe the effects of ballast water on marine ecosystem. Explain the ways to manage ballast water.
- B. Write the suitable conditions require for the growth of coral reefs. Explain any three causes of coral destructions.

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