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S – 3180

Reg. No. : .....

Name : .....

**Third Semester B.A./B.Sc. Degree Examination, February 2024**

**First Degree Programme Under CBCSS**

**Language Course – English**

**EN 1311.1/EN 1311.3 : ENGLISH FOR CAREER**

**(Common for B.A./B.Sc. & Career Related Group 2(a) Courses)**

**(2019 Admission Onwards)**

Time : 3 Hours

Max. Marks : 80

1. Answer **all** the questions. Follow the instructions given in the brackets wherever needed.
1. The correct spelling of the word 'bilingual' is \_\_\_\_\_.
2. The antonym of 'alien' is \_\_\_\_\_.
3. Another word for 'penchant' is \_\_\_\_\_.
4. The noun form of 'observe' is \_\_\_\_\_.
5. This new shoes is very expensive. (Correct the sentence)
6. She \_\_\_\_\_ (go) to school since 2015. (Use the correct tense of the verb in brackets)
7. He injured him while working with a saw. (Underline the error)
8. \_\_\_\_\_ is the collection and study of postage stamps.

P.T.O.

9. She eats mangoes, \_\_\_\_\_? (Complete the sentence with a question tag)
10. She tends to \_\_\_\_\_ people who haven't had the same qualifications. (Fill in the blanks with the phrasal verb which means "to treat someone not worthy of respect".)
- (a) look forward to
  - (b) look down upon
  - (c) look up to
  - (d) look back on

(10 × 1 = 10 Marks)

II. Answer any **eight** of the following questions.

11. Provide one-word substitutes for any **two** of the phrases :

- (a) a solo speech or presentation by a speaker
- (b) a written or multimedia account of one's experiences during journeys
- (c) something said or done without any preparation
- (d) cyber attack using deceptive emails or messages to obtain sensitive information

12. Give the antonyms of any **two** of the following words :

- (a) confidence
- (b) escalating
- (c) sagacious

13. Make sentences of your own with any **two** of the following phrasal verbs :

- (a) turn up
- (b) smell a rat
- (c) look forward to
- (d) bring up

14. Choose the correct option from the brackets :

- (a) The plane will \_\_\_\_\_ in an hour, we need to hurry to the airport. (take up / take off)
- (b) They had to \_\_\_\_\_ the event due to bad weather. (call on / call off)

15. Fill in the blanks using a collective noun from those given below :

(fleet, group, collection, flock, fleet)

- (a) The \_\_\_\_\_ of musicians played a mesmerizing concert last night.
- (b) The naval base housed an impressive \_\_\_\_\_ of ships.

16. Fill in the blanks using the suitable degree of the adjective given in brackets :

- (a) This is the \_\_\_\_\_ cake I have ever tasted. (delicious)
- (b) This smartphone is \_\_\_\_\_ the latest model. (fast)

Correct the error in the words given in italics:

17. (a) Exercising has numerous *advantage* effects on both physical and mental well-being.
- (b) It is my *obliging* to complete the assigned tasks before the deadline.
18. (a) His *significance* contributions to the project played a crucial role in its success.
- (b) I won't tolerate any more excuses; get the job done or face *consequances*.
19. (a) I was upset by his *hostility* attitude.
- (b) Our goal is focused on *eradicate* hunger by supporting local food banks.

20. Fill in the blanks with suitable words from those given in brackets :

(dumped, accumulation, dust bins, indicates)

The plastic \_\_\_\_\_ 1 \_\_\_\_\_ inside the oceans \_\_\_\_\_ 2 \_\_\_\_\_ that our oceans are slowly becoming \_\_\_\_\_ 3 \_\_\_\_\_. A new study found that the waste \_\_\_\_\_ 4 \_\_\_\_\_ in oceans is increasing.

21. Read the paragraph and answer the questions given below :

Pet animals, like dogs and cats, contribute to the lives of their owners by providing companionship and joy, fostering deep connections that positively impact both the human and animal involved. Caring for these pets involves responsibilities such as feeding, grooming, and attending to their health needs, instilling a sense of commitment and imparting valuable life skills to their owners.

- (a) How do pet animals positively impact the lives of their owners?
- (b) What skills do pet owners gain from taking care of their animals?

22. Mental health is a crucial aspect of overall well-being, encompassing emotional, psychological, and social aspects of an individual's life. It involves maintaining a balance in one's thoughts, emotions, and behaviors, contributing to a positive and fulfilling life. Seeking support, fostering open conversations, and promoting self-care are essential components in addressing and nurturing mental health.

- (a) What is the meaning of the word 'fostering' as used in the paragraph?
- (b) What components are essential for addressing and nurturing mental health?

**(8 × 2 = 16 Marks)**

III. Answer any six of the following questions.

23. Fill in the blanks with the correct option :

- (a) They asked you to \_\_\_\_\_, didn't they? (accept it / accept to it)
- (b) His constant complaints were \_\_\_\_\_ everyone in the office. (irritating / inspiring)
- (c) She was a \_\_\_\_\_ scientist, widely recognized for her research in quantum physics. (eminent / distinguished)
- (d) Her professional \_\_\_\_\_ have positioned her as a leader in the field of environmental sustainability. (acknowledgements / achievements)

24. Fill in the blanks with suitable phrases from those given in brackets :

(bring up, come across, set up, take off, look into, run out, show up)

(a) While cleaning the attic, I \_\_\_\_\_ an old photo album.

(b) The detective promised to \_\_\_\_\_ the mysterious disappearance of the valuable artifact.

(c) We need to go grocery shopping; we're about to \_\_\_\_\_ of essential items.

(d) They decided to \_\_\_\_\_ a small business to sell handmade crafts online.

25. Correct the error in any **four** of the following sentences :

(a) She don't like coffee, but she loves tea.

(b) The meeting was schedule for 3:00 PM, but it got postponed.

(c) Neither the teacher nor the students is aware of the upcoming exam.

(d) Of the two brothers, he is the tallest.

(e) His ability to adapt to new situations are one of his strongest qualities.

26. Correct the error in the section in italics in any **four** of the following sentences :

(a) *What fantastic* movie that was!

(b) Oh, *what adorable* those kittens are!

(c) *How an impressive* your artwork turned out!

(d) *What beautiful garden* you've created!

(e) *How thrilling is it* to ride a roller coaster!

27. Fill in the blanks with suitable pronouns from those given in brackets :

(myself, it, it's, us, them, I, her, she, you, me, they)

A : I went to the shopping mall today. \_\_\_\_\_ bought a new laptop for \_\_\_\_\_.

B : I need a laptop too. Can you tell \_\_\_\_\_ more about \_\_\_\_\_? What brand did \_\_\_\_\_ get?

A : I chose a popular brand. \_\_\_\_\_ sleek. \_\_\_\_\_ have a good collection.

B : Thanks. I want to buy a new laptop for my friend on \_\_\_\_\_ birthday.

28. Correct the error in the sections in italics :

(a) Of the two boys, Jim is *the fastest*.

(b) She plays the piano *more skillfull* than anyone in the band.

(c) This is the *more worst* movie I've ever seen.

(d) She is not as *taller* as her friend.

29. Fill in the blanks with suitable words from those given in brackets :

(symptoms, encourage, presently, possibility, ailment, home, feeble, wished)

Tom lay thinking. \_\_\_\_\_ it occurred to him that he \_\_\_\_\_ he was sick; then he could stay \_\_\_\_\_ from school. Here was a vague \_\_\_\_\_. He canvassed his system. No \_\_\_\_\_ was found, and he investigated again. This time he thought he could detect colicky \_\_\_\_\_, and he began to \_\_\_\_\_ them with considerable hope. But they soon grew \_\_\_\_\_, and presently died wholly away.

30. Read the passage and answer the questions given below :

Big mountains, so amazing and old, have seen time passing and how people and societies change. The tall peaks, sometimes covered in mist or touched by the sun, get respect and make people dream. Mountains, with their rough landscapes and high points, feel both challenging and peaceful. They act like borders, keeping different environments safe for plants and animals used to tough conditions. As Earth's history keepers, mountains tell stories of crashes and weathering that made them beautiful for millions of years. These huge formations attract both adventurers and thinkers, giving a break in high places with fresh air and endless views, making us appreciate nature's wonders and strength.

- (a) What makes people dream?
- (b) Why are mountains considered to be challenging?
- (c) Define "history keepers."
- (d) Who are more fascinated towards mountains?

31. Read the passage and answer the questions given below :

The RMS Titanic, a British passenger liner, remains one of the most iconic and tragic stories in maritime history. On April 15, 1912, during its maiden voyage from Southampton to New York City, the Titanic struck an iceberg and sank in the North Atlantic Ocean. Despite being equipped with advanced safety features for its time, the ship could not withstand the impact, leading to the loss of more than 1,500 lives. The disaster exposed shortcomings in maritime safety practices and sparked significant changes in international regulations. The sinking of the Titanic has since captured the collective imagination, serving as a poignant reminder of the delicate balance between human innovation and the forces of nature.

- (a) What was the fate of the RMS Titanic during its maiden voyage in 1912?
- (b) What was the destination of the RMS Titanic during its maiden voyage?
- (c) What caused the sinking of the Titanic?
- (d) The word poignant means:
  - (i) touching
  - (ii) happy
  - (iii) unemotional
  - (iv) indifferent

**(6 × 4 = 24 Marks)**

IV. Answer any **two** of the following questions, choosing **one** from each group.

GROUP – A

32. Read the following passage and answer the questions given below :

Diego Maradona, widely regarded as one of the greatest footballers in history, left an indelible mark on the sport with his extraordinary skills and charismatic presence. Born in Argentina in 1960, Maradona's rise to football stardom began in his early teens when he joined the youth team of Argentinos Juniors. His exceptional dribbling abilities and vision on the field quickly caught the attention of scouts, leading to his debut in the professional arena at the tender age of 16. Maradona's career reached its pinnacle during the 1986 FIFA World Cup in Mexico, where he single-handedly propelled Argentina to victory. His infamous "Hand of God" goal and the stunning solo effort against England in the quarterfinals showcased his unparalleled talent and cemented his status as a football legend.

Off the field, Maradona's life was marked by both triumphs and tribulations. His battles with drug abuse and personal demons added a complex layer to his narrative, but his impact on the game and the love he garnered from fans worldwide remained unparalleled. Despite the controversies, Diego Maradona's legacy endures, with his name etched in football history as a symbol of skill, passion, and the indomitable spirit that defines the beautiful game.

1. \_\_\_\_\_ is the word from the passage which means "first public appearance".
2. Charisma in the given context means \_\_\_\_\_.  
(a) Compelling charm                      (b) Very eloquent  
(c) Totally difficult                      (d) Calm and cool
3. Name the word which is a synonym for 'notorious' from the passage.



4. "Cemented" in the passage means \_\_\_\_\_.  
 (a) put out (b) firmly established  
 (c) made irrelevant (d) well protected
5. The word \_\_\_\_\_ from the passage is synonym for the word 'incomparable'.
6. The phrase 'single handed' means \_\_\_\_\_.  
 (a) collaboratively (b) with one hand  
 (c) in tandem (d) solely executed
7. \_\_\_\_\_ is not a synonym of 'complex'.  
 (a) intricate (b) elaborate  
 (c) composite (d) nefarious
8. Identify the word in superlative degree from the above passage.
9. The word 'exceptional' is related to \_\_\_\_\_.  
 (a) unique (b) ordinary  
 (c) mediocre (d) normal
10. \_\_\_\_\_ is a single word for "adhering to standards".  
 (a) professional (b) professionalization  
 (c) profess (d) professionalism
11. \_\_\_\_\_ is a synonym for 'success'.
12. Which phrase means "create an everlasting memory"?
13. The phrase \_\_\_\_\_ means "attain the highest level".
14. Find a synonym for "invincible will" from the passage.
15. Make a sentence on your own with the word "legacy".

OR

## GROUP B

34. Read the passage and answer the questions given below :

It was raining when Rahel came back to Ayemenem. Slanting silver ropes slammed into loose earth, plowing it up like gunfire. The old house on the hill wore its steep, gabled roof pulled over its ears like a low hat. The walls, streaked with moss, had grown soft, and bulged a little with dampness that seeped up from the ground. The wild, overgrown garden was full of the whisper and scurry of small lives. In the undergrowth a rat snake rubbed itself against a glistening stone. Hopeful yellow bullfrogs cruised the scummy pond for mates. A drenched mongoose flashed across the leaf-strewn driveway. The house itself looked empty. The doors and windows were locked. The front verandah bare. Unfurnished. But the skyblue Plymouth with chrome tailfins was still parked outside, and inside, Baby Kochamma was still alive. She was Rahel's baby grandaunt, her grandfather's younger sister. Her name was really Navomi, Navomi Ipe, but everybody called her Baby. She became Baby Kochamma when she was old enough to be an aunt. Rahel hadn't come to see her, though. Neither niece nor baby grandaunt labored under any illusions on that account. Rahel had come to see her brother, Estha.

(Arundhati Roy: God of Small Things)

Questions:

- The word 'drenched' in the passage is closest in meaning to:  
(a) violent (b) aggressive  
(c) warm (d) damp
- "Flashed across" means:  
(a) move swiftly (b) appear in a flash  
(c) come back (d) move carefully
- Find the word in the passage which is opposite in meaning to 'faded'.  
(a) empty (b) glistening  
(c) slanting (d) gabled

4. The word 'scummy' in the passage means:
 

(a) clean	(b) wet
(c) muddy	(d) slippery
5. The phrase slammed into means:
 

(a) intrude	(b) deliver
(c) paste	(d) hit
6. 'Undergrowth' means \_\_\_\_\_.
7. Identify the statement which is true:
  - (a) The residence appeared deserted.
  - (b) The people were noisy.
  - (c) Rahel was greeted warmly.
  - (d) The garden appeared to be charming.
8. The word 'overgrown' in "overgrown garden" means:
 

(a) clear	(b) dense
(c) captivating	(d) deserted
9. How did Navomi become "Baby Kochamma"?
10. What was the weather like when Rahel returned to Ayemenem?
11. How does the old house on the hill appear in the passage?
12. Describe the condition of the walls of the old house.
13. What animals are mentioned in the wild, overgrown garden?
14. Who is Baby Kochamma, and how is she related to Rahel?
15. Why did Rahel come back to Ayemenem, and who did she come to see?

OR

35. Spot the error in the underlined sections in the following sentences. If there is no error, the answer is 'd'.

1. Despite a heavy rain, she insisted on going for a run in the park. No Error.
 

a	b	c	d
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2. Each of the student in the class has their own opinion about the topic.

a	b	c
---	---	---

No error.

d
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3. The manager, along with his team, are planning to attend the conference next month. No Error.  
                                  a  b  
                                  c  d
4. The cat laid on the couch, grooming itself, while the dog played in the backyard. No Error.  
                                  a  b  c  
                                  d
5. The new policy will affect a significant change in the company's operations. No error.  
                                  a  b  c  
                                  d
6. He don't want to admit that he made a mistake during the presentation. No error.  
                                  a  b  c  
                                  d
7. The mountain range is visible from a far distance on clear day. No error.  
                                  a  b  c  
                                  d
8. Between you and I, there's no need to worry about the project deadline. No error.  
                                  a  b  c  
                                  d
9. The book, as well as the magazine, are on the shelf in the living room. No error.  
                                  a  b  c  
                                  d
10. The group of friends, all wearing matching T-shirts, were celebrating their reunion. No error.  
                                  a  b  c  
                                  d

11. The reasons for the project delay are still unclear. No error.  
a b c d
12. Me and my sister are planning a trip to Europe next summer. No error.  
a b c d
13. The cake, along with the cookies, were baked by my grandmother. No error.  
a b c d
14. Each of the employees were given a bonus for their hard work last quarter.  
a b c  
No error.  
d
15. The car needs washed before we go on our road trip. No error.  
a b c d

(2 × 15 = 30 Marks)

(Pages : 4)

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Reg. No. : .....

Name : .....

**Third Semester B.Sc. Degree Examination, February 2024**

**Career Related First Degree Programme under CBCSS**

**Physics and Computer Applications**

**Core Course**

**PC 1341 : ELECTRODYNAMICS**

**(2014 Admission Onwards)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

Answer all the questions. Each question carries 1 mark.

1. Give the expression for the electric field due to point charge.
2. State Coulomb's law.
3. Explain electric flux.
4. What do you mean by polarization?
5. Define intensity of magnetization.
6. Define electric potential.
7. Define Ohm's law.
8. Give the differential equation of wave motion.

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9. What is meant by Q factor?
10. What is wattless current?

**(10 × 1 = 10 Marks)**

**SECTION – B**

Answer any **eight** questions. Each question carries **2** marks.

11. Explain Poisson's equation.
12. Explain curl of a vector field.
13. State volume charge density.
14. State and explain dielectrics.
15. What is the boundary condition for electrostatic potential between two different dielectric media?
16. What are the properties of diamagnetic materials?
17. State and explain Biot-Savart law.
18. What is ferromagnetism?
19. Write the integral and differential form of Ampere's circuital law.
20. Define magnetic flux density (B) and magnetic field intensity (H) and give the relationship.
21. Explain how resonance occurs in series LCR circuit.
22. Explain one practical application of series resonant circuit.

**(8 × 2 = 16 Marks)**

### SECTION – C

Answer any six questions. Each question carries 4 marks.

23. A sphere of radius 0.1 m is charged with  $10^{-6}$  coulomb of charge. Find the potential at any internal point.
24. A coil of self-inductance 50 Henry is joined to the terminals of a battery of emf 2 volt through a resistance 10 ohm. Find
  - (a) the time constant of the circuit
  - (b) current finally established in the circuit.
25. The charge per unit area of a large flat sheet of charge is  $3 \mu\text{C}/\text{m}^2$ . Calculate the electric field intensity at a point just above the surface sheet, measured from its mid point.
26. A point charge  $10^{-7}$  C is situated at the centre of a cube of 1 m side. Calculate the flux through its surface.
27. A capacitor of capacitance  $2 \mu\text{F}$  is in an a.c. circuit of frequency 1000 Hz. If the rms value of the applied emf is 10 V, find the effective current flowing in the circuit.
28. Derive Poisson's and Laplace's equations.
29. Apply Gauss's law to find the electric field due to an infinite plane sheet of charge.
30. Find the value of the time constant in an L-R circuit when the current rises to 63.2% of its steady value in one second.
31. Distinguish between electrostatics and magnetostatics.

**(6 × 4 = 24 Marks)**



SECTION – D

Answer any two questions. Each question carries 15 marks.

32. Derive the electrostatic boundary conditions.
33. State and prove Ampere's circuital law. Derive the expression for the magnetic field inside a long solenoid.
34. (a) Derive the wave equation for E and B.  
(b) What are monochromatic plane waves? Derive an expression for energy and momentum in electromagnetic waves.
35. Discuss the nature of ac current in a series LCR circuit. Obtain the condition for resonance.

(2 × 15 = 30 Marks)

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Reg. No. : .....

Name : .....

Third Semester B.Sc. Degree Examination, February 2024

Career Related First Degree Programme under CBCSS

Mathematics

Complementary Course for Physics and Computer Applications

MM 1331.6 : MATHEMATICS – III – THEORY OF MATRICES, VECTOR  
INTEGRATION, DIFFERENTIAL EQUATIONS AND FOURIER SERIES

(2019 Admission onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – I

Answer all questions. They carry 1 mark each.

1. If  $A = \begin{pmatrix} 1 & -3 \\ 5 & 0 \\ -2 & 6 \end{pmatrix}$ , then  $A^T =$  \_\_\_\_\_.

2. Evaluate at  $\begin{vmatrix} x & y & z & 1 \\ 0 & 0 & 0 & 1 \\ 1 & 2 & 5 & 1 \\ 2 & -1 & 0 & 1 \end{vmatrix}$ .

3. When will you say a function  $f(r)$  is linear?

4. The volume of the small shaded cone is \_\_\_\_\_.

5. Define multiply connected.
6. When will you say the differential equation  $Mdx + Ndy = 0$  is exact?
7. What is Riccati equation?
8.  $y'' + ay' + by = 0$  has complex conjugate roots if \_\_\_\_\_.
9.  $\cos nx =$  \_\_\_\_\_.
10. The average value of  $\sin^2 nx =$  \_\_\_\_\_.

(10 × 1 = 10 Marks)

### SECTION – II

Answer any eight questions. These questions carry 2 marks each.

11. If  $A = \begin{pmatrix} 1 & \sqrt{2} \\ -\sqrt{2} & -1 \end{pmatrix}$ , then find  $A^2$ ,  $A^3$  and  $A^4$ .
12. Find the direction of the line of intersection of the planes  $x - 2y + 3z = 4$  and  $2x + y - z = 5$ .
13. Solve  $2x + 3y = 3$ ,  $x - 2y = 5$ , by using Cramer's rule.
14. Evaluate the line integral,  $I = \oint_C [e^x y + \cos x \sin y] dx + [(e^x + \sin x \cos y) dy]$  around the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ .
15. Use divergence theorem, prove that  $\int_V \nabla \times b dV = \int_S ds \times b$ .
16. Discuss about volume of three-dimensional regions.
17. Define Integration factor  $F^*(y)$ .
18. Discuss about Non-homogenous ODE.

19. Write basis and general solution of Homogeneous linear ODEs, if the roots are distinct real.
20. When will you say the function  $f(x)$  is even?
21. Define total energy of a particle.
22. Find  $1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \dots$ .

**(8 × 2 = 16 Marks)**

### SECTION - III

Answer any six questions. These questions carry 4 marks each.

23. Find a vector perpendicular to both  $A = 2i + j - k$  and  $B = i + 3j - 2k$ .
24. Find the distance between the lines  $r = i - 2j + (i - k)t$  and  $r = 2j - k + (j - i)t$ .
25. If  $M = \begin{pmatrix} 1 & 0 & -1 \\ -2 & 3 & 0 \\ 1 & -3 & 2 \end{pmatrix}$ , then find  $M^{-1}$ .
26. Show that the area of a region  $R$  enclosed by a simple closed curve  $C$  is given by  $A = \frac{1}{2} \oint_C (x dy - y dx) = \oint_C x dy = - \oint_C y dx$ . Hence calculate the area of the ellipse  $x = a \cos \phi$ ,  $y = b \sin \phi$ .
27. Prove that  $\cos(x + y) dx + (3y^2 + 2y + \cos(x + y)) dy = 0$  is exact.
28. Write logistic equation and solve it.
29. Find the Laplacian of the scalar field  $\phi = xy^2z^3$ .
30. Find  $\Gamma(\rho) \Gamma(1 - \rho)$ .
31. Find  $B(\rho, q)$ .

**(6 × 4 = 24 Marks)**

SECTION - IV

Answer any two questions. These questions carry 15 marks each.

32. (a) Find the mapping produced by the matrix  $L = \begin{pmatrix} 0 & -1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix}$ .

(b) Find the mapping produced by the matrices  $G = \begin{pmatrix} 0 & 0 & 1 \\ 0 & -1 & 0 \\ 1 & 0 & 0 \end{pmatrix}$ .

$$K = \begin{pmatrix} 0 & 0 & 1 \\ -1 & 0 & 0 \\ 0 & -1 & 0 \end{pmatrix}$$

33. Let  $f(x) = \begin{cases} 1, & 0 < x < \frac{1}{2} \\ 0, & \frac{1}{2} < x < 1 \end{cases}$ . Find

(a) A Fourier sine series

(b) A Fourier cosine series

34. Show that the area of a region  $R$  enclosed by a simple closed curve  $C$  is given by  $A = \frac{1}{2} \oint_C (x dy - y dx) = \oint_C x dy = -\oint_C y dx$ . Hence calculate the area of the ellipse  $x = a \cos \phi$ ,  $y = b \sin \phi$ .

35. Solve  $\cos(x + y) dx + [3y^2 + 2y + \cos(x + y)] dy = 0$

(2 × 15 = 30 Marks)

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Reg. No. : .....

Name : .....

**Third Semester B.Sc. Degree Examination, February 2024**  
**Career Related First Degree Programme under CBCSS**  
**Group 2 (a) – PHYSICS AND COMPUTER APPLICATIONS**  
**Vocational Course**  
**PC 1371 : MICROPROCESSORS**  
**(2021 Admission Onwards)**

Time 3 Hours

Max. Marks : 80

**SECTION – A**

Very short answer type. Answer all questions. One word to maximum of one sentence. Each question carries 1 mark.

1. \_\_\_\_\_ is the number of states in a write cycle.
2. The alternate name of even bank is \_\_\_\_\_.
3. \_\_\_\_\_ transfer the flow of execution of the program to a new address specified in the instruction.
4. \_\_\_\_\_ is a maskable interrupt having lower priority.
5. 8086 is \_\_\_\_\_ bit microprocessor.
6. ALE stands for \_\_\_\_\_.
7. Status register is also called \_\_\_\_\_.

P.T.O.

8. \_\_\_\_\_ instruction in 8086 moves data from register to register.
9. \_\_\_\_\_ operation increments stack pointer.
10. \_\_\_\_\_ is the instruction in 8086 microprocessor which stops the execution of the program.

**(10 × 1 = 10 Marks)**

### SECTION – B

Short Answer. Answer any **eight** questions. Not to exceed **one** paragraph. Each question carries **2** marks.

11. What is a read cycle?
12. What is an instruction format?
13. Explain ADD instruction.
14. What is external interrupt and internal interrupt?
15. What is bus control in microprocessor?
16. What is the function of address bus in microprocessor?
17. Explain function of assembler directive.
18. What is macro?
19. What is the function of data transfer instruction?
20. What is procedure in assembly language?
21. Mention four members of 80 × 86 family of microprocessor.
22. List down any two features of Pentium processor.

**(8 × 2 = 16 Marks)**

### SECTION – C

Short Essay. Answer any **six** questions. Not to exceed **120** words. Each question carries **4** marks.

23. What is a microprocessor based system?
24. Explain any two types of 8086 pins.
25. What is meant by bus cycle?
26. What is programmable interrupt controller?
27. What are arithmetical instructions and logical instructions?
28. Explain any two interrupt sources in 8086 microprocessor.
29. Explain any two assembly language development tools.
30. What is assembler and debugger in assembly language?
31. Compare any two features of 8086 and 80186.

**(6 × 4 = 24 Marks)**

### SECTION – D

Long Essay. Answer any **two** questions. Each question carries **15** marks.

32. Discuss architecture of 8086 microprocessor.
33. Discuss on flags of 8086.
34. Discuss on different types of registers in microprocessor.
35. Explain architecture of Pentium processor.

**(2 × 15 = 30 Marks)**



Physics

(Pages : 4)

S – 3635

Reg. No. : .....

Name : .....

**Third Semester B.Sc. Degree Examination, February 2024**

**Career Related First Degree Programme under CBCSS**

**Group 2(a) – Physics and Computer Applications**

**Vocational Course**

**PC 1372 – DATA STRUCTURES**

**(2021 Admission Onwards)**

Time : 3 Hours

Max. Marks : 80

**PART – A (Very Short Answer Questions)**

**Answer all questions.**

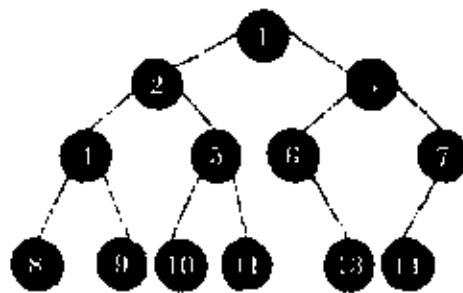
**Each Question carries 1 mark.**

1. What do you mean by data structures?
2. Mention two applications of stack.
3. What is a BST?
4. Convert following equation from infix to prefix form

$$A*(B-C)/D+E+F/G$$

5. What do you mean by hashing?
6. Define a undirected graph.

7. List two linear data structures.
8. What do you mean by double hashing?
9. What do you mean by sparse matrix?
10. Traverse the following tree in postorder.



(10 × 1 = 10 Marks)

**PART – B (Brief Answer Questions)**

Answer **any eight** questions.

Each Question carries **2** marks.

11. Explain features of nonlinear data structures.
12. Give short note on memory representation of tree.
13. Write note on dequeue.
14. Convert following to postfix form.
  - (a)  $A * B * C + D - (E + F) * G$
  - (b)  $(A - B) * C - (D - E) + F$
15. List out various types of linked list.

16. Define the following :
  - (a) Expression tree
  - (b) Graph.
17. Write note on array insertion operation.
18. Explain traversal operations of a tree.
19. What do you mean by linear data structures?
20. Mention two applications of graph.
21. Explain the need of postfix expression.
22. What do you mean by depth of a tree?

**(8 × 2 = 16 Marks)**

**PART – C (Short Essay Type questions)**

**Answer any six questions.**

**Each Question carries 4 marks.**

23. Give Short note on arrays.
24. Write short note on memory representation of linked list.
25. Explain infix to postfix expression with example.
26. Explain priority queue in detail.
27. Write short note on extended binary tree.
28. Explain insertion operation to a BST.
29. Write an algorithm to perform binary search in an array.
30. Write short note on graph traversal.
31. Write short note on hash table.

**(6 × 4 = 24 Marks)**

**PART - D (Long Essays)**

**Answer any two questions.**

**Each Question carries 15 marks.**

32. Explain various types of queue in detail.
33. Explain various operations on doubly linked list.
34. Explain Insertion sort algorithm in detail with an example.
35. Explain various collision resolution techniques in detail.

**(2 × 15 = 30 Marks)**