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V Semester ALL UG Courses Degree Examination, March/April - 2024

COMMERCE

Employability Skills

(Regular)

Time : 1½ (90 Minutes) **Maximum Marks : 50**

Instructions to Candidates:

1. Check for complete printing of **50** questions.
2. The last page of the question paper may be used for rough work.
3. Each question has four multiple choice answer and choose the correct one.
4. Darken the appropriate circle with the ball pen.
5. Damaging/overwriting using whitener on the **OMR** sheets are strictly prohibited.
6. No candidates will be allowed to leave the examination Hall till the end of the session and without handing over his/her answer sheet to the invigilator.
7. Candidates should ensure that the invigilator has verified all the entries and that the invigilator has offixed his/her signature in the space provided on the **OMR**.

[P.T.O.

6. Which of the following agencies conduct competative examinations in India for higher education.
   A) National Testing Agency (NTA)
   B) Indian Institutes of Technology (IITs)
   C) National Institutes of Technology(NITs)
   D) All of the above.

   ಈ ಕೆಳಗಿನ ಯಾವ ಏಜೆನ್ಸಿಗಳು ಉನ್ನತ ಶಿಕ್ಷಣಕ್ಕಾಗಿ ಭಾರತದಲ್ಲಿ ಸ್ಪರ್ಧಾತ್ಮಕ ಪರೀಕ್ಷೆಗಳನ್ನು ನಡೆಸುತ್ತವೆ.
   A) ರಾಷ್ಟ್ರೀಯ ಪರೀಕ್ಷಾ ಸಂಸ್ಥೆ (NTA)
   B) ಇಂಡಿಯನ್ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಟೆಕ್ನಾಲಜಿ (IIT's)
   C) ರಾಷ್ಟ್ರೀಯ ತಂತ್ರಜ್ಞಾನ ಸಂಸ್ಥೆಗಳು (NIT's)
   D) ಮೇಲಿನ ಎಲ್ಲವೂ

7. Lal Bahadur Shastri National Academy of Administration (LBSNAA) is located in _____.
   A) Dehradun
   B) Hyderabad
   C) New Delhi
   D) Mussoorie

   ಲಾಲ್‌ಬಹದ್ದೂರ ಶಾಸ್ತ್ರೀ ನ್ಯಾಷನಲ್ ಅಕಾಡೆಮಿ ಆಫ್ ಆಡ್ಮಿನಿಸ್ಟ್ರೇಷನ್ (LBSNAA) ಎಲ್ಲಿದೆ?
   A) ಡೆಹರಾಡೂನ
   B) ಹೈದ್ರಾಬಾದ್
   C) ನವ ದೆಹಲಿ
   D) ಮಸ್ಸೂರಿ

8. UPSC stands for
   A) Union Private Service Council
   B) Union Private Seva Council
   C) Union Public Service Commission
   D) Unnati Public Service Commission

   UPSC ಎಂದರೆ
   A) ಯುನಿಯನ್ ಖಾಸಗಿ ಸೇವಾ ಮಂಡಳಿ
   B) ಲೋಕ ಖಾಸಗಿ ಸೇವಾ ಮಂಡಳಿ
   C) ಲೋಕ ಸೇವಾ ಆಯೋಗ
   D) ಉನ್ನತಿ ಸಾರ್ವಜನಿಕ ಸೇವಾ ಆಯೋಗ

9. $8 \times 4 (3-1) = ?$
   A) 60
   B) 58
   C) 64
   D) 72

$8 \times 4 (3-1) = ?$
A) 60
B) 58
C) 64
D) 72

10. Find H.C.F. of 284 and 320.

A) 6 B) 3
C) 2 D) 4

284 ಮತ್ತು 320 ರ ಮ.ಸಾ.ಅ.ವು

A) 6 B) 3
C) 2 D) 4

11. Find L.C.M. of 8, 12 and 15.

A) 120 B) 100
C) 130 D) 140

8, 12 ಮತ್ತು 15ರ ಲ.ಸಾ.ಅ.ವು

A) 120 B) 100
C) 130 D) 140

12. Find the average of all prime numbers between 30 and 50.

A) 40.2 B) 39.8
C) 44.2 D) 40.6

30 ಮತ್ತು 50ರ ನಡುವಿನ ಎಲ್ಲಾ ಅವಿಭಾಜ್ಯ ಸಂಖ್ಯೆಗಳ ಸರಾಸರಿಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A) 40.2 B) 39.8
C) 44.2 D) 40.6

13. If A:B = 2:3 and B:C = 4:5 then find A:B:C?

A) 2:3:5 B) 5:4:6
C) 6:4:5 D) 8:12:15

ಒಂದುವೇಳೆ ಅನುಪಾತ A:B = 2:3 ಮತ್ತು B:C = 4:5 ಹಾಗದರೆ ಅನುಪಾತ A:B:C?

A) 2:3:5 B) 5:4:6
C) 6:4:5 D) 8:12:15

14. An article was bought for Rs.2,000 and sold for Rs.2,200. Find gain or loss.

A) Rs.100 B) Rs.200
C) Rs.300 D) Rs.500

ಒಂದು ವಸ್ತುವನ್ನು 2,000ರೂ. ಗಳಿಗೆ ಕೊಂಡು ಮತ್ತು 2,200ರೂ.ಗಳಿಗೆ ಮಾರಾಟ ಮಾಡಲಾಯಿತು, ಹಾಗಾದರೆ ಲಾಭ ಅಥವಾ ನಷ್ಟವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A) 100ರೂ. B) 200ರೂ.
C) 300ರೂ. D) 500ರೂ.

15. A father is nine times as old as his son and the mother is eight times as old as the son. The sum of father's and mother's age is 51 years. What is the age of son?

A) 3 years
B) 5 years
C) 7 years
D) 9 years

ಒಬ್ಬ ತಂದೆಯ ವಯಸ್ಸು ಆತನ ಮಗನಿಗಿಂತ 9 ಪಟ್ಟು ಹೆಚ್ಚು ಹಾಗೂ ತಾಯಿಯ ವಯಸ್ಸು 8 ಪಟ್ಟು ಮಗನಿಗಿಂತ ಹೆಚ್ಚು ತಂದೆ ಮತ್ತು ತಾಯಿಯ ಒಟ್ಟು ವಯಸ್ಸು 51. ಹಾಗಾದರೆ ಮಗನ ವಯಸ್ಸು ಎಷ್ಟು?

A) 3 ವರ್ಷ
B) 5 ವರ್ಷ
C) 7 ವರ್ಷ
D) 9 ವರ್ಷ

16. A car travels a distance of 500km in 10 hours. What is its speed in km/hour?

A) 60 km/hr
B) 50 km/hr
C) 70 km/hr
D) 80 km/hr

ಒಂದು ವಾಹನವು 500 ಕಿ.ಮೀ. ಅಂತರವನ್ನು 10 ಗಂಟೆಗಳಲ್ಲಿ ಕ್ರಮಿಸುತ್ತದೆ. ಹಾಗಾದರೆ ಆ ವಾಹನದ ವೇಗವನ್ನು ಕಿ.ಮಿ./ಗಂಟೆ ಯಲ್ಲಿ ಕಂಡುಹಿಡಿಯಿರಿ.

A) 60 ಕಿ.ಮೀ/ಗಂ
B) 50 ಕಿ.ಮೀ/ಗಂ
C) 70 ಕಿ.ಮೀ/ಗಂ
D) 80 ಕಿ.ಮೀ/ಗಂ

17. Aarna borrowed Rs.50,000 for 3 years at a rate of 3.5% per annum. Find simple Interest.

A) Rs. 6,750
B) Rs. 5,520
C) Rs. 5,250
D) Rs. 6,250

ಆರ್ನಾ ಅವರು ವರ್ಷಕ್ಕೆ 3.5% ದರದಲ್ಲಿ 3 ವರ್ಷಗಳವರೆಗೆ 50,000 ರೂಪಾಯಿಗಳನ್ನು ಸಾಲವಾಗಿ ಪಡೆದಿದ್ದಾರೆ ಹಾಗಾದರೆ ಸರಳ ಬಡ್ಡಿಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A) 6,750 ರೂ.
B) 5,520 ರೂ.
C) 5,250 ರೂ.
D) 6,250 ರೂ.

18. The Republic day of India was celebrated on Friday in 1996. On which day it was celebrated in 2000?

A) Tuesday
B) Wednesday
C) Thursday
D) Sunday

ಭಾರತದ ಗಣರಾಜ್ಯೋತ್ಸವವನ್ನು 1996ರಲ್ಲಿ ಶುಕ್ರವಾರ ಆಚರಿಸಲಾಯಿತು. ಹಾಗಾದರೆ ಆ ದಿನವನ್ನು 2000ರಲ್ಲಿ ಯಾವ ದಿನ ಆಚರಿಸಲಾಯಿತು?

A) ಮಂಗಳವಾರ
B) ಬುಧವಾರ
C) ಗುರುವಾರ
D) ರವಿವಾರ

[P.T.O.

19. Find angle between hour hand and minute hand of a clock when time is 6.30.
A) 20^0 B) 25^0
C) 15^0 D) 30^0
6ಗಂಟೆ 30ನಿಮಿಷ ಆಗಿರುವಾಗ, ಗಡಿಯಾರದ ಗಂಟೆ ಮುಳ್ಳು ಮತ್ತು ನಿಮಿಷದ ಮುಳ್ಳಿನ ನಡುವಿನ ಕೋನವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.
A) 20^0 B) 25^0
C) 15^0 D) 30^0

20. What is the minimum partner requirement to start a partnership firm?
A) 10 B) 5
C) 2 D) 20
ಪಾಲುದಾರಿಕೆ ಸಂಸ್ಥೆಯನ್ನು ಪ್ರಾರಂಭಿಸಲು ಕನಿಷ್ಠ ಎಷ್ಟು ಪಾಲುದಾರರ ಅವಶ್ಯಕವಿದೆ?
A) 10 B) 5
C) 2 D) 20

21. If MADRAS is coded as NBESBT, how is BOMBAY coded?
A) CPNCBX B) CPNCBZ
C) CPOCBZ D) CQOCBZ
ಒಂದು ಕೋಡ್ ಪ್ರಕಾರ MADRAS ಅನ್ನು NBESBT ಎಂದು ಬರೆಯಲಾಗಿದೆ. ಹಾಗಾದರೆ BOMBAY ಅನ್ನು ಹೇಗೆ ಬರೆಯಬಹುದು?
A) CPNCBX B) CPNCBZ
C) CPOCBZ D) CQOCBZ

22. If NOIDA is coded as 39658, how INDIA is coded?
A) 36568 B) 63568
C) 65368 D) 63569
ಒಂದು ಕೋಡ್ ಪ್ರಕಾರ NOIDA ಅನ್ನು 39658 ಎಂದು ಬರೆದರೆ, ಅದೇ ಕೋಡಿನ ಪ್ರಕಾರ INDIA ಅನ್ನು ಹೇಗೆ ಬರೆಯಬಹುದು?
A) 36568 B) 63568
C) 65368 D) 63569

23. Dev is brother of Sneha and son of Mayank. Swati is the sister of Sneha. How is Mayank related to Swati?
A) Son B) Brother
C) Father D) Sister
ದೇವ ಅವರು ಸ್ನೇಹಾಳ ಸಹೋದರ ಮತ್ತು ಮಯಾಂಕ ಅವರ ಮಗ, ಸ್ವಾತಿಯವರು ಸ್ನೇಹಾಳ ಸಹೋದರಿ ಹಾಗಾದರೆ ಮಯಾಂಕ ಅವರು ಸ್ವಾತಿಗೆ ಏನಾಗಬೇಕು?
A) ಮಗ B) ಸಹೋದರ
C) ತಂದೆ D) ಸಹೋದರಿ

24. Ram is facing East. He goes straight for 55 meters, turns left and walks 40 meter, then turns right and goes 45 meter, then again turns right and covers a distance of 50 meter. In which direction is he going?

A) West B) East

C) South D) North

ರಾಮನು ಪೂರ್ವಕ್ಕೆ ಮುಖಮಾಡಿ 55 ಮೀಟರ್ ನಡೆದು ಎಡಕ್ಕೆ ತಿರುಗಿ 40ಮೀಟರ್ ನಡೆದನು. ಮತ್ತೆ ಬಲಕ್ಕೆ ತಿರುಗಿ 45 ಮೀಟರ್, ಪುನಃ ಬಲಕ್ಕೆ ತಿರುಗಿ 50 ಮೀಟರ್ ನಡೆಯುತ್ತಾನೆ. ಹಾಗಾದರೆ ಅವನು ಯಾವ ದಿಕ್ಕಿನಲ್ಲಿ ಹೊರಟಿದ್ದಾನೆ.

A) ಪಶ್ಚಿಮ B) ಪೂರ್ವ

C) ದಕ್ಷಿಣ D) ಉತ್ತರ

25. Which of the following diagrams best indicates the relation between India, Gujarat and Surat?

A)  B) 

C)  D) 

ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವ ರೇಖಾಚಿತ್ರವು ಭಾರತ, ಗುಜರಾತ, ಸೂರತ ನಡುವಿನ ಉತ್ತಮ ಸಂಬಂಧವನ್ನು ಸೂಚಿಸುತ್ತದೆ?

A)  B) 

C)  D) 

26. Choose the alternative which is closely resembles the mirror image of the given combination.

MALAYALAM

1) MALAYALAM
2) MALAYALAM
3) MALAYALAM
4) MALAYALAM

A) 1
B) 2
C) 3
D) 4

ಈ ಕೆಳಗೆ ನೀಡಿರುವ ಸಂಯೋಜನೆಯ ಕನ್ನಡಿ ಚಿತ್ರವನ್ನು (ಬಿಂಬ) ಹೋಲುವ ಪರ್ಯಾಯ ಉತ್ತರವನ್ನು ಆರಿಸಿ.

MALAYALAM

1) MALAYALAM
2) MALAYALAM
3) MALAYALAM
4) MALAYALAM

A) 1
B) 2
C) 3
D) 4

27. Look at this series: 7, 10, 8, 11, 9, 12..... What number should come next?

A) 7
B) 10
C) 12
D) 13

ಈ ಸಂಖ್ಯಾ ಸರಣಿಯನ್ನು ಪೂರ್ಣಗೊಳಿಸಿ. 7, 10, 8, 11, 9, 12.....?

A) 7
B) 10
C) 12
D) 13

28. The total of the ages of Mahesh, Suresh and Umesh is 80 years. What was the total of their ages 3 years ago?

A) 71 years
B) 72 years
C) 74 years
D) 77 years

ಮಹೇಶ, ಸುರೇಶ ಮತ್ತು ಉಮೇಶ ಅವರ ಒಟ್ಟು ವಯಸ್ಸು 80 ವರ್ಷಗಳು, ಹಾಗಾದರೆ 3 ವರ್ಷಗಳ ಹಿಂದೆ ಅವರ ಒಟ್ಟು ವಯಸ್ಸು ಎಷ್ಟು?

A) 71 ವರ್ಷ
B) 72 ವರ್ಷ
C) 74 ವರ್ಷ
D) 77 ವರ್ಷ

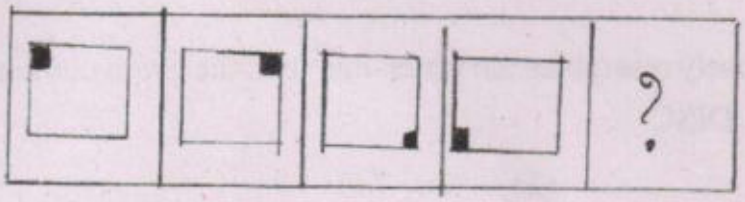
29. Exercise is to gym as eating is to

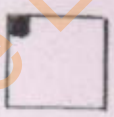
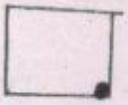
A) Food
B) Dieting
C) Fitness
D) Restaurant

ವ್ಯಾಯಾಮ ಮಾಡುವುದು ಜಿಮ್‌ನಲ್ಲಿ, ಊಟ ಮಾಡುವುದು _____.

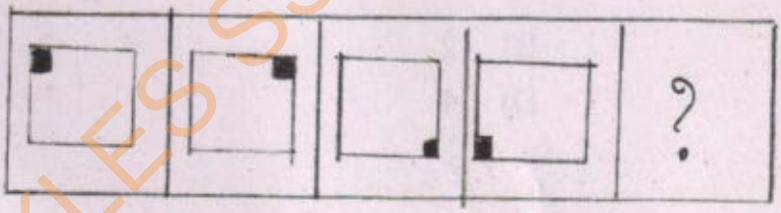
A) ಆಹಾರ
B) ಪಥ್ಯದಲ್ಲಿರುವುದು
C) ಸದೃಢ
D) ಉಪಹಾರ ಗೃಹ

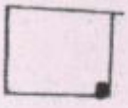
30. What will replace question mark?



A) 
B) 
C) 
D) 

ಪ್ರಶ್ನಾರ್ಥಕ ಚಿಹ್ನೆಯನ್ನು ಯಾವುದು ಬದಲಾಯಿತ್ತದೆ?



A) 
B) 
C) 
D) 

31. In a certain code language, if the value of 'BLOCK' = 13 and 'CURTAIN' = 27, Then what is the value of the word 'SCIENCE'?

A) 32 B) 36
C) 38 D) 34

ಒಂದುಕೋಡ್ ಪ್ರಕಾರ, 'BLOCK' = 13 ಮತ್ತು 'CURTAIN' = 27 ಹಾಗಾದರೆ 'SCIENCE' ಎಂಬ ಪದದ ಬೆಲೆ ಎಷ್ಟು?

A) 32 B) 36
C) 38 D) 34

32. Choose alternative which is closely resembles the water-image of the given combination.

DISC

1) CSID 2) 

3)  4) DISC

A) 1 B) 2
C) 3 D) 4

ಈ ಕೆಳಗೆ ನೀಡಿರುವ ಸಂಯೋಜನೆಯ ನೀರಿನ ಬಿಂಬವನ್ನು ಹೋಲುವ ಪರ್ಯಾಯ ಉತ್ತರವನ್ನು ಆರಿಸಿ.

DISC

1) CSID 2) 

3)  4) DISC

A) 1 B) 2
C) 3 D) 4

33. Expand the formula: $(a-b)^2$.

A) $a+b+2^2$ B) a^2+b^2+2
C) a^2+b^2-2ab D) $a+b+4$

$(a-b)^2$ನ್ನು ವಿಸ್ತರಿಸಿ ಬರೆಯಿರಿ.

A) $a+b+2^2$ B) a^2+b^2+2
C) a^2+b^2-2ab D) $a+b+4$

34. D, E, G, J _____ complete the Alphabet series

A) K B) L

C) M D) N

ಈ ವರ್ಣಮಾಲೆಯ ಸರಣಿಯನ್ನು ಪೂರ್ಣಗೊಳಿಸಿ D, E, G, J _____

A) K B) L

C) M D) N

35. The following table gives the sales of the shirts manufactured by companies C1, C2, C3 and C4 over five weeks. Study the table and answer the question that follows.

Weeks	C1	C2	C3	C4
Week1	190	226	184	202
Week2	225	244	214	202
Week3	240	175	235	275
Week4	215	235	260	200
Week5	205	210	265	245

Which company sold the most shirts in these five weeks?

A) C1 B) C2

C) C3 D) C4

ಈ ಕೆಳಗಿನ ಕೋಷ್ಟಕವು C1, C2, C3 ಮತ್ತು C4 ಕಂಪನಿಯ ಐದು ವಾರಗಳಲ್ಲಿ ತಯಾರಿಸಿದ ಶರ್ಟ್‌ಗಳ ಮಾರಾಟವನ್ನು ನೀಡುತ್ತದೆ. ಕೋಷ್ಟಕವನ್ನು ಅಧ್ಯಯನ ಮಾಡಿ ಮತ್ತು ಅದರ ಆಧಾರದ ಮೇಲೆ ಉತ್ತರಿಸಿರಿ.

Weeks	C1	C2	C3	C4
Week1	190	226	184	202
Week2	225	244	214	202
Week3	240	175	235	275
Week4	215	235	260	200
Week5	205	210	265	245

ಈ 5 ವಾರಗಳಲ್ಲಿ ಯಾವ ಕಂಪನಿ ಹೆಚ್ಚು ಶರ್ಟ್‌ಗಳನ್ನು ಮಾರಾಟ ಮಾಡಿದೆ?

A) C1 B) C2

C) C3 D) C4

36. Find the correctly spelt words.

A) Foreign B) Foreine
C) Fariegn D) Forein

ಸರಿಯಾಗಿ ಬರೆಯಲಾದ ಪದಗಳನ್ನು ಹುಡುಕಿ.

A) Foreign B) Foreine
C) Fariegn D) Forein

37. Choose the word which is the exact opposite of the given word.

ARTIFICIAL

A) Red B) Natural
C) Truthful D) Solid

ಕೊಟ್ಟಿರುವ ಪದಕ್ಕೆ ವಿರುದ್ಧವಾಗಿರುವ ಪದವನ್ನು ಆರಿಸಿ. ಕೃತಕ (ARTIFICIAL)

A) ಕೆಂಪು B) ನೈಸರ್ಗಿಕ
C) ಸತ್ಯವಾದ D) ಘನ

38. Choose the word which best expresses the meaning of the given word.

WARRIOR

A) Soldier B) Sailor
C) Pirate D) Spy

ಕೊಟ್ಟಿರುವ ಪದದ ಅರ್ಥವನ್ನು ಅತ್ಯುತ್ತಮವಾಗಿ ವ್ಯಕ್ತಪಡಿಸುವ ಪದವನ್ನು ಆರಿಸಿ.

ಯೋಧ

A) ಸೈನಿಕ B) ನಾವಿಕ
C) ದರೋಡೆಕೋರ D) ಪತ್ತೇದಾರಿ

39. In this question a sentence broken into five or six parts. Join these parts to make a meaningful sentence.

1) I 2) Immediately
3) Salary 4) My
5) Want

A) 43152 B) 15432
C) 25143 D) 42351

ಈ ಕೆಳಗಿನ ಪ್ರಶ್ನೆಯಲ್ಲಿ ವಾಕ್ಯವನ್ನು ಐದು ಅಥವಾ ಆರು ಭಾಗಗಳಾಗಿ ವಿಂಗಡಿಸಲಾಗಿದೆ ಈ ಭಾಗಗಳನ್ನು ಸೇರಿಸಿ ಅರ್ಥ ಪೂರ್ಣ ವಾಕ್ಯವನ್ನು ರಚಿಸಿ.

1) ನನಗೆ 2) ತಕ್ಷಣ
3) ಸಂಬಳ 4) ನನ್ನ
5) ಬೇಕು

A) 43152 B) 15432
C) 25143 D) 42351

40. Sanjay sat ____ her father. (Choose the right option to fill in the blank)

A) above B) beside

C) away D) next

ಸಂಜಯ ಅವಳ ತಂದೆಯ _____ಕುಳಿತ (ಬಿಟ್ಟಸ್ಥಳ ತುಂಬಲು ಸರಿಯಾದ ಆಯ್ಕೆಯನ್ನು ಆರಿಸಿ)

A) ಮೇಲೆ B) ಪಕ್ಕದಲ್ಲಿ

C) ದೂರ D) ಮುಂದೆ

41. There is a cut throat competition in the job market. (The underlined word can be replaced with).

A) Tough B) Easy

C) Negligible D) Smooth

ಉದ್ಯೋಗ ಮಾರುಕಟ್ಟೆಯಲ್ಲಿ ಭಯಂಕರ ಸ್ಪರ್ಧೆಯಿದೆ (ಗೆರೆ ಎಳೆದಿರುವ ಪದವನ್ನು ಬದಲಾಯಿಸಿದರೆ ಈ ಕೆಳಗಿನ ಯಾವುದು ಸೂಕ್ತ)

A) ಕಠಿಣ B) ಸರಳ

C) ಅಲ್ಲಗಳೆ D) ಸೂಕ್ಷ್ಮ

42. Meet me _____ the entrance of the park. Choose the right word to fill in the blank.

A) to B) at

C) on D) above

ನನ್ನನ್ನು ಉದ್ಯಾನವನದ ಪ್ರವೇಶದ್ವಾರ_____ಭೇಟಿಮಾಡು (ಬಿಟ್ಟಸ್ಥಳ ತುಂಬಲು ಸರಿಯಾದ ಆಯ್ಕೆಯನ್ನು ಆರಿಸಿ)

A) ಕ್ಕೆ B) ದಲ್ಲಿ

C) ಗಳಿಗೆ D) ಮೇಲೆ

43. 'Affluent' means:

A) Foolish B) Poor

C) Rich D) Clever

'ಸಿರಿತನ' ಎಂದರೆ

A) ಮುರ್ಖ B) ಬಡವ

C) ಶ್ರೀಮಂತ D) ಚತುರ

[P.T.O.

44. Choose the odd one out.

A) Coach B) Teacher
C) Learner D) Trainer

ಗುಂಪಿಗೆ ಸೇರದ ಪದ ಆರಿಸಿ.

A) ತರಬೇತಿದಾರ B) ಶಿಕ್ಷಕ
C) ಕಲಿಯುವವರು D) ತರಬೇತುಗಾರ

45. One who does not know reading and writing is called _____.

A) Uncivilized B) Educated
C) Literate D) Illiterate

ಓದು ಬರಹ ಬಾರದವನಿಗೆ ಎನೆನ್ನುವರು?

A) ಅನಾಗರಿಕ B) ವಿದ್ಯಾವಂತ
C) ಅಕ್ಷರಸ್ಥ D) ಅನಕ್ಷರಸ್ಥ

46. Identify the odd one in the group:

A) Betrayal B) Loyalty
C) Fidelity D) Faithfulness

ಗುಂಪಿಗೆ ಸೇರದ ಪದವನ್ನು ಆರಿಸಿ.

A) ದ್ರೋಹ B) ನಿಷ್ಠೆ
C) ಶ್ರದ್ಧೆ D) ನಿಷ್ಠಾವಂತ

47. The 'plural' of the word 'Phenomenon' is:

A) Phenomenes B) Phenomena
C) Phenomenous D) Phenomenas

'ವಿದ್ಯಮಾನ' ಪದದ ಬಹುವಚನ ರೂಪ.

A) ವಿದ್ಯಮಾನಕ್ಕೆ B) ವಿದ್ಯಮಾನಗಳು
C) ವಿದ್ಯಮಾನಗಳಿಗೆ D) ವಿದ್ಯಮಾನಗಳಲ್ಲಿ

48. I am angry _____ you. fill in the blank with correct preposition.

A) with B) on
C) upon D) by

ನನಗೆ ನಿನ್ನ_____ಕೋಪವಿದೆ

A) ಜೊತೆಗೆ B) ಮೇಲೆ
C) ಹತ್ತಿರ D) ಮೂಲಕ

49. Choose the opposite of the word 'far'.

A) away B) further

C) farther D) near

ಈ ನೀಡಿರುವ ಪದಕ್ಕೆ ವಿರುದ್ಧಪದ ಆಯ್ಕೆ ಮಾಡಿ 'ದೂರದ'

A) ದೂರದಲ್ಲಿ B) ಮತ್ತಷ್ಟು

C) ಅನಂತರದ D) ಹತ್ತಿರದ

50. She is beautiful _____poor. (choose the correct word to complete the sentence)

A) but B) as

C) or D) so

ಅವಳು ಸುಂದರ_____ಬಡವಳು (ವಾಕ್ಯವನ್ನು ಪೂರ್ಣಗೊಳಿಸಲು ಸರಿಯಾದ ಪದವನ್ನು ಬಳಸಿ)

A) ಆದರೆ B) ಎಂದು

C) ಅಥವಾ D) ಆದ್ದರಿಂದ

1. The meaning of Employability Skills are _____.
   A) Communication Skills B) Critical thinking
   C) Time Management D) All of the above
   ಉದ್ಯೋಗ ಕೌಶಲ್ಯಗಳ ಅರ್ಥ
   A) ವಾಕ್ ಸಾಮರ್ಥ್ಯ B) ವಿಮರ್ಶಾತ್ಮಕ ಚಿಂತನೆ
   C) ಸಮಯ ನಿರ್ವಹಣೆ D) ಮೇಲಿನ ಎಲ್ಲವೂ

2. Employment is the Key to reduce.
   A) Income B) Business
   C) Poverty D) None of the above
   _____ನ್ನು ಕಡಿಮೆಮಾಡಲು ಉದ್ಯೋಗವು ಪ್ರಮುಖವಾಗಿದೆ.
   A) ಆದಾಯ B) ವ್ಯಾಪಾರ
   C) ಬಡತನ D) ಮೇಲಿನ ಯಾವುದೂ ಅಲ್ಲ

3. IBPS stands for
   A) Indian Banking personnel selection
   B) Integrated Banking personnel selection
   C) Institute of Banking personnel selection
   D) Integrated Business process service
   IBPS ಎಂದರೆ
   A) ಭಾರತೀಯ ಬ್ಯಾಂಕಿಂಗ್ ಸಿಬ್ಬಂದಿ ಆಯ್ಕೆ
   B) ಸಂಯೋಜಿತ ಬ್ಯಾಂಕಿಂಗ್ ಸಿಬ್ಬಂದಿ ಆಯ್ಕೆ
   C) ಸಂಸ್ಥೆಯ ಬ್ಯಾಂಕಿಂಗ್ ಸಿಬ್ಬಂದಿ ಆಯ್ಕೆ
   D) ಸಂಯೋಜಿತ ವ್ಯಾಪಾರ ಪ್ರಕ್ರಿಯೆ ಸೇವೆ

4. A person working for someone else and receives wages on salary.
   A) Employee B) Employer
   C) Owner D) Housewife
   ಒಬ್ಬ ವ್ಯಕ್ತಿ ಬೇರೊಬ್ಬರಿಗಾಗಿ ಕೆಲಸ ಮಾಡುತ್ತಾನೆ ಮತ್ತು ಸಂಬಳ ಅಥವಾ ವೇತನವನ್ನು ಪಡೆಯುತ್ತಾನೆ.
   A) ಉದ್ಯೋಗಿ B) ಉದ್ಯೋಗದಾತ
   C) ಮಾಲೀಕರು D) ಗೃಹಿಣಿ

5. The minimum qualification for applying SDA post is
   A) S.S.L.C B) B.Com.
   C) B.A. D) PUC
   SDA ಹುದ್ದೆಗೆ ಅರ್ಜಿ ಸಲ್ಲಿಸಲು ಕನಿಷ್ಠ ವಿದ್ಯಾರ್ಹತೆ
   A) ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ B) ಬಿ.ಕಾಂ
   C) ಬಿ.ಎ. D) ಪಿ.ಯು.ಸಿ.

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V Semester ALL UG Courses Degree Examination, March/April - 2024

COMMERCE

Employability Skills

(Regular)

Time : 1½ (90 Minutes) **Maximum Marks : 50**

Instructions to Candidates:

1. Check for complete printing of **50** questions.
2. The last page of the question paper may be used for rough work.
3. Each question has four multiple choice answer and choose the correct one.
4. Darken the appropriate circle with the ball pen.
5. Damaging/overwriting using whitener on the **OMR** sheets are strictly prohibited.
6. No candidates will be allowed to leave the examination Hall till the end of the session and without handing over his/her answer sheet to the invigilator.
7. Candidates should ensure that the invigilator has verified all the entries and that the invigilator has offixed his/her signature in the space provided on the **OMR**.

[P.T.O.

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   A) ಆದಾಯ B) ವ್ಯಾಪಾರ
   C) ಬಡತನ D) ಮೇಲಿನ ಯಾವುದೂ ಅಲ್ಲ

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   C) ಸಂಸ್ಥೆಯ ಬ್ಯಾಂಕಿಂಗ್ ಸಿಬ್ಬಂದಿ ಆಯ್ಕೆ
   D) ಸಂಯೋಜಿತ ವ್ಯಾಪಾರ ಪ್ರಕ್ರಿಯೆ ಸೇವೆ

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   A) ಉದ್ಯೋಗಿ B) ಉದ್ಯೋಗದಾತ
   C) ಮಾಲೀಕರು D) ಗೃಹಿಣಿ

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   A) ಎಸ್.ಎಸ್.ಎಲ್.ಸಿ B) ಬಿ.ಕಾಂ
   C) ಬಿ.ಎ. D) ಪಿ.ಯು.ಸಿ.

6. Which of the following agencies conduct competative examinations in India for higher education.

A) National Testing Agency (NTA)
B) Indian Institutes of Technology (IITs)
C) National Institutes of Technology(NITs)
D) All of the above.

ಈ ಕೆಳಗಿನ ಯಾವ ಏಜೆನ್ಸಿಗಳು ಉನ್ನತ ಶಿಕ್ಷಣಕ್ಕಾಗಿ ಭಾರತದಲ್ಲಿ ಸ್ಪರ್ಧಾತ್ಮಕ ಪರೀಕ್ಷೆಗಳನ್ನು ನಡೆಸುತ್ತವೆ.

A) ರಾಷ್ಟ್ರೀಯ ಪರೀಕ್ಷಾ ಸಂಸ್ಥೆ (NTA)
B) ಇಂಡಿಯನ್ ಇನ್‌ಸ್ಟಿಟ್ಯೂಟ್ ಆಫ್ ಟೆಕ್ನಾಲಜಿ (IIT's)
C) ರಾಷ್ಟ್ರೀಯ ತಂತ್ರಜ್ಞಾನ ಸಂಸ್ಥೆಗಳು (NIT's)
D) ಮೇಲಿನ ಎಲ್ಲವೂ

7. Lal Bahadur Shastri National Academy of Administration (LBSNAA) is located in _____.

A) Dehradun
B) Hyderabad
C) New Delhi
D) Mussoorie

ಲಾಲ್‌ಬಹದ್ದೂರ ಶಾಸ್ತ್ರೀ ನ್ಯಾಷನಲ್ ಅಕಾಡೆಮಿ ಆಫ್ ಅಡ್ಮಿನಿಸ್ಟ್ರೇಷನ್ (LBSNAA) ಎಲ್ಲಿದೆ?

A) ಡೆಹರಾಡೂನ
B) ಹೈದ್ರಾಬಾದ್
C) ನವ ದೆಹಲಿ
D) ಮಸ್ಸೂರಿ

8. UPSC stands for

A) Union Private Service Council
B) Union Private Seva Council
C) Union Public Service Commission
D) Unnati Public Service Commission

UPSC ಎಂದರೆ

A) ಯುನಿಯನ್ ಖಾಸಗಿ ಸೇವಾ ಮಂಡಳಿ
B) ಲೋಕ ಖಾಸಗಿ ಸೇವಾ ಮಂಡಳಿ
C) ಲೋಕ ಸೇವಾ ಆಯೋಗ
D) ಉನ್ನತಿ ಸಾರ್ವಜನಿಕ ಸೇವಾ ಆಯೋಗ

9. $8 \times 4 (3-1)=?$

A) 60
B) 58
C) 64
D) 72

$8 \times 4 (3-1)=?$

A) 60
B) 58
C) 64
D) 72

10. Find H.C.F. of 284 and 320.

A) 6 B) 3
C) 2 D) 4

284 ಮತ್ತು 320 ರ ಮ.ಸಾ.ಅ.ವು

A) 6 B) 3
C) 2 D) 4

11. Find L.C.M. of 8, 12 and 15.

A) 120 B) 100
C) 130 D) 140

8, 12 ಮತ್ತು 15ರ ಲ.ಸಾ.ಅ.ವು

A) 120 B) 100
C) 130 D) 140

12. Find the average of all prime numbers between 30 and 50.

A) 40.2 B) 39.8
C) 44.2 D) 40.6

30 ಮತ್ತು 50ರ ನಡುವಿನ ಎಲ್ಲಾ ಅವಿಭಾಜ್ಯ ಸಂಖ್ಯೆಗಳ ಸರಾಸರಿಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A) 40.2 B) 39.8
C) 44.2 D) 40.6

13. If A:B = 2:3 and B:C = 4:5 then find A:B:C?

A) 2:3:5 B) 5:4:6
C) 6:4:5 D) 8:12:15

ಒಂದುವೇಳೆ ಅನುಪಾತ A:B = 2:3 ಮತ್ತು B:C = 4:5 ಹಾಗಿದರೆ ಅನುಪಾತ A:B:C?

A) 2:3:5 B) 5:4:6
C) 6:4:5 D) 8:12:15

14. An article was bought for Rs.2,000 and sold for Rs.2,200. Find gain or loss.

A) Rs.100 B) Rs.200
C) Rs.300 D) Rs.500

ಒಂದು ವಸ್ತುವನ್ನು 2,000ರೂ. ಗಳಿಗೆ ಕೊಂಡು ಮತ್ತು 2,200ರೂ.ಗಳಿಗೆ ಮಾರಾಟ ಮಾಡಲಾಯಿತು, ಹಾಗಾದರೆ ಲಾಭ ಅಥವಾ ನಷ್ಟವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A) 100ರೂ. B) 200ರೂ.
C) 300ರೂ. D) 500ರೂ.

15. A father is nine times as old as his son and the mother is eight times as old as the son. The sum of father's and mother's age is 51 years. What is the age of son?

A) 3 years B) 5 years

C) 7 years D) 9 years

ಒಬ್ಬ ತಂದೆಯ ವಯಸ್ಸು ಆತನ ಮಗನಿಗಿಂತ 9 ಪಟ್ಟು ಹೆಚ್ಚು ಹಾಗೂ ತಾಯಿಯ ವಯಸ್ಸು 8 ಪಟ್ಟು ಮಗನಿಗಿಂತ ಹೆಚ್ಚು ತಂದೆ ಮತ್ತು ತಾಯಿಯ ಒಟ್ಟು ವಯಸ್ಸು 51. ಹಾಗಾದರೆ ಮಗನ ವಯಸ್ಸು ಎಷ್ಟು?

A) 3 ವರ್ಷ B) 5 ವರ್ಷ

C) 7 ವರ್ಷ D) 9 ವರ್ಷ

16. A car travels a distance of 500km in 10 hours. What is its speed in km/hour?

A) 60 km/hr B) 50 km/hr

C) 70 km/hr D) 80 km/hr

ಒಂದು ವಾಹನವು 500 ಕಿ.ಮೀ. ಅಂತರವನ್ನು 10 ಗಂಟೆಗಳಲ್ಲಿ ಕ್ರಮಿಸುತ್ತದೆ. ಹಾಗಾದರೆ ಆ ವಾಹನದ ವೇಗವನ್ನು ಕಿ.ಮಿ./ಗಂಟೆ ಯಲ್ಲಿ ಕಂಡುಹಿಡಿಯಿರಿ.

A) 60 ಕಿ.ಮೀ/ಗಂ B) 50 ಕಿ.ಮೀ/ಗಂ

C) 70 ಕಿ.ಮೀ/ಗಂ D) 80 ಕಿ.ಮೀ/ಗಂ

17. Aarna borrowed Rs.50,000 for 3 years at a rate of 3.5% per annum. Find simple Interest.

A) Rs. 6,750 B) Rs. 5,520

C) Rs. 5,250 D) Rs. 6,250

ಆರ್ನಾ ಅವರು ವರ್ಷಕ್ಕೆ 3.5% ದರದಲ್ಲಿ 3 ವರ್ಷಗಳವರೆಗೆ 50,000 ರೂಪಾಯಿಗಳನ್ನು ಸಾಲವಾಗಿ ಪಡೆದಿದ್ದಾರೆ ಹಾಗಾದರೆ ಸರಳ ಬಡ್ಡಿಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

A) 6,750 ರೂ. B) 5,520 ರೂ.

C) 5,250 ರೂ. D) 6,250 ರೂ.

18. The Republic day of India was celebrated on Friday in 1996. On which day it was celebrated in 2000?

A) Tuesday B) Wednesday

C) Thursday D) Sunday

ಭಾರತದ ಗಣರಾಜ್ಯೋತ್ಸವವನ್ನು 1996ರಲ್ಲಿ ಶುಕ್ರವಾರ ಆಚರಿಸಲಾಯಿತು. ಹಾಗಾದರೆ ಆ ದಿನವನ್ನು 2000ರಲ್ಲಿ ಯಾವ ದಿನ ಆಚರಿಸಲಾಯಿತು?

A) ಮಂಗಳವಾರ B) ಬುಧವಾರ

C) ಗುರುವಾರ D) ರವಿವಾರ

[P.T.O.

19. Find angle between hour hand and minute hand of a clock when time is 6.30.
A) 20^0 B) 25^0
C) 15^0 D) 30^0
6ಗಂಟೆ 30ನಿಮಿಷ ಆಗಿರುವಾಗ, ಗಡಿಯಾರದ ಗಂಟೆ ಮುಳ್ಳು ಮತ್ತು ನಿಮಿಷದ ಮುಳ್ಳಿನ ನಡುವಿನ ಕೋನವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.
A) 20^0 B) 25^0
C) 15^0 D) 30^0

20. What is the minimum partner requirement to start a partnership firm?
A) 10 B) 5
C) 2 D) 20
ಪಾಲುದಾರಿಕೆ ಸಂಸ್ಥೆಯನ್ನು ಪ್ರಾರಂಭಿಸಲು ಕನಿಷ್ಠ ಎಷ್ಟು ಪಾಲುದಾರರ ಅವಶ್ಯಕವಿದೆ?
A) 10 B) 5
C) 2 D) 20

21. If MADRAS is coded as NBESBT, how is BOMBAY coded?
A) CPNCBX B) CPNCBZ
C) CPOCBZ D) CQOCBZ
ಒಂದು ಕೋಡ್ ಪ್ರಕಾರ MADRAS ಅನ್ನು NBESBT ಎಂದು ಬರೆಯಲಾಗಿದೆ. ಹಾಗಾದರೆ BOMBAY ಅನ್ನು ಹೇಗೆ ಬರೆಯಬಹುದು?
A) CPNCBX B) CPNCBZ
C) CPOCBZ D) CQOCBZ

22. If NOIDA is coded as 39658, how INDIA is coded?
A) 36568 B) 63568
C) 65368 D) 63569
ಒಂದು ಕೋಡ್ ಪ್ರಕಾರ NOIDA ಅನ್ನು 39658 ಎಂದು ಬರೆದರೆ, ಅದೇ ಕೋಡಿನ ಪ್ರಕಾರ INDIA ಅನ್ನು ಹೇಗೆ ಬರೆಯಬಹುದು?
A) 36568 B) 63568
C) 65368 D) 63569

23. Dev is brother of Sneha and son of Mayank. Swati is the sister of Sneha. How is Mayank related to Swati?
A) Son B) Brother
C) Father D) Sister
ದೇವ ಅವರು ಸ್ನೇಹಾಳ ಸಹೋದರ ಮತ್ತು ಮಯಾಂಕ ಅವರ ಮಗ, ಸ್ವಾತಿಯವರು ಸ್ನೇಹಾಳ ಸಹೋದರಿ ಹಾಗಾದರೆ ಮಯಾಂಕ ಅವರು ಸ್ವಾತಿಗೆ ಏನಾಗಬೇಕು?
A) ಮಗ B) ಸಹೋದರ
C) ತಂದೆ D) ಸಹೋದರಿ

24. Ram is facing East. He goes straight for 55 meters, turns left and walks 40 meter, then turns right and goes 45 meter, then again turns right and covers a distance of 50 meter. In which direction is he going?

A) West B) East

C) South D) North

ರಾಮನು ಪೂರ್ವಕ್ಕೆ ಮುಖಮಾಡಿ 55 ಮೀಟರ್ ನಡೆದು ಎಡಕ್ಕೆ ತಿರುಗಿ 40ಮೀಟರ್ ನಡೆದನು. ಮತ್ತೆ ಬಲಕ್ಕೆ ತಿರುಗಿ 45 ಮೀಟರ್, ಪುನಃ ಬಲಕ್ಕೆ ತಿರುಗಿ 50 ಮೀಟರ್ ನಡೆಯುತ್ತಾನೆ, ಹಾಗಾದರೆ ಅವನು ಯಾವ ದಿಕ್ಕಿನಲ್ಲಿ ಹೊರಟಿದ್ದಾನೆ.

A) ಪಶ್ಚಿಮ B) ಪೂರ್ವ

C) ದಕ್ಷಿಣ D) ಉತ್ತರ

25. Which of the following diagrams best indicates the relation between India, Gujarat and Surat?

A)  B) 

C)  D) 

ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವ ರೇಖಾಚಿತ್ರವು ಭಾರತ, ಗುಜರಾತ, ಸೂರತ ನಡುವಿನ ಉತ್ತಮ ಸಂಬಂಧವನ್ನು ಸೂಚಿಸುತ್ತದೆ?

A)  B) 

C)  D) 

26. Choose the alternative which is closely resembles the mirror image of the given combination.

MALAYALAM

1) MALAYALAM
2) MALAYALAM
3) MALAYALAM
4) MALAYALAM

A) 1 B) 2
C) 3 D) 4

ಈ ಕೆಳಗೆ ನೀಡಿರುವ ಸಂಯೋಜನೆಯ ಕನ್ನಡಿ ಚಿತ್ರವನ್ನು (ಬಿಂಬ) ಹೋಲುವ ಪರ್ಯಾಯ ಉತ್ತರವನ್ನು ಆರಿಸಿ.

MALAYALAM

1) MALAYALAM
2) MALAYALAM
3) MALAYALAM
4) MALAYALAM

A) 1 B) 2
C) 3 D) 4

27. Look at this series: 7, 10, 8, 11, 9, 12..... What number should come next?

A) 7 B) 10
C) 12 D) 13

ಈ ಸಂಖ್ಯಾ ಸರಣಿಯನ್ನು ಪೂರ್ಣಗೊಳಿಸಿ. 7, 10, 8, 11, 9, 12.....?

A) 7 B) 10
C) 12 D) 13

28. The total of the ages of Mahesh, Suresh and Umesh is 80 years. What was the total of their ages 3 years ago?

A) 71 years B) 72 years
C) 74 years D) 77 years

ಮಹೇಶ, ಸುರೇಶ ಮತ್ತು ಉಮೇಶ ಅವರ ಒಟ್ಟು ವಯಸ್ಸು 80 ವರ್ಷಗಳು, ಹಾಗಾದರೆ 3 ವರ್ಷಗಳ ಹಿಂದೆ ಅವರ ಒಟ್ಟು ವಯಸ್ಸು ಎಷ್ಟು?

A) 71 ವರ್ಷ B) 72 ವರ್ಷ
C) 74 ವರ್ಷ D) 77 ವರ್ಷ

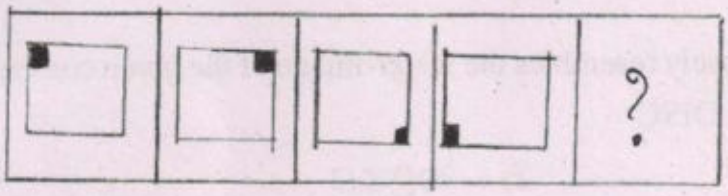
29. Exercise is to gym as eating is to

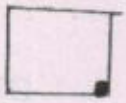
A) Food
B) Dieting
C) Fitness
D) Restaurant

ವ್ಯಾಯಾಮ ಮಾಡುವುದು ಜಿಮ್‌ನಲ್ಲಿ, ಊಟ ಮಾಡುವುದು_____.

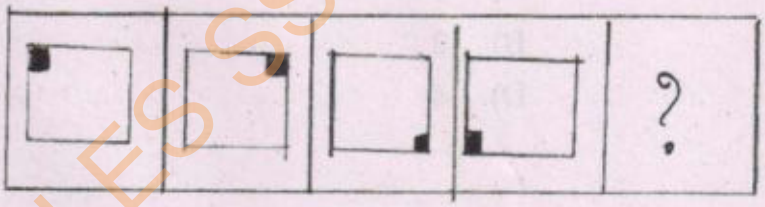
A) ಆಹಾರ
B) ಪಥ್ಯದಲ್ಲಿರುವುದು
C) ಸದೃಢ
D) ಉಪಹಾರ ಗೃಹ

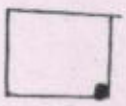
30. What will replace question mark?



A) 
B) 
C) 
D) 

ಪ್ರಶ್ನಾರ್ಥಕ ಚಿಹ್ನೆಯನ್ನು ಯಾವುದು ಬದಲಾಯಿತ್ತದೆ?



A) 
B) 
C) 
D) 

31. In a certain code language, if the value of 'BLOCK' = 13 and 'CURTAIN' = 27, Then what is the value of the word 'SCIENCE'?

A) 32 B) 36
C) 38 D) 34

ಒಂದುಕೋಡ್ ಪ್ರಕಾರ, 'BLOCK' = 13 ಮತ್ತು 'CURTAIN' = 27 ಹಾಗಾದರೆ 'SCIENCE' ಎಂಬ ಪದದ ಬೆಲೆ ಎಷ್ಟು?

A) 32 B) 36
C) 38 D) 34

32. Choose alternative which is closely resembles the water-image of the given combination.

DISC

1) CSID 2) ƆƧIᗡ
3) ᗡIƧƆ 4) DISC

A) 1 B) 2
C) 3 D) 4

ಈ ಕೆಳಗೆ ನೀಡಿರುವ ಸಂಯೋಜನೆಯ ನೀರಿನ ಬಿಂಬವನ್ನು ಹೋಲುವ ಪರ್ಯಾಯ ಉತ್ತರವನ್ನು ಆರಿಸಿ.

DISC

1) CSID 2) ƆƧIᗡ
3) ᗡIƧƆ 4) DISC

A) 1 B) 2
C) 3 D) 4

33. Expand the formula: $(a-b)^2$.

A) $a+b+2^2$ B) a^2+b^2+2
C) a^2+b^2-2ab D) $a+b+4$

$(a-b)^2$ನ್ನು ವಿಸ್ತರಿಸಿ ಬರೆಯಿರಿ.

A) $a+b+2^2$ B) a^2+b^2+2
C) a^2+b^2-2ab D) $a+b+4$

34. D, E, G, J _____ complete the Alphabet series

A) K B) L

C) M D) N

ಈ ವರ್ಣಮಾಲೆಯ ಸರಣಿಯನ್ನು ಪೂರ್ಣಗೊಳಿಸಿ D, E, G, J _____

A) K B) L

C) M D) N

35. The following table gives the sales of the shirts manufactured by companies C1, C2, C3 and C4 over five weeks. Study the table and answer the question that follows.

Weeks	C1	C2	C3	C4
Week1	190	226	184	202
Week2	225	244	214	202
Week3	240	175	235	275
Week4	215	235	260	200
Week5	205	210	265	245

Which company sold the most shirts in these five weeks?

A) C1 B) C2

C) C3 D) C4

ಈ ಕೆಳಗಿನ ಕೋಷ್ಟಕವು C1, C2, C3 ಮತ್ತು C4 ಕಂಪನಿಯ ಐದು ವಾರಗಳಲ್ಲಿ ತಯಾರಿಸಿದ ಶರ್ಟ್‌ಗಳ ಮಾರಾಟವನ್ನು ನೀಡುತ್ತದೆ. ಕೋಷ್ಟಕವನ್ನು ಅಧ್ಯಯನ ಮಾಡಿ ಮತ್ತು ಅದರ ಆಧಾರದ ಮೇಲೆ ಉತ್ತರಿಸಿರಿ.

Weeks	C1	C2	C3	C4
Week1	190	226	184	202
Week2	225	244	214	202
Week3	240	175	235	275
Week4	215	235	260	200
Week5	205	210	265	245

ಈ 5 ವಾರಗಳಲ್ಲಿ ಯಾವ ಕಂಪನಿ ಹೆಚ್ಚು ಶರ್ಟ್‌ಗಳನ್ನು ಮಾರಾಟ ಮಾಡಿದೆ?

A) C1 B) C2

C) C3 D) C4

36. Find the correctly spelt words.

A) Foreign B) Foreine
C) Fariegn D) Forein

ಸರಿಯಾಗಿ ಬರೆಯಲಾದ ಪದಗಳನ್ನು ಹುಡುಕಿ.

A) Foreign B) Foreine
C) Fariegn D) Forein

37. Choose the word which is the exact opposite of the given word.

ARTIFICIAL

A) Red B) Natural
C) Truthful D) Solid

ಕೊಟ್ಟಿರುವ ಪದಕ್ಕೆ ವಿರುದ್ಧವಾಗಿರುವ ಪದವನ್ನು ಆರಿಸಿ, ಕೃತಕ (ARTIFICIAL)

A) ಕೆಂಪು B) ನೈಸರ್ಗಿಕ
C) ಸತ್ಯವಾದ D) ಘನ

38. Choose the word which best expresses the meaning of the given word.

WARRIOR

A) Soldier B) Sailor
C) Pirate D) Spy

ಕೊಟ್ಟಿರುವ ಪದದ ಅರ್ಥವನ್ನು ಅತ್ಯುತ್ತಮವಾಗಿ ವ್ಯಕ್ತಪಡಿಸುವ ಪದವನ್ನು ಆರಿಸಿ.

ಯೋಧ

A) ಸೈನಿಕ B) ನಾವಿಕ
C) ದರೋಡೆಕೋರ D) ಪತ್ತೇದಾರಿ

39. In this question a sentence broken into five or six parts. Join these parts to make a meaningful sentence.

1) I 2) Immediately
3) Salary 4) My
5) Want

A) 43152 B) 15432
C) 25143 D) 42351

ಈ ಕೆಳಗಿನ ಪ್ರಶ್ನೆಯಲ್ಲಿ ವಾಕ್ಯವನ್ನು ಐದು ಅಥವಾ ಆರು ಭಾಗಗಳಾಗಿ ವಿಂಗಡಿಸಲಾಗಿದೆ ಈ ಭಾಗಗಳನ್ನು ಸೇರಿಸಿ ಅರ್ಥ ಪೂರ್ಣ ವಾಕ್ಯವನ್ನು ರಚಿಸಿ.

1) ನನಗೆ 2) ತಕ್ಷಣ
3) ಸಂಬಳ 4) ನನ್ನ
5) ಬೇಕು

A) 43152 B) 15432
C) 25143 D) 42351

40. Sanjay sat ____ her father. (Choose the right option to fill in the blank)

A) above B) beside

C) away D) next

ಸಂಜಯ ಅವಳ ತಂದೆಯ _____ಕುಳಿತ (ಬಿಟ್ಟಸ್ಥಳ ತುಂಬಲು ಸರಿಯಾದ ಆಯ್ಕೆಯನ್ನು ಆರಿಸಿ)

A) ಮೇಲೆ B) ಪಕ್ಕದಲ್ಲಿ

C) ದೂರ D) ಮುಂದೆ

41. There is a cut throat competition in the job market. (The underlined word can be replaced with).

A) Tough B) Easy

C) Negligible D) Smooth

ಉದ್ಯೋಗ ಮಾರುಕಟ್ಟೆಯಲ್ಲಿ ಭಯಂಕರ ಸ್ಪರ್ಧೆಯಿದೆ (ಗೆರೆ ಎಳೆದಿರುವ ಪದವನ್ನು ಬದಲಾಯಿಸಿದರೆ ಈ ಕೆಳಗಿನ ಯಾವುದು ಸೂಕ್ತ)

A) ಕಠಿಣ B) ಸರಳ

C) ಅಲ್ಲಗಳೆ D) ಸೂಕ್ಷ್ಮ

42. Meet me _____ the entrance of the park. Choose the right word to fill in the blank.

A) to B) at

C) on D) above

ನನ್ನನ್ನು ಉದ್ಯಾನವನದ ಪ್ರವೇಶದ್ವಾರ_____ಭೇಟಿಮಾಡು (ಬಿಟ್ಟಸ್ಥಳ ತುಂಬಲು ಸರಿಯಾದ ಆಯ್ಕೆಯನ್ನು ಆರಿಸಿ)

A) ಕ್ಕೆ B) ದಲ್ಲಿ

C) ಗಳಿಗೆ D) ಮೇಲೆ

43. 'Affluent' means:

A) Foolish B) Poor

C) Rich D) Clever

'ಸಿರಿತನ' ಎಂದರೆ

A) ಮುರ್ಖ B) ಬಡವ

C) ಶ್ರೀಮಂತ D) ಚತುರ

[P.T.O.

44. Choose the odd one out.
A) Coach B) Teacher
C) Learner D) Trainer
ಗುಂಪಿಗೆ ಸೇರದ ಪದ ಆರಿಸಿ.
A) ತರಬೇತಿದಾರ B) ಶಿಕ್ಷಕ
C) ಕಲಿಯುವವರು D) ತರಬೇತುಗಾರ

45. One who does not know reading and writing is called _____.
A) Uncivilized B) Educated
C) Literate D) Illiterate
ಓದು ಬರಹ ಬಾರದವನಿಗೆ ಎನೆನ್ನುವರು?
A) ಅನಾಗರಿಕ B) ವಿದ್ಯಾವಂತ
C) ಅಕ್ಷರಸ್ಥ D) ಅನಕ್ಷರಸ್ಥ

46. Identify the odd one in the group:
A) Betrayal B) Loyalty
C) Fidelity D) Faithfulness
ಗುಂಪಿಗೆ ಸೇರದ ಪದವನ್ನು ಆರಿಸಿ.
A) ದ್ರೋಹ B) ನಿಷ್ಠೆ
C) ಶ್ರದ್ಧೆ D) ನಿಷ್ಠಾವಂತ

47. The 'plural' of the word 'Phenomenon' is:
A) Phenomenes B) Phenomena
C) Phenomenous D) Phenomenas
'ವಿದ್ಯಮಾನ' ಪದದ ಬಹುವಚನ ರೂಪ.
A) ವಿದ್ಯಮಾನಕ್ಕೆ B) ವಿದ್ಯಮಾನಗಳು
C) ವಿದ್ಯಮಾನಗಳಿಗೆ D) ವಿದ್ಯಮಾನಗಳಲ್ಲಿ

48. I am angry _____ you. fill in the blank with correct preposition.
A) with B) on
C) upon D) by
ನನಗೆ ನಿನ್ನ_____ಕೋಪವಿದೆ
A) ಜೊತೆಗೆ B) ಮೇಲೆ
C) ಹತ್ತಿರ D) ಮೂಲಕ

49. Choose the opposite of the word 'far'.

A) away B) further

C) farther D) near

ಈ ನೀಡಿರುವ ಪದಕ್ಕೆ ವಿರುದ್ಧಪದ ಆಯ್ಕೆ ಮಾಡಿ 'ದೂರದ'

A) ದೂರದಲ್ಲಿ B) ಮತ್ತಷ್ಟು

C) ಅನಂತರದ D) ಹತ್ತಿರದ

50. She is beautiful _____poor. (choose the correct word to complete the sentence)

A) but B) as

C) or D) so

ಅವಳು ಸುಂದರ_____ಬಡವಳು (ವಾಕ್ಯವನ್ನು ಪೂರ್ಣಗೊಳಿಸಲು ಸರಿಯಾದ ಪದವನ್ನು ಬಳಸಿ)

A) ಆದರೆ B) ಎಂದು

C) ಅಥವಾ D) ಆದ್ದರಿಂದ

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V Semester All U.G. Courses Degree Examination, March/April - 2024

COMPUTER SCIENCE

Cyber Security (SEC)

(Regular)

Time : 1½ (90 Minutes) **Maximum Marks : 50**

Instructions to Candidates:

1. Check for complete printing of **50** questions.
2. The last page of the question paper may be used for rough work.
3. Each question has four multiple choice answer and choose the correct one.
4. Darken the appropriate circle with the ball pen.
5. Damaging/overwriting using whitener on the **OMR** sheets are strictly prohibited.
6. No candidates will be allowed to leave the examination Hall till the end of the session and without handing over his/her answer sheet to the invigilator.
7. Candidates should ensure that the invigilator has verified all the entries and that the invigilator has offixed his/her signature in the space provided on the **OMR**.

[P.T.O.

Answer All the questions. Each carries 1 mark. **(50×1=50)**

1. What is Cyberspace?

   A) A Physical Computer Network.

   B) A virtual space for online communication

   C) A type of computer virus

   D) An offline storage system.

2. Who invented World Wide Web?

   A) Bill Gates

   B) Steve Jobs

   C) Tim Berners Lee

   D) Larry Page

3. What does DNS stands for?

   A) Dynamic Network System

   B) Domain Name System

   C) Data Network Security

   D) Digital Naming Service

4. What does TCP/IP stand for?

A) Total Control Protocol/Internet Protocol.

B) Transmission Control Protocol/Internet Protocol

C) Technical Control Protocol/Internet Process

D) Transferable Communication Protocol/Internet Process

5. What is the primary goal of cyber security?

A) Ensuring data accuracy.

B) Preventing Unauthorized access and protecting systems.

C) Maximizing Processing Power

D) Facilitating data sharing.

6. Which protocol is fundamental to Internet communication and allows data packets to be routed across the network?

A) HTTP

B) FTP

C) TCP/IP

D) SMTP

7. What does the World Wide Web (WWW) consists of ?

A) A collection of text documents.

B) A global system of interconnected documents and resources.

C) A type of computer virus

D) A hardware component of the internet

8. What does URL stands for?

A) Universal Resource Locator

B) Unified Resource Locator

C) Uniform Resource Locator

D) Ultimate Resource Locator

9. What does the term "HTML" stands for?

A) Hyper Text Markup Language

B) Hypnotic Text Markup Language

C) High-Tech Multimedia Language

D) Hyper Link Text Management Language

10. Which Protocol is used for secure data transfer over the web?

A) HTTP

B) FTP

C) HTTPS

D) TCP

11. What is Cybercrime?

A) Legal Computer activities

B) Any Legal Act committed using computer

C) Illegal Act committed using a computer

D) Computer programming.

12. Which cybercrime is an illegal modification of data?

A) Cyber Stalking

B) Phishing

C) Data Diddling

D) Denial of Service Attack.

13. Which type of cybercrime involves sending a large number of emails to crash a victim's email account?

A) Cyber Stalking

B) Phishing

C) Email Bombing

D) Cyber Defamation

14. What does morphing involves in cyber crime?

A) Changing smoothly from one image to another

B) Hacking social media accounts

C) Creating fake documents

D) Gathering confidential data

15. How can victims report cyber crimes in India according to the content?

A) Contacting the nearest cyber cell or Police station

B) Filing a complaint through the National Cyber Crime Reporting Portal

C) Both A and B

D) None of the above

16. What type of attacks involve intrution into computer system to gain unauthorized access?

A) Phishing

B) Ransomware

C) Hacking

D) Identity theft

17. What is the Primary demand made by ransomware attackers?

A) Payment in cash

B) Payment in cryptocurrency

C) Providing access to more devices

D) Deleting victim's data

18. How does a computer virus spread according to the content?

A) Through physical contact

B) Through social media links

C) Through email and text message attachments

D) Through Wi-Fi connections.

19. What elements are recorded in the modus operandi files of cybercrime?

A) Software vulnerabilities

B) Social Engineering techniques

C) Details like entry point, means, object, time, state, tate, transport and trademark

D) Cyber security best practices.

20. What is CERT-In?

A) A computer security software.

B) A cyber security incident response team

C) A social engineering technique

D) An online consumer complaints platform.

21. The primary purpose of social networks.

A) Online shopping

B) Business promotion

C) Global connectivity and communication

D) None of the above.

22. The social media platform which is primarily focussed on professional networking and job searching.

A) Facebook

B) Instagram

C) Twitter

D) Linked In.

23. What is "Hashtag" used for in social media?

A) To Separate Paragraphs

B) To mark the beginning of a post

C) To categorize and link content

D) To hide content from certain users

24. The security measure helps to protect social media accounts from unauthorized access.

A) Using weak passwords

B) Enabling two-factor authentication(2FA)

C) Sharing login credentials with friends

D) Logging in from public computers.

25. The primary function of YouTube as a social media platform is

A) Sharing short text updates

B) Posting Photos and Videos

C) Networking with Professionals

D) Live streaming music concerts

26. The primary purpose of social media monitoring.

A) Creating engaging content

B) Managing advertising campaigns

C) Tracking and analysing online conversations

D) None of the above

27. The symbol commonly used to represent a Hashtag.

A) @

B) #

C) $

D) %

28. What is the key characteristic of viral content on social media?

A) Limited sharing

B) Slow engagement

C) Rapid and widespread sharing

D) Exclusivity

29. Which of the following is an example of a social media platform?

A) Microsoft Excel

B) Amazon Web Services

C) Facebook

D) Adobe Photoshop

30. What is the term for using social media platforms for promoting products or services?

A) Social Networking

B) Social Engineering

C) Social Media Marketing

D) None of the above

31. What is the primary focus of E-commerce?

A) Physical retail stores

B) Online Communication

C) Buying and selling goods and services electronically

D) Traditional payment methods

32. Which of the following is an element of E-commerce security?

A) Secure payment gateways

B) Confidentiality, Integrity and Availability.

C) Both A and B

D) None of the above

33. What is recommended as best practice for E-Commerce security?

A) Publicly sharing sensitive customer information.

B) Using weak and easily guessable passwords.

C) Regularly updating security measures.

D) Ignoring customer feedback.

34. What are some common modes of digital payments?

A) Banking cards

B) UPI

C) E-wallets

D) All of the above.

35. What does USSD stands for ?

A) Unrestricted System for Secure Digitalization

B) Unstructured Supplementary Service Data

C) Unified Secure System for Digital Payments

D) None of the above

36. Which organization provides guidelines on digital payments in India?

A) United Nations

B) Reserve Bank of India (RBI)

C) World Health Organization

D) All of the above.

37. What does the payment settlement Act 2007, regulates?

A) Payment and Settlement Systems in India

B) Social Media Platforms

C) E-Commerce Websites

D) All of the above.

38. What is a common threat to E-commerce security?

A) Physical theft

B) Digital Marketing

C) Effective Communication

D) Unauthorized access and data breaches.

39. What is a significant advantage of E-commerce ?

A) Limited product variety

B) Restricted accessibility

C) Global reach and accessibility

D) Slow transaction processing.

40. Which is a common fraud related to digital payments?

A) Transparent Transactions

B) Secure Authentication

C) Unauthorized Access

D) Verified Transactions

41. What is the term for a self replicating malicious program that spreads throughout computer files ?

A) Worm

B) Trojan Horse

C) Virus

D) Phishing

42. What is the primary focus of End point Device Security?

A) Cloud Computing

B) Securing Physical Devices

C) Social Media Management

D) Satellite Communication

43. Why is mobile phone security important?

A) To improve battery life

B) To prevent phone calls

C) To protect personal and sensitive information

D) To increase processing speed.

44. What is a key aspect of a password policy?

A) Sharing passwords openly

B) Same password used for all accounts

C) Memorizing complex passwords

D) Regularly changing passwords

45. What does security Patch Management involve?

A) Ignoring software updates

B) Regularly updating and applying patches

C) Uninstalling security softwares

D) Disabling firewalls

46. What is the significance of a Host firewall?

A) Enhancing device aesthetics

B) Controlling incoming and out going network traffic

C) Reducing battery consumption

D) Improving processing speed.

47. Why is an Antivirus software important?

A) To create a digital Art

B) To control network traffic

C) To improve device battery life

D) To protect against and remove malicious software.

48. What is the purpose of configuring basic security policies and permissions?

A) Enhancing device security by restricting access

B) Simplifying device usage

C) Granting unlimited access to all users

D) Increasing device processing speed

49. Why is data backup important in cyber security?

A) To increase device storage capacity

B) To slow down data transfer speed

C) To prevent data from being accessed

D) To recover lost data in case of a cyber incident.

50. What should be considered when downloading third - party software?

A) Ignoring software reviews

B) Downloading from untrusted sources

C) Verifying the softwares legitimacy and source

D) Downloading without any permission.

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V Semester B.Sc. 6 (NEP) Degree Examination, March/April - 2024

COMPUTER SCIENCE

Computer Networks

Paper : 2-(DSC-6)

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) **Answer all sections.**
2) **Draw neat diagram wherever necessary.**

SECTION - A

I. Answer any **TEN** questions. Each question carries **2** marks. **(10×2=20)**

1. What is topology? Mention its types.
2. Expand OSI and TCP/IP.
3. Write any two types of multiplexing.
4. Define protocol.
5. What is Data rate?
6. Write any two functions of transport layer.
7. Define Switching.
8. Write the advantages of wireless LAN.
9. What is flow control in Data Link layer?
10. What is framing?
11. Mention the types of channelization.
12. Write the operations of UDP.

SECTION - B

II. Answer any **FOUR** questions. Each question carries **5** marks. **(4×5=20)**

13. Write a note types of Computer networks.
14. Discuss the applications of Computer networks.
15. What is Transmission media? Explain Co-axial transmission media with neat diagram.

[P.T.O.

16. Define Error. Explain different types of Errors in detail.
17. Explain Selective - Repeat protocol.

SECTION -C

III. Answer any **TWO** questions. Each question carries **10** marks. **(2×10=20)**

18. Explain OSI reference model with neat diagram.
19. Discuss about different types of switching Techniques.
20. a) Explain HDLC protocol in detail.
    b) Explain Transmission impairment and its types.

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V Semester B.Sc. 6 (NEP) Degree Examination, December/January - 2024-2025

MATHEMATICS

Real Analysis - II and Complex Analysis

Paper : I

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) Answer **any Six** questions from Q.No.1
2) Answer **any Three** questions from Q.No's 2,3,4, and 5

Answer any Six of the following. **(6×2=12)**

1. a) Define upper and Lower sums.

b) Find $U(p,f)$ & $L(p,f)$ for the function $f(x)=x$ $in[0,1]$ and Partition $P=\left\{0,\frac{1}{3},\frac{2}{3},1\right\}$

c) State Fundamental theorem of integral Calculus.

d) Evaluate $\int_0^1 x^8(1-x)^7\,dx$.

e) Define analytic function.

f) Prove that $\int_C \frac{dz}{z-a}=2\pi i$, where C is a circle.

g) State Cauchy's inequality.

h) Define bilinear transformation.

Answer any Three of the following. **(3×4=12)**

2. a) State and prove the necessary and sufficient condition for integrability of bounded function.

b) Let $f,g:[a,b]\to R$ are bounded functions and R-integrable over $[a,b]$, $f(x)\le g(x)$ then prove that $\int_a^b f(x)\,dx\le\int_a^b g(x)\,dx$.

P.T.O.

c) Show that $f(x)=2x+1$ is integrable on $[1,2]$ and $\int_1^2 (2x+1)dx = 4$.

d) Using Mean Value theorem, prove that $\frac{\pi^2}{9} \le \int_{\pi/6}^{\pi/2} \frac{x}{\sin x} dx \le \frac{2\pi^2}{9}$.

Answer any Three of the following. **(3×4=12)**

3. a) State and Prove Dirichlet's test for the convergence of the integral of a product of two functions.

b) Examine the convergence of $\int_0^\infty e^{-ax} \cdot \cos bx \, dx$.

c) Prove that $B(m,n) = \int_0^1 \frac{x^{m-1}+x^{n-1}}{(1+x)^{m+n}} dx$.

d) Prove that $\int_0^\infty x^2 e^{-x^4} dx . \int_0^\infty e^{-x^4} dx = \frac{\pi}{8\sqrt{2}}$

Answer any Three of the following. **(3×4=12)**

4. a) State and prove necessary condition for Cauchy's -Reimann equations.

b) Prove that an analytic function with constant modulus is constant.

c) Prove that $3x^2y + 2x^2 - y^3 - 2y^2$ is harmonic. Find the harmonic conjugate.

d) If $f(z) = u + iv$ is analytic and $u - v = e^x(\cos y - \sin y)$ then find $f(z)$ in terms of z.

Answer any Three of the following. **(3×4=12)**

5. a) State and Prove Cauchy's Integral theorem.

b) Evaluate $\int_C \frac{z}{(z^2+1)(z^2-9)} dz$, where C is the circle $|z| = 2$.

c) Prove that a bilinear transformation preserves the cross-ratio of four points.

d) Find the bilinear transformation which maps z=0,i,-1 onto w=i,1,0 respectively.

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V Semester B.Sc.6 (NEP) Degree Examination, December/January - 2024-25

PHYSICS (OPTIONAL)

Elements of Atomic, Molecular and Laser Physics

Paper : II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Calculators may be allowed for solving problems.
2. Write intermediate steps.

Answer any Six of the following questions. **(6×2=12)**

1. a) Who discovered the nucleus?

   b) Mention an important outcome of Rutherford's alpha Patrick scattering experiment.

   c) What is stark effect?

   d) Calculate Lande's 'g' factor for $^2P_{\frac{1}{2}}$ state.

   e) Mention the types of molecules based on their moment of inertia.

   f) What are stoke's and antistoke's lines.

   g) Give two examples of macroscopic properties of a system.

   h) Give an example of fermion.

Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

2. a) Derive expression for radius of an atom using Bohr's theory of hydrogen atom.

   b) Write a note an spectral series of hydrogen atom. **(8+4)**

(OR)

   c) Describe Frank and Hertz experiment to determine excitation potential.

   d) The wavelength of first line in Balmer series is 656.3nm . What is the wavelength of second line in Balmer series. **(8+4)**

Answer 'a'and 'b' OR 'c' and 'd' of the following questions.

3. a) Derive an expression for magnetic dipole moment of an electron due to orbital motion. Hence define gyromagnetic ratio.

   b) Explain L-S and J-J Coupling. **(8+4)**

(OR)

   c) What is Zeeman effect ? Describe the experimental arrangement to study Zeeman effect.

   d) Calculate Zeeman shift observed in normal Zeeman effect when a spectral line of wavelength 5600 Angstrom is subjected to magnetic field of 0.8 T.

   Given : $\frac{e}{m} = 1.76 \times 10^{11}$ ekg^{-1} **(8+4)**

Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

4. a) Explain the theory of a vibrating molecule as a simple harmonic oscillator. Draw the energy level diagram.

   b) The force constant of the bond in CO molecule 187Nm^{-1}. Its reduced mass is 1.14×10^{-26} kg. Compute the frequency of vibration of CO molecule and spacing between its vibrational energy levels (Given: $h = 6.63 \times 10^{-34}$ Js) **(8+4)**

(OR)

   c) With a neat diagram,explain the construction and working of a Ruby laser.

   d) Explain the processes (i) Absorption (ii) Spontaneous emission (iii) Stimulated emission. **(8+4)**

Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

5. a) Derive an expression for Maxwell-Boltzmann distribution function.

   b) Explain different types of ensemble with the help of a neat diagrams. **(8+4)**

(OR)

   c) Differentiate between Maxwell - Boltzmann , Fermi - Dirac and Bose-Einstein Statistics.

   d) Define thermo dynamic probability. Give the expression for thermo dynamic Probability for distinguishable Patrick and explain the terms. **(8+4)**

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V Semester B.Sc. (NEP) Degree Examination, March/April - 2024

MATHEMATICS

Vector Calculus and Analytical Geometry

Paper : II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) **Answer any Six questions from Q.No.1**
2) **Answer any Three questions from Q.No. 2,3,4 and 5.**

Answer any SIX of the following. **(6×2=12)**

1. a) If $\phi = 3x^2y - y^2z^2$ then find grad ϕ at $(1,-2,-1)$

b) If $\vec{A} = ti - tj + (2t-2)k$ *and* $\vec{B} = (2t-1)i + tj - tk$, find $\frac{d}{dt}(\vec{A}.\vec{B})$

c) State stokes theorem

d) If $\vec{F} = 3xyi - y^2j$, evaluate $\int_C \vec{F}.d\vec{r}$, where C is the path along the parabola $y = 2x^2$ from $(0,0)$ *to* $(1,1)$

e) Find the length of perpendicular from $(1,3,4)$ to the plane $2x - y + z + 3 = 0$

f) Find the equation of a sphere on the join of $(1,2,1)$ and $(2,3,4)$ as end points of diameter of a sphere.

g) Define cone and write the general equation of a cone.

h) Find the equation of the cone with vertex at origin at whose guiding curve is $\frac{x^2}{4} + \frac{y^2}{9} + \frac{z^2}{1} = 1$ and $x + y + z = 1$.

[P.T.O.

Answer any THREE of the following. (3×4=12)

2. a) Explain Geometrical significance of $\frac{dr}{dt}$.

   b) For the curve $x=3\cos t, y=3\sin t, z=4t$, find

      i) The unit tangent vector

      ii) The Binormal vector.

   c) If $\vec{A}$ *and* $\vec{B}$ are differentiable vector functions of scalar variable t, prove that

$$\frac{d}{dt}\left(\vec{A}\times\vec{B}\right)=\frac{d\vec{A}}{dt}\times\vec{B}+\vec{A}\times\frac{d\vec{B}}{dt}$$

   d) If $\vec{f}=xy^2i+2x^2yzj-3yz^2k$ find $div\left(curl\vec{f}\right)$.

Answer any THREE of the following. (3×4=12)

3. a) Find $\int_C \vec{F}odr$ where $\vec{F}=(2y+3)i+xzj+\left(yz-x^2\right)k$ along the line joining the points $(0,0,0)$ to $(2,1,1)$

   b) State and prove Green's theorem

   c) Evalutate $\iint_s \vec{F}onds$ where $\vec{F}=zi+xj-3y^2zk$ and s is the surface of the cylinder $x^2+y^2=16$ included in the first octant between z=0 and z=5

   d) If $\vec{F}=2zi-xj-yk$, evaluate $\iiint_v Fodv$ where v is closed region bounded by the surfaces $x=0, x=2, y=0, y=4,\ z=x^2, z=2$

Answer any THREE of the following. (3×4=12)

4. a) Derive the equation of sphere in the general form.

   b) Find the equation of the tangent plane to the sphere $3x^2+3y^2+3z^2-2x-3y-4z-22=0$ at the point $(1,2,3)$

   c) Prove that the equation of any plane through (x_1,y_1,z_1) is $A(x-x_1)+B(y-y_1)+C(z-z_1)=0$

   d) Show that the spheres

$x^2+y^2+z^2+6y+2z+8=0$ and $x^2+y^2+z^2+6x+8y+4z+20=0$ are orthogonal.

Answer any THREE of the following. (3×4=12)

5. a) Find the equation of a cone with vertex at the origin which passes through the curve $ax^2+by^2+cz^2=1, lx+my+nz=p$.

b) Find the equation to the cone whose vertex is the point $(0,0,0)$ and which posses through $x^2+y^2+z^2+x-2y+3z=4$ and $x^2+y^2+z^2+2x-3y+4z=5$

c) Find the equation of the cylinder whose generators are parallel to the line $\frac{x}{1}=\frac{y}{-2}=z/3$ and passing through the curve $x^2+2y^2=1, z=0$.

d) Find the equation to the cylinder whose generator's are parallel to the line $\frac{x}{1}=\frac{y}{m}=z/n$ and the base conic is $ax^2+by^2+2hxy+2gx+2fy+c=0, z=0$.

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V Semester B.Sc. (NEP) Degree Examination, December/January- 2024-25

BOTANY

Genetics And Plant Breeding

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

Draw the diagram wherever necessary.

I. Answer any Six of the following. **(6×2=12)**

1. Phenotype
2. Back Cross
3. Gene flow
4. Crossing over
5. Germplasm
6. Parthenogenesis
7. Colchicine
8. Hybridization

II. Answer any Three of the following. **(3×4=12)**

9. Explain monohybrid cross with an example.
10. Explain incomplete dominance with an example.
11. Explain Recessive epistasis with an example.
12. Explain Variegation in Four O'clock plant.

III. Answer any Three of the following. **(3×4=12)**

13. Explain Linkage with an example.
14. Write a note on variation in structure of chromorome.
15. Explain the types of mutations.
16. Explain gene mapping with an example.

[P.T.O.

IV. Answer any Three of the following. **(3×4=12)**

17. Mention aims and objectives of plant breeding.
18. Write a note on acclimatization in crop improvement.
19. Write a note on centers of origin of crop plants.
20. Write a note on Mass-selection.

V. Answer any Three of the following. **(3×4=12)**

21. Explain Emasculation.
22. Explain mutation breeding in crop improvement.
23. Write a note on Heterosis.
24. Write the applications of inbreeding depression.

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V Semester B.Sc. (NEP) Degree Examination, December/January- 2024/25

BOTANY

Plant Morphology and Taxonomy

(Regular/Repeater)

Paper : I

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

Draw the diagram wherever necessary.

I. Answer any Six of the following. **(6×2=12)**

1. Fusiform root
2. Rhizome
3. Tetradynamous
4. Gynobasic
5. Genus
6. Holotype
7. Cladograms
8. Polyphyly

II. Answer any Three of the following. **(3×4=12)**

9. Explain Tap root modification for storage.
10. Write the Schematic representation of Bentham and Hooker system of classification with families you have studied.
11. Explain the aerial stem modifications.
12. Write the merits and demerits of Engler and Prantl's system of classification.

III. Answer any Three of the following. **(3×4=12)**

13. Give the salient features of the family Brassicaceae.
14. Write the salient features of the family orchidaceae.
15. Give the salient features of the family Rubiaceae.
16. Write the difference b/w Annonaceae and Solanaceae.

[P.T.O.

IV. Answer any Three of the following. **(3×4=12)**

17. Write a note on morphological species concept.
18. Mention the advantages of phylogenetic Nomenclature.
19. Write a note on:
    a) Homonyms
    b) Synonyms
20. Mention the Rules of Nomenclature.

V. Answer any Three of the following. **(3×4=12)**

21. What is Biometric? Mention the study of Plant Biometric.
22. Write a note on:
    a) Phenetics
    b) Cladistics
23. Mention the demerits of Numerical taxonomy
24. Explain about OTU's

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V Semester B.Sc.(NEP) Degree Examination, March/April - 2024

CHEMISTRY(DSC)

Paper : II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) All questions are compulsory
2) Draw neat diagrams and give equations wherever necessary.

Answer any **SIX** questions: **(6×2=12)**

1. a) Write the types of alloys with example.
   b) Mention the changes involved in setting of cement.
   c) Write the structure of DCC and one use in organic reactions.
   d) How NBS reagent is prepared?
   e) Write the reaction of lead acid battery during the discharging and charging.
   f) What is oxidation - reduction electrode? Give example.
   g) Write the types of electronic transitions.
   h) What is Base peak in Mass Spectrometry?

Answer any **THREE** questions: **(3×4=12)**

2. a) How Carborundum is manufactured?
   b) Write any four types of glass and their one use.
   c) Write about the following i) Mohs scale of hardness ii) Calorific value of a fuel.
   d) Explain the manufacture of water gas.

Answer any **THREE** questions: **(3×4=12)**

3. a) Write the mechanism of Benzylic oxidation of tetralin to naphthalene using DDQ.
   b) Give the mechanism of oxidation of 1,2-diol to aldehyde using lead tetra acetate.
   c) What type of dye is Indigo? Write its synthesis.
   d) Write the synthesis of Alizarin.

[P.T.O.

4 Answer any **THREE** questions: **(3×4=12)**

a) Calculate the EMF of following cell at $25^{o}C$

$$Z_n \left| Z_n^{+2}(0.001M) \right\| Ag^{+}(0.1M) \left| Ag \right.$$

$(Given\ E^{0}_{Zn,Zn^{+2}} = -0.76 \vee\ and\ E^{0}_{Ag,Ag^{+}} = 0.80 \vee)$

b) Derive an expression for the EMF of concentration cell without transference.

c) How the P^{H} of solution is determined using the Hydrogen electrode.

d) Explain the Hydrogen - Oxygen Fuel cell.

Answer any **THREE** questions: **(3×4=12)**

5. a) Discuss the variation in stretching frequencies of $>C=0$, -O-H IR absorption bands in organic compound.

b) Explain the following with example i) Chromophores ii) Hypochromic Shift.

c) Write about the following:

i) Bathochromic Shift. ii) Position of IR absorption bands.

d) Explain the McLafferty rearrangement with respect to 2 - hexanone.

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V Semester B.Sc. (NEP) Degree Examination, December/January - 2024-25

CHEMISTRY(DSC)

Paper : I

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. **All questions are compulsory.**
2. **Draw neat diagrams and give equations wherever necessary.**

1. Answer any Six questions. **(6×2=12)**

a) What is ligand? Give an example of polydendate ligand.

b) What are ionization isomers? Give example.

c) Write the nitration reaction of Furan and pyridine.

d) Which is more basic between pyridine and piperidine and why?

e) What is zero-point energy? Give its equation.

f) Calculate the vibrational degrees of freedom of H_2O molecule.

g) What type of polymer is Nylon 66? Mention the monomers of it.

h) What are conducting polymers? Give example.

2. Answer any Three questions. **(3×4=12)**

a) Explain the colour property of transition elements.

b) What are lanthanides? Write about the lanthanide contraction and its cause.

c) Discuss the hybridization, geometry and magnetic property of $[CoF_6]^{-3}$ ion by VBT.

d) Write the IUPAC name of following complexes.

i) $K_3[Fe(CN)_6]$

ii) $Na[Ag(CN)_2]$

iii) $[Co(NH_3)_6]cl_3$

iv) $K_3[Cr(C_2O_4)_3]$

P.T.O.

3. Answer any Three questions. **(3×4=12)**

a) Explain the molecular orbital picture and aromaticity of Furan.

b) Discuss the constitution of coniine.

c) Give the reactions to show the following in Nicotine

i) Presence of pyridine ring with a sidechain at position-3

ii) Presence of pyrrole /pyrrole derivative

iii) N-methyl pyrrolidinering bonded to pyridine through position-2

d) What is Green Chemistry? Mention the principles of Green chemistry.

4. Answer any Three questions. **(3×4=12)**

a) Derive an expression for rotational energy of a rigid diatomic molecule.

b) Give the potential energy curve for bonding molecular orbital and write the characteristics of bonding molecular orbitals.

c) State Frank-Condon principle and explain it with a potential energy curve.

d) The pure rotational spectrum of HCl molecule contains a series of equally spaced lines separated by $20.8cm^{-1}$. Calculate the bond length of the molecule.

(Given $M = 1.63\times10^{-27}\ kg, h = 6.626\times10^{-34}\ Js, c = 3\times10^{10}\ cms^{-1}$)

5. Answer any Three questions. **(3×4=12)**

a) Write the preparation, properties and applications of polytetrafluoro ethene polymer.

b) Give the preparation, properties and application of polystyrene.

c) What are silicones? Write the differences between inorganic and organic polymers.

d) What are nanomaterials? How they are classified based on composition.

47226

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V Semester B.Sc. (NEP) Degree Examination, December/January - 2024-25

CHEMISTRY(DSC)

Paper : II

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. All questions are compulsory.
2. Draw neat diagrams and give equations wherever necessary.

1. Answer any Six questions. **(6×2=12)**

a) What are alloys? Mention the types of alloys.

b) What are abrasives? Give examples.

c) Write the structure and a use of NBS reagent.

d) Write two requirements of a dye.

e) Mention two applications of salt bridge.

f) Give two examples of metal - insoluble salt-anion electrode.

g) What is chromophore ? Give example.

h) What is Base peak in Mass spectrometry?

2. Answer any Three questions. **(3×4=12)**

a) Explain the manufacture of glass using tank furnace.

b) Write about the following

i) Setting of cement

ii) Annealing of glass.

c) What are fuels? Write their characteristics.

d) Explain the manufacture of Biogas.

3. Answer any Three questions. **(3×4=12)**

a) Write the mechanism of aromatisation of tetralin using DDQ.

b) Discuss the mechanism of oxidation of 1,2-diol to aldehyde using lead tetra acetate.

c) What are Azodyes? Write the synthesis of Congo red.

d) What type of dye is indigo? Write its synthesis.

[P.T.O.

4. **Answer any Three questions.** **(3×4=12)**

a) Write a note on weston standard cell.

b) Derive the Nernst's equation for EMF of a cell.

c) How pH of solution is determined using glass electrode?

d) Mention the type of below cell and calculate its EMF at 25°C

$$Ag \mid AgNO_3\,(0.01m) \parallel AgNO_3\,(0.1M) \mid Ag$$

5. **Answer any Three questions.** **(3×4=12)**

a) Explain the variation in stretching frequency of $\rangle C = O$ IR absorption band in organic compounds.

b) Explain in brief the types of electronic transitions.

c) Write about the following with example

i) Alexochromes

ii) Hypochromic shift

d) What is McLafferty rearrangement? Explain it with respect to hexenoic acid.

47227/E0270

Reg. No. | | | | | | | | |

V Semester B.Sc. 6 (NEP) Degree Examination, March/April - 2024

COMPUTER SCIENCE

Programming in PYTHON (DSC5)

Paper : 1

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) Answer all sections.
2) Write a syntax wherever necessary.
3) Draw a neat diagram wherever necessary.

SECTION - A

I. Answer any **TEN** from the following. Each question carries **2** marks. **(10×2=20)**

1. What are identifiers?
2. What is the use of range() and exit() function.
3. List any four applications of python.
4. What is type conversion?
5. What is function? Write syntax for function declaration.
6. What are escape sequences? Give an example.
7. Define tuple.
8. Differentiate between lists and dictionaries.
9. Define multiple inheritance.
10. What is an exception? Name any two exceptions in python.
11. What is the use of Tkinter?
12. List out different operations on database tables.

SECTION - B

II. Answer any **FOUR** questions. Each question carries **5** marks. **(4×5=20)**

13. Explain different python operators.
14. Write a note on user defined functions in python.
15. Explain different built in functions on Lists.

[P.T.O.

16. Write a python program to calculate area and perimeter of a circle using a class.

17. What is layout management? Explain different layout managers used in python.

SECTION - C

III. Answer any **TWO** questions. Each question carries **10** marks. **(2×10=20)**

18. a) Explain different looping statements of python.
    b) With example explain different operations on strings.

19. a) What is set? Explain any four operations on sets.
    b) Explain exception handling using try, except and finally.

20. a) Explain any five widgets of Tkinter module.
    b) Explain different SQLite methods.

47228/E0280

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V Semester B.Sc. 6 (NEP) Degree Examination, March/April - 2024

COMPUTER SCIENCE

Computer Networks

Paper : 2-(DSC-6)

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) **Answer all sections.**
2) **Draw neat diagram wherever necessary.**

SECTION - A

I. Answer any **TEN** questions. Each question carries **2** marks. **(10×2=20)**

1. What is topology? Mention its types.
2. Expand OSI and TCP/IP.
3. Write any two types of multiplexing.
4. Define protocol.
5. What is Data rate?
6. Write any two functions of transport layer.
7. Define Switching.
8. Write the advantages of wireless LAN.
9. What is flow control in Data Link layer?
10. What is framing?
11. Mention the types of channelization.
12. Write the operations of UDP.

SECTION - B

II. Answer any **FOUR** questions. Each question carries **5** marks. **(4×5=20)**

13. Write a note types of Computer networks.
14. Discuss the applications of Computer networks.
15. What is Transmission media? Explain Co-axial transmission media with neat diagram.

[P.T.O.

16. Define Error. Explain different types of Errors in detail.
17. Explain Selective - Repeat protocol.

SECTION -C

III. Answer any **TWO** questions. Each question carries **10** marks. **(2×10=20)**

18. Explain OSI reference model with neat diagram.
19. Discuss about different types of switching Techniques.
20. a) Explain HDLC protocol in detail.
    b) Explain Transmission impairment and its types.

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V Semester B.Sc. 6 (NEP) Degree Examination, December/January - 2024-25

COMPUTER SCIENCE

Programming in Python

Paper : I (DSC5)

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) Answer All Sections.
2) Write a syntax wherever necessary.
3) Draw a neat diagram wherever necessary.

SECTION - A

I. Answer any Ten from the following. Each question carries 2 marks. **(10×2=20)**

1. Write any two features of python.
2. Listout Standard data types in python.
3. Define fruitful function in python.
4. What is a comment? Give one example.
5. What is slicing? Write example.
6. Write characteristics of list.
7. What is tuple? Create a tuple with only integer.
8. Assume: $t_1 = (1,2,3)$ and $t_2 = (4,5,6)$ Give the command to join both the tuples, and display the elements of combined tuple.
9. How do you access items in a dictionary? Give example.
10. What is_init_()?
11. What is operator loading in python.
12. What is cursor?

SECTION - B

II. Answer any Four questions. Each question carries 5 marks. **(4×5=20)**

13. Explain precedence and associativity of operators. Evaluate $-a+b*c-d/e+f$.

where $a=1, b=4, c=2, d=4, e=2, f=3$.

P.T.O.

14. Explain any five functions of math module with example.
15. Differentiate string with list in python.
16. Explain try, except and finally with example.
17. Explain any three widgets used in python with example.

SECTION - C

III. Answer any Two questions. Each question carries 10 marks. **(2×10=20)**

18. a) Explain various conditional statements used in python with example.
    b) Write a python program to calculate factorial of a given number. **(5+5)**
19. a) What is function? Demonstrate defining and calling UDF function with syntax and example.
    b) Explain different operations performed on dictionary. **(5+5)**
20. a) Explain file operations with syntax and example.
    b) Explain the steps for database connectivity in python. **(5+5)**

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Reg. No.

V Semester B.Sc. (NEP) Degree Examination, December/January - 2024-25

MATHEMATICS

Vector Calculus and Analytical Geometry

Paper : II (DSC)

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Answer any **Six** questions from Q.No.**1.**
2. Answer any **Three** questions from Q.No's **2,3,4,** and **5.**

Answer any **Six** of the following questions. **(6×2=12)**

1. a) Find the unit tangent vector to the curve

$\vec{r} = (\cos 2t)i + (\sin 2t)j + tk$

b) Find *grad* ϕ if $\phi = x^2yz^2$ at $(-1,2,3)$

c) If $\vec{f} = x^2zi - 2y^3z^2j + xy^2zk$ find *divf at* $(1,-1,1)$.

d) State Stoke's theorem.

e) Show that the planes $2x-4y+3z=0$ *and* $10x+11y+8z-17=0$ are perpendicular.

f) Find the equation of sphere whose centre is $(3,2,-1)$ and radius is 2 units.

g) Define cone and write the general equation of cone.

h) Find the equation of cylinder whose generators intersect the curve $ax^2+by^2=2z, lx+my=p$

Answer any **Three** of the following questions. **(3×4=12)**

2. a) Find the binormal vector for $\vec{r}(t) = ti + (3\sin t)j + (3\cos t)k$.

b) Find the directional derivative of $\phi = x^2yz + 4xz^2$ at $(1,-2,-1)$ along 2i-j-2k.

c) Prove that $div(A+B) = divA + divB$.

d) If ϕ is a scalar field then prove that $curl(grad\phi) = 0$

P.T.O.

Answer any **Three** of the following questions. **(3×4=12)**

3. a) If $f=(5xy-6x^2)i+(2y-4x)j$, Evaluate $\int_C f.dr$, where C is the curve $y=x^3$ from the point (1,1) to the point (2,8).

   b) Evaluate $\iint_S (yzi+zxj+xy)n\,ds$, where S is the surface of the Sphere $x^2+y^2+z^2=a^2$ in the first octant.

   c) State and prove Green's theorem.

   d) If $\overline{F}=2xzi-xj+y^2k$ Evaluate $\int_V \overline{F}dV$, where V if the Volume of the region bounded by the surface $x=0,\ \&\ x=2,\ y=0\ \&\ y=6,\ z=x^2\ \&\ z=4$.

Answer any **Three** of the following questions. **(3×4=12)**

4. a) Find the equation of the plane through the intersection of the planes $2x-y=0$ and $3z-y=0$ and perpendicular to the plane $4x+5y-3z=8$.

   b) Find the equation of the plane which bisects the acute angle between the planes $2x-y+2z+3=0$ and $3x-2y+6z+8=0$.

   c) Find the equation of the sphere through the points $(0,0,0),(a,0,0),(0,b,0)$ *and* $(0,0,c)$.

   d) Derive the condition of orthogonality of two spheres $x^2+y^2+z^2+2u_1x+2v_1y+2w_1z+d_1=0$ and $x^2+y^2+z^2+2u_2x+2v_2y+2w_2z+d_2=0$

Answer any **Three** of the following questions. **(3×4=12)**

5. a) Find the equation to the cone with vertex at the origin which passes through the curve $x^2+y^2+z^2-x-1=0$ and $x^2+y^2+z^2+y-2=0$.

   b) Find the equation of the cone with vertex at $(0,0,0)$ and passing through the circle given by $x^2+y^2+z^2+x-2y+3z-4=0,\ x-y+z=2$.

   c) Find the equation of the cylinder whose generators are parallel to the line $\frac{x}{1}=\frac{y}{2}=\frac{z}{3}$ and passes through the curve $x^2+y^2=16,\ z=0$.

   d) Find the equation of the quadratic cylinder whose generators intersect the curve $ax^2+by^2+cz^2=1,\ lx+my+nz=p$.

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V Semester B.Sc. 6 (NEP) Degree Examination, March/April - 2024

PHYSICS

Elements of Atomic, Molecular and Laser Physics

Paper : II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) **Calculators are allowed.**
2) **Show the intermediate steps.**

Answer any **SIX** of the following questions. **(6×2=12)**

1. a) Who proposed quantum model for atom.
   b) Define critical potential.
   c) What is orbital quantum number and how H is related to principle quantum number.
   d) Write the selection rule for L and S.
   e) How molecular spectrum is different from atomic spectrum.
   f) What are anti stoke lines.
   g) Give an example for Boson.
   h) Mention the types of ensembles.

Answer 'a' and 'b' OR 'c' and 'd'.

2. a) Derive the expression for energy of electron in case of hydrozen atom. **(8)**
   b) calculate the wave length first member of Lyman series of hydrozen atom **(4)**
   Given $R = 1.097 \times 10^{-1} m^{-1}$.

(OR)

   c) Explain Frank-Hertz Experiment. **(8)**
   d) The critical potential of hydrozen atom is 13.6 ev, if it is bombarded by an electron of this energy find the wave length of radiation emitted. **(4)**

[P.T.O.

Answer 'a' and 'b' OR 'c' and 'd'.

3. a) Derive the expression for magnetic dipole moment due to orbital motion of electron. **(8)**

   b) Mention the difference between Normal and anomalous Zeeman effect. **(4)**

(OR)

   c) Explain the experimental setup used observe the zeeman effect. **(8)**

   d) Experimental value of Bohr magneton is 9.2×10^{-24} JT^{-1}. Calculate the specific charge of electron h = 6.625×10^{-34} J-S. **(4)**

Answer 'a' and 'b' OR 'c' and 'd'.

4. a) Give the quantum theory of Raman effect and mention applications. **(8)**

   b) Mention characteristics of laser and two applications of laser. **(4)**

(OR)

   c) Give the construction and working of Ruby Laser. **(8)**

   d) Absorption in Co molecule occurs at freq 1.153×10^{11} Hz Calculate the MI of Co Molecule. **(4)**

Answer 'a' and 'b' OR 'c' and 'd'.

5. a) Explain distribution of identical particles. **(8)**

   b) Mention difference between M-B statistics and F-D statics. **(4)**

(OR)

   c) Derive Bose Einstein distribution fuction . **(8)**

   d) Mention the limitation of M-B Statistics. **(4)**

47242/E0420

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V Semester B.Sc. (NEP) Degree Examination, March/April - 2024

ZOOLOGY (DSC)

Chordates and Comparative Anatomy

Paper : II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

1. **Draw diagram wherever necessary**
   ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ಅಂದವಾದ ಹೆಸರಿಸಿದ ಚಿತ್ರ ತೆಗೆಯಿರಿ.
2. **Answer all the Questions.**
   ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

I. Answer any SIX of the following. **(6×2=12)**
ಬೇಕಾದ ಆರಕ್ಕೆ ಉತ್ತರಿಸಿರಿ.

1. What is Gnathostomata give Example.
   ಗ್ನ್ಯಾತೋಸ್ಟೋಮಾಟಾ ಎಂದರೇನು? ಉದಾಹರಣೆ ನೀಡಿ.

2. Give the Examples of Pisces, Amphibia, Reptilia and Aves.
   ಮೀನುಗಳು, ಉಭಯವಾಸಿಗಳು, ಸರಿಸೃಪಗಳು ಮತ್ತು ಪಕ್ಷಿಗಳ ಉದಾಹರಣೆ ಕೊಡಿ.

3. Define Osteichthyes with Example.
   ಆಸ್ಟಿಕಥಾಯಿಸ್‌ನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ, ಉದಾಹರಣೆ ಕೊಡಿ.

4. Write the orders of class Amphibia.
   ಉಭಯವಾಸಿಗಳಲ್ಲಿ ಬರುವ ಆರ್ಡರಗಳನ್ನು ಬರೆಯಿರಿ.

5. Define Osmoregulation.
   ಆಸ್ಮೋರೆಗ್ಯುಲೇಶನ ವ್ಯಾಖ್ಯಾನಿಸಿ.

6. Give the Examples of Ratitae.
   ಹಾರಲಾಗದ ಪಕ್ಷೀಯ ಉದಾಹರಣೆ ಬರೆಯಿರಿ.

[P.T.O.

7. Write any two differences of Gills and lungs.
ಗಿಲ್ಸ್ ಮತ್ತು ಲಂಗ್ಸ್‌ಗಳ ಎರಡು ವ್ಯತ್ಯಾಸಗಳನ್ನು ಬರೆಯಿರಿ.

8. Define Excretion and name excretory organ of mammal.
ವಿಸರ್ಜನೆ ಎಂದರೇನು? ಸಸ್ತನಿಗಳಲ್ಲಿರುವ ವಿಸರ್ಜನೆಯ ಅಂಗ ಯಾವುದು?

II. Answer any THREE of the following questions. (3×4=12)
ಬೇಕಾದ ಮೂರಕ್ಕೆ ಉತ್ತರಿಸಿ.

9. Describe Origin of Chordates.
ಕಶೇರುಕ ಮೂಲವನ್ನು ವಿಸ್ತರಿಸಿರಿ.

10. Write the general characters and classification of Protochordata.
ಪ್ರೋಟೊಕಾರ್ಡೆಟಾದ ಸಾಮಾನ್ಯ ಲಕ್ಷಣಗಳನ್ನು ಮತ್ತು ವರ್ಗೀಕರಣವನ್ನು ಬರೆಯಿರಿ.

11. Describe morphology of Amphioxus.
ಅಂಫಿಆಕ್ಸಸನ್ ರೂಪ ವಿಜ್ಞಾನವನ್ನು ವಿವರಿಸಿರಿ.

12. Write the Salient features of Cyclostomata.
ಸೈಕ್ಲೊಸ್ಟೊಮಾಟಾದ ಗುಣಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ.

III. Answer any THREE of the following questions (3×4=12)
ಬೇಕಾದ ಮೂರಕ್ಕೆ ಉತ್ತರಿಸಿ.

13. Write the general characters class Amphibia.
ಉಭಯವಾಸಿಗಳ ಸಾಮಾನ್ಯ ಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ.

14. Write a note on Osteichthyes.
ಮೂಳೆ ಮೀನುಗಳ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

15. State the distinctive characters of class Reptilia.
ಸರಿಸೃಪಗಳ ವಿಭಿನ್ನ ಗುಣಗಳನ್ನು ಬರೆಯಿರಿ.

16. Write a note on Neornithes.
ನಿಯೋರ್ನಿಥಿಸ್‌ದ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

IV. Answer any THREE of the following questions. **(3×4=12)**
ಬೇಕಾದ ಮೂರಕ್ಕೆ ಉತ್ತರಿಸಿರಿ.

17. Describe the comparative account of Pectoral girdle of Birds and Mammals.
ಪಕ್ಷೀಯ ಮತ್ತು ಸಸ್ತನಿಯ ಪೆಕ್ಟೋರಲ ಗರ್ಡಲದ ಬಗ್ಗೆ ತುಲನಾತ್ಮಕವನ್ನು ವಿವರಿಸಿರಿ.

18. Write a note on Gills, Lungs, Airsacs and Swimm Bladder.
ಗಿಲ್ಸ್, ಲಂಗ್ಸ್, ಏರ್‌ಸ್ಯಾಕ್ಸ್ ಮತ್ತು ಸ್ವಿಮ್ ಬ್ಲ್ಯಾಡರ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

19. Draw neat labelled diagram of Human heart.
ಮಾನವನ ಹೃದಯದ ಚಿತ್ರವನ್ನು ಬಿಡಿಸಿ ಭಾಗಗಳನ್ನು ಹೆಸರಿಸಿರಿ.

20. Describe the Succession of Vertebrate Kidney.
ಕಶೇರುಕಗಳ ಮೂತ್ರ ಪಿಂಡಗಳ ಬಗ್ಗೆ ವಿವರಣೆ ಬರೆಯಿರಿ.

V. Answer any THREE of the following questions. **(3×4=12)**
ಬೇಕಾದ ಮೂರಕ್ಕೆ ಉತ್ತರಿಸಿ.

21. Describe biting mechanism in Snakes.
ಹಾವುಗಳು ಕಚ್ಚುವ ಬಗೆಯನ್ನು ವಿವರಿಸಿರಿ.

22. Write a note on Parental care in Amphibia.
ಉಭಯವಾಸಿಗಳ ಪೋಷಕ ಕ್ರೀಯೆ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

23. Describe flight adaptation in Birds.
ಪಕ್ಷಿಗಳ ಹಾರುವಿಕೆಯ ಬೆಳವಣಿಗೆ ಬಗ್ಗೆ ವಿವರಿಸಿರಿ.

24. Write a note on Metaphoria with Example.
ಉದಾಹರಣೆಯೊಂದಿಗೆ ಮೇಟಾಥಿಲಿಯಾದ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

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V Semester B.Sc. (NEP) Degree Examination, March/April - 2024

ZOOLOGY

X-Non Chordates and Economic Zoology

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

1. **Answer any Six questions from Q.No.1**
   ಪ್ರಶ್ನೆ ಸಂಖ್ಯೆ I ರಿಂದ ಬೇಕಾದ ಆರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.
2. **Answer any Three questions from each main questions II,III, IV & V**
   ಪ್ರಶ್ನೆ ಸಂಖ್ಯೆ. II,III, IV ಹಾಗೂ V ಬೇಕಾದ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.
3. **Drw the diagram Whenever necessary.**
   ಅವಶ್ಯವಿದ್ದಲ್ಲಿ ಚಿತ್ರ ತೆಗೆಯಿರಿ.

I. Answer any SIX of the following. **(6×2=12)**
ಬೇಕಾದ ಆರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

1. Write any two Salient features of Ctenophora
   ಟಿನೋಫೋರಾದ ಬೇಕಾದ ಎರಡು ಪ್ರಮುಖ ಅಂಶಗಳನ್ನು ಬರೆಯಿರಿ.

2. Mention any two locomotory organelles found in Protozoa.
   ಏಕಕೋಶೀಯ ಪ್ರಾಚೀನ ಪ್ರಾಣಿಗಳಲ್ಲಿ ಕಂಡು ಬರುವ ಬೇಕಾದ ಎರಡು ಚಲನೆಯ ಅಂಗಗಳ ಹೆಸರುಗಳನ್ನು ಬರೆಯಿರಿ.

3. What is Botryoidal tissue? Where it is found?
   ಗೊಂಚಲಿನಂಥ ಅಂಗಾಂಶ ಎಂದರೇನು? ಅದು ಯಾವ ಪ್ರಾಣಿಗಳಲ್ಲಿ ಕಂಡು ಬರುತ್ತವೆ.

4. What is Ascariasis? Name the organism which causes ascariasis.
   ದುಂಡಾಣುಗಳೊಂದಿಗಿನ ಕರುಳಿನ ಸೋಂಕು ಎಂದರೇನು? ಈ ಸೋಂಕಿಗೆ ಕಾರಣವಾದ ಪ್ರಾಣಿಯ ಹೆಸರನ್ನು ಬರೆಯಿರಿ.

5. Mention any two classes of Phylum Arthropoda with examples
   ಫೈಲಮ್ ಸಂಧಿಪದಿಗಳು ಇದರ ಯಾವುದಾದರೂ ಎರಡು ಕ್ಲಾಸುಗಳನ್ನು ಹೆಸರಿಸಿ ಉದಾಹರಣೆ ಕೊಡಿರಿ.

6. What is meant by Water vascular system? Give an example.
   ನೀರಿನ ನಾಳೀಯ ವ್ಯವಸ್ಥೆ ಎಂದರೇನು? ಉದಾಹರಣೆ ಕೊಡಿ.

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7. What are pests? Give an example studied.
ಕೀಟಗಳು ಎಂದರೇನು? ನೀವು ಅಭ್ಯಾಸ ಮಾಡಿದ ಒಂದು ಉದಾಹರಣೆ ಕೊಡಿ (ಬೆಳೆಯನ್ನು ಹಾಳು ಮಾಡುವಂಥ).

8. What is meant by Lac culture?
ಅರಗು ತಯಾರಿಸುವ ಕಲೆ ಎಂದರೇನು?

II. Answer any THREE of the following questions. **(3×4=12)**
ಬೇಕಾದ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

9. Write the general characters of Phylum porifera and mention examples.
ಫೈಲಮ್ ಪೋರಿಫೇರಾ (ಸ್ಪಂಜುಗಳು)ದ ಸಾಮಾನ್ಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ಉದಾಹರಣೆಯೊಂದಿಗೆ ಬರೆಯಿರಿ.

10. Write the morphological features of Paramoecium.
ಪೇರಮಿಶಿಯಿಂದ ಹೊರಲಕ್ಷಣಗಳನ್ನು ಕುರಿತು ಬರೆಯಿರಿ.

11. Write an account of Polymorphism in Physalia.
ಫೈಸೇಲಿಯಾದ ಬಹುರೂಪತೆ ಬಗ್ಗೆ ಒಂದು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

12. Write the Salient features of Ctenophora with examples
ಉದಾಹರಣೆಯೊಂದಿಗೆ ಟೀನೋಫೋರಾದ ವಿಶಿಷ್ಟ ಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ.

III. Answer any THREE of the following questions. **(3×4=12)**
ಬೇಕಾದ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

13. Write the general characters of Phylum Annelida and classify the same upto classes with examples.
ಫೈಲಮ್ ಎನ್ನೆಲೀಡಾ (ಮಣ್ಣು ಹುಳುಗಳು) ಸಾಮಾನ್ಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ ಮತ್ತು ಕ್ಲಾಸುಗಳವರೆಗೆ ಉದಾಹರಣೆಯೊಂದಿಗೆ ವರ್ಗೀಕರಿಸಿರಿ.

14. Write Parasitic adaptations of Platyhelementhes.
ಚಪ್ಪಟೆ ಹುಳುಗಳ ಪರಾವಲಂಬಿತನ ಹೊಂದಾಣಿಕೆಗಳನ್ನು ಬರೆಯಿರಿ.

15. Explain the process of Reproduction in Ascaris.
ದುಂಡುಹುಳುವಿನ (ಎಸ್ಕ್ಯಾರಿಸ್) ಸಂತಾನೋತ್ಪತ್ತಿ ಪ್ರಕ್ರೀಯಯನ್ನು ವಿವರಿಸಿರಿ.

16. Write a note on morphology of Hirudinaria granulosa.
ಜಿಗಣೆಯ ಬಾಹ್ಯರೂಪವನ್ನು ಕುರಿತು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

IV. Answer any THREE of the following questions. (3×4=12)
ಬೇಕಾದ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

17. Write the general characters of Phylum Echinodermata and classify the same upto classes with example.
ಫೈಲಮ್ ಎಕೈನೋಡರ್ಮೆಟಾದ (ಕಂಟಕಚರ್ಮಿಗಳು) ಸಾಮಾನ್ಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ ಮತ್ತು ಕ್ಲಾಸುಗಳವರೆಗೆ ಉದಾಹರಣೆಗಳೊಂದಿಗೆ ವರ್ಗೀಕರಿಸಿರಿ.

18. Explain the nervous system in Pila globosa.
ಬಸವನ ಹುಳು (ಲೈಪಲ್‌ಸ್ಸೇಲ್)ವಿನ ನರವ್ಯೂಹದ ಬಗ್ಗೆ ಒಂದು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

19. Explain the Process of metamorphosis in insects.
ಕೀಟಗಳಲ್ಲಿ ರೂಪ ಪರಿವರ್ತನೆ ಪ್ರಕ್ರೀಯೆ ಕುರಿತು ವಿವರಣೆ ಬರೆಯಿರಿ.

20. Write a note on Pearl Formation.
ಮುತ್ತು ರಚಿತವಾಗುವ ಪ್ರಕ್ರೀಯೆ ಕುರಿತು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

V. Answer any THREE of the following questions. (3×4=12)
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

21. Explain the life cycle and the control measures of (Gundhibug)
ಬಂಬುಕೀಟದ ಜೀವನ ಚಕ್ರ ಮತ್ತು ಅದರ ನಿಯಂತ್ರಣ ಕುರಿತು ವಿವರಣೆ ಬರೆಯಿರಿ.

22. Explain the process of prevention and control of mosquitoes.
ಸೊಳ್ಳೆಗಳ ತಡೆಗಟ್ಟುವಿಕೆ ಮತ್ತು ನಿಯಂತ್ರಣೆ ಕುರಿತಾದಂತೆ ಒಂದು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

23. Write the economic importance of Sericulture.
ರೇಷ್ಮೆಕೃಷಿಯ ಆರ್ಥಿಕ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ವಿವರಿಸಿರಿ.

24. Explain the life cycle and the control measures of Leaf hoppers.
ಎಲೆ ಹಾಪರ್ಸ ಕೀಟದ ಜೀವನಚಕ್ರ ಮತ್ತು ನಿಯಂತ್ರಣೆ ಕುರಿತು ವಿವರಣೆ ಕೋಡಿರಿ.

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V Semester B.Sc. 6 (NEP) Degree Examination, December/January- 2024-25

COMPUTER SCIENCE

Computer Networks

Paper : II (DSC-6)

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) Answer All Sections.
2) Draw neat diagram wherever necessary.

I. Answer any TEN questions. Each question carries 2 marks. **(10×2=20)**

1. What is Network?
2. Define Broadcasting.
3. What is a HVB?
4. Define Bandwidth.
5. What is an Internet?
6. Define Digital Signal.
7. Expand HDLC and TCP/IP.
8. What is flow control?
9. What is buffering?
10. Give two impariments of transmission.
11. Define PPP.
12. Write any two advantages of computer Networks.

II. Answer any FOUR questions. Each question carries 5 marks. **(4×5=20)**

13. Explain OSI reference model with neat diagram.
14. Explain the concept of ALOHA.
15. What is multiplexing & de-multiplexing with neat diagram?
16. Write the differences between packet switching & Circuit switching.
17. Explain the working of Go-Back-N(GBN) protocol.

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III. Answer any TWO questions. Each question carries 10 marks. **(2×10=20)**

18. Explain with neat diagram guided & un-guided media.

19. Define topology. Explain its types with neat diagram.

20. Briefly explain the following protocols

    a) UDP

    b) DNS

    c) WWW

    d) HTTP

    e) FTP.

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V Semester B.Sc.(NEP) Degree Examination, March/April - 2024

CHEMISTRY(DSC)

Paper : I

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) All questions are compulsory
2) Draw neat diagrams and give equations wherever necessary.

1. Answer any **SIX** questions: **(6×2=12)**

a) What is ligand? Give an example of bidendate ligand.

b) What are linkage isomers? Give example.

c) Give two mexamples of condensed hetero cycles.

d) Write the chlorination reaction of Furan and Pyridine.

e) Write the spectral region and criteria of rotational spectra.

f) calculate the vibrational degrees of freedom of CO_2 molecule.

g) Write the structure of monomer of Poly Styrene and its use.

h) What are Silicones? Mention their one use.

2. Answer any **THREE** questions: **(3×4=12)**

a) Explain the complex formation property of transition elements.

b) What is Lanthanide contraction? Write its causes and consequences.

c) Discuss the hydridisation, geometry and magnetic property of $[FeCCN_6]^4$ ion on the basis of VBT.

d) Write the IUPAC name of following complexes.

i) $Na[Au(CN)_2]$

ii) $K_3[Cr(C_2O_4)_3]$

iii) $[Mn(H_2O)_6]Cl_2$

iv) $[Co(en)_2Cl_2]Cl$

[P.T.O.

3. Answer any **THREE** questions: (3×4=12)

a) Explain the molecular orbital picture and aromaticity of Thiophene.

b) Compare and explain the bascities of pyridine, piperidine and pyrrole.

c) Write the reactions to show the following in Nicotine

i) Presence of Pyridine ring with a side chain at position - 3.

ii) N - methyl pyrrolidine ring attached to pyridine through position - 2.

d) Write the principles of Green chemistry.

4. Answer any **THREE** questions: (3×4=12)

a) Show that the spectral lines in rotational spectra are equidistant.

b) Give the potential energy curve for antibonding molecular orbital and write the characteristics of antibonding molecular orbitals.

c) State Frank - condon principle and illustrate it with a suitable potential energy curve.

d) The fundamental vibrational frequency of Hcl is $8.667 \times 10^{13}\ S^{-1}$. Calculate the force constant for the bond in Hcl.

5. Answer any **THREE** questions: (3×4=12)

a) Write the type, preparation and application of Nylon 66 Polymer.

b) What are conducting polymers? Write the preparation and application of polyaniline conducting polymer.

c) What are Phosphazenes? Write the differences between inorganic and organic polymers.

d) What are nanomaterials? How are they classified based on composition.

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Reg. No. | | | | | | | | |

V Semester B.Sc. (NEP) Degree Examination, March/April - 2024

MATHEMATICS

Real Analysis - II and Complex Analysis

Paper : I

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) **Answer any six questions from q.No.1.**
2) **Answer any three questions from q.No: 2,3,4 and 5.**

Answer any SIX of the following. **(6×2=12)**

1. a) Define upper and Lower Riemann integral.

b) Find $W(p,f)$ *and* $L(p,f)$ for the function $f(x)=x^2$ *on* $[0,1]$ and $p=\left\{0,\frac{1}{4},\frac{2}{4},\frac{3}{4},1\right\}$

c) State Darboux theorem.

d) Evaluate $\int_0^1 x^8(1-x)^7\,dx$.

e) Prove that $f(z)=\bar{z}$, is not differentiable at origin.

f) If $u=\frac{1}{2}\log(x^2+y^2)$, Is it harmonic?

g) Prove that $\int_{c\,z=a}\frac{dz}{}=2\pi i$, where C is a circle.

h) Define transformation.

Answer any THREE of the following. **(3×4=12)**

2. a) State and prove the necessary and sufficient condition for integrability of bounded function $f(x)$ *in* $[a,b]$.

b) If $f(x)$ is bounded integrable in $[a,b]$ and M,m are bounds of $f(x)$ in $[a,b]$ then prove that $m(b-a)\le L(p,f)\le U(P,f)\le M(b-a)$.

[P.T.O.

c) Prove that $f(x)=3x+1$ is integrable on $[1, 2]$ and $\int_1^2 (3x+1)\,dx=\frac{11}{2}$

d) Prove that $\frac{1}{3\sqrt{2}} \le \int_0^1 \frac{x^2}{\sqrt{1+x^2}}\,dx \le \frac{1}{3}$.

Answer any THREE of the following. **(3×4=12)**

3. a) State and prove Abel's test for the convergence of improper integrial

b) Test the convergence of $\int_0^1 \frac{dx}{x^{1/2}(1-x)^{1/3}}$.

c) Prove that $\beta(m,n)=\frac{\lfloor m \lfloor n}{\lfloor m+n}$, where $m>0, n>0$.

d) Prove that $\int_0^\infty x^2 e^{-x^4}\,dx . \int_0^\infty e^{-x^4}\,dx = \frac{\pi}{8\sqrt{2}}$.

Answer any THREE of the following. **(3×4=12)**

4. a) State and Prove the necessary condition for Cauchy-Riemann equations.

b) Prove that real and imaginary part of an analytic function are harmonic.

c) By Using Milne-Thomson method, construct the analytic function whose real part is $2x-x^3+3xy^2$.

d) If $f(z)=u+iv$ is analytic and $u-v=e^x(\cos y-\sin y)$, find $f(z)$ in terms of z.

Answer any THREE of the following. **(3×4=12)**

5. a) Evaluate $\int_C [(x+y)dx+x^2 y dy]$ along the straight line $y=3x$ from $(0,0)$ to $(3,9)$.

b) State and prove Cauchy's integral formula for the derivative.

c) Prove that bilinear transformation is a resultant of the elementary transformations, translations, magnification and rotation, and inversion.

d) Find the bilinear transformation which maps $z=0,-i,-1$ onto $w=i,1,0$ respectively.

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Reg. No. | | | | | | | | |

V Semester B.Sc. 6 (NEP) Degree Examination, March/April - 2024

PHYSICS

PHYSICS-IX Classical Mechanics-I and Quantum Mechanics - I

Paper : I

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) **Calculators may be allowed for solving problems.**
2) **Write intermediate steps.**
3) **Give physical meaning for symbols and notations.**

Answer any SIX of the following questions. **(6×2=12)**

1. a) What is non-inertial frame of reference?
   b) What is scleronomic constraint?
   c) What is fictitious force?
   d) State the fundamental postulates of special theory of relativity.
   e) What is photo electric effect?
   f) What are the matter waves?
   g) What are the eigen values and eigen functions?
   h) What is zero-point energy.

Answer 'a' and 'b' or 'c' and 'd' for all the following questions.

2. a) i) Define the terms work done by a force, and conservative force
      ii) State and explain law of conservation of energy.
   b) What is inertial frame of reference? State the Newton's laws of motion. **(8+4)**

(OR)

   c) Derive Lagrange's equation of motion from D, Alemberts principle.
   d) Derive the equation of motion of simple pendulum using Lagrange's equation. **(8+4)**
3. a) Derive Lorentz transformation equations.
   b) What is length contraction? Derive an expression for the length contraction. **(8+4)**

[P.T.O.

(OR)

c) Derive an expression for the variation of mass with velocity.

d) The rest mass of proton is 2000 times the rest mass of an electron, what should be the velocity of an electron at which its mass will be equal to the rest mass of proton? **(8+4)**

4. a) What is compton effect? Derive an expression for the compton shift.

b) Derive the relation between group velocity and phase velocity. **(8+4)**

(OR)

c) Define Heisenberg uncertainty principle? Explain the illustration of uncertainty principle by Gamma ray microscope.

d) 20 KV electrons are passed through a thin film of a metal for which the atomic spacing is 2.5 $\overset{0}{A}$. What is the angle of deviation for the first order diffraction?

Given: Mass of an electron $m = 9.1\times10^{-31} kg$

Charge of an electron $e = 1.6\times10^{-19} C$. **(8+4)**

5. a) Derive schrodinger time-dependent and time-independent wave equation.

b) Derive schrodinger wave equation for a free particle in one dimension. **(8+4)**

(OR)

c) Obtain an expression for energy of a particle in one dimensional box using schrodinger wave equation.

d) Consider that three electrons are confined to a one dimensional box of the length 1 $\overset{0}{A}$. calculate the total energy of the system.

Given : Mass of an electron = 9.1×10^{-31} kg

Planck's constant $h = 6.625\times10^{-34}$ JS **(8+4)**

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Reg. No. | | | | | | | | |

V Semester B.Sc. (NEP) Degree Examination, December/January - 2024-25

MATHEMATICS

Vector Calculus and Analytical Geometry

Paper : II (DSC)

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Answer any **Six** questions from Q.No.**1**.
2. Answer any **Three** questions from Q.No's **2,3,4,** and **5**.

Answer any **Six** of the following questions. **(6×2=12)**

1. a) Find the unit tangent vector to the curve

$\bar{r} = (\cos 2t)i + (\sin 2t)j + tk$

b) Find $grad\ \phi$ if $\phi = x^2yz^2$ at $(-1,2,3)$

c) If $\bar{f} = x^2zi - 2y^3z^2j + xy^2zk$ find $divf$ at $(1,-1,1)$.

d) State Stoke's theorem.

e) Show that the planes $2x - 4y + 3z = 0$ *and* $10x + 11y + 8z - 17 = 0$ are perpendicular.

f) Find the equation of sphere whose centre is $(3,2,-1)$ and radius is 2 units.

g) Define cone and write the general equation of cone.

h) Find the equation of cylinder whose generators intersect the curve $ax^2 + by^2 = 2z, lx + my = p$

Answer any **Three** of the following questions. **(3×4=12)**

2. a) Find the binormal vector for $\bar{r}(t) = ti + (3\sin t)j + (3\cos t)k$.

b) Find the directional derivative of $\phi = x^2yz + 4xz^2$ at $(1,-2,-1)$ along 2i-j-2k.

c) Prove that $div(A + B) = divA + divB$.

d) If ϕ is a scalar field then prove that $curl(grad\phi) = 0$

P.T.O.

Answer any **Three** of the following questions. **(3×4=12)**

3. a) If $f=(5xy-6x^2)i+(2y-4x)j$, Evaluate $\int_C f.dr$, where C is the curve $y=x^3$ from the point (1,1) to the point (2,8).

   b) Evaluate $\iint_S (yzi+zxj+xy)n\,ds$, where S is the surface of the Sphere $x^2+y^2+z^2=a^2$ in the first octant.

   c) State and prove Green's theorem.

   d) If $\overline{F}=2xzi-xj+y^2k$ Evaluate $\int_V \overline{F}dV$, where V if the Volume of the region bounded by the surface $x=0$, & $x=2$, $y=0$ & $y=6$, $z=x^2$ & $z=4$.

Answer any Three of the following questions. **(3×4=12)**

4. a) Find the equation of the plane through the intersection of the planes $2x-y=0$ and $3z-y=0$ and perpendicular to the plane $4x+5y-3z=8$.

   b) Find the equation of the plane which bisects the acute angle between the planes $2x-y+2z+3=0$ and $3x-2y+6z+8=0$.

   c) Find the equation of the sphere through the points $(0,0,0),(a,0,0),(0,b,0)$ *and* $(0,0,c)$.

   d) Derive the condition of orthogonality of two spheres $x^2+y^2+z^2+2u_1x+2v_1y+2w_1z+d_1=0$ and $x^2+y^2+z^2+2u_2x+2v_2y+2w_2z+d_2=0$

Answer any **Three** of the following questions. **(3×4=12)**

5. a) Find the equation to the cone with vertex at the origin which passes through the curve $x^2+y^2+z^2-x-1=0$ and $x^2+y^2+z^2+y-2=0$.

   b) Find the equation of the cone with vertex at $(0,0,0)$ and passing through the circle given by $x^2+y^2+z^2+x-2y+3z-4=0$, $x-y+z=2$.

   c) Find the equation of the cylinder whose generators are parallel to the line $\frac{x}{1}=\frac{y}{2}=\frac{z}{3}$ and passes through the curve $x^2+y^2=16$, $z=0$.

   d) Find the equation of the quadratic cylinder whose generators intersect the curve $ax^2+by^2+cz^2=1$, $lx+my+nz=p$.

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Reg. No. | | | | | | | | |

V Semester B.Sc. 6 (NEP) Degree Examination, December/January - 2024-2025

MATHEMATICS

Real Analysis - II and Complex Analysis

Paper : I

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1) Answer **any Six** questions from Q.No.1
2) Answer **any Three** questions from Q.No's 2,3,4, and 5

Answer any Six of the following. **(6×2=12)**

1. a) Define upper and Lower sums.

b) Find $U(p,f)$ & $L(p,f)$ for the function $f(x)=x$ *in* $[0,1]$ and Partition $P=\left\{0,\frac{1}{3},\frac{2}{3},1\right\}$

c) State Fundamental theorem of integral Calculus.

d) Evaluate $\int_0^1 x^8(1-x)^7\,dx$.

e) Define analytic function.

f) Prove that $\int_C \frac{dz}{z-a}=2\pi i$, where C is a circle.

g) State Cauchy's inequality.

h) Define bilinear transformation.

Answer any Three of the following. **(3×4=12)**

2. a) State and prove the necessary and sufficient condition for integrability of bounded function.

b) Let $f,g:[a,b]\to R$ are bounded functions and R-integrable over $[a,b]$, $f(x)\le g(x)$ then prove that $\int_a^b f(x)\,dx\le\int_a^b g(x)\,dx$.

P.T.O.

c) Show that $f(x)=2x+1$ is integrable on $[1,2]$ and $\int_1^2 (2x+1)dx = 4$.

d) Using Mean Value theorem, prove that $\frac{\pi^2}{9} \le \int_{\pi/6}^{\pi/2} \frac{x}{\sin x} dx \le \frac{2\pi^2}{9}$.

Answer any Three of the following. **(3×4=12)**

3. a) State and Prove Dirichlet's test for the convergence of the integral of a product of two functions.

b) Examine the convergence of $\int_0^\infty e^{-ax} \cdot \cos bx \, dx$.

c) Prove that $B(m,n) = \int_0^1 \frac{x^{m-1}+x^{n-1}}{(1+x)^{m+n}} dx$.

d) Prove that $\int_0^\infty x^2 e^{-x^4} dx . \int_0^\infty e^{-x^4} dx = \frac{\pi}{8\sqrt{2}}$

Answer any Three of the following. **(3×4=12)**

4. a) State and prove necessary condition for Cauchy's -Reimann equations.

b) Prove that an analytic function with constant modulus is constant.

c) Prove that $3x^2y + 2x^2 - y^3 - 2y^2$ is harmonic. Find the harmonic conjugate.

d) If $f(z) = u + iv$ is analytic and $u - v = e^x(\cos y - \sin y)$ then find $f(z)$ in terms of z.

Answer any Three of the following. **(3×4=12)**

5. a) State and Prove Cauchy's Integral theorem.

b) Evaluate $\int_C \frac{z}{(z^2+1)(z^2-9)} dz$, where C is the circle $|z| = 2$.

c) Prove that a bilinear transformation preserves the cross-ratio of four points.

d) Find the bilinear transformation which maps z=0,i,-1 onto w=i,1,0 respectively.

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V Semester B.Sc.6 (NEP) Degree Examination, December/January - 2024-25

PHYSICS (OPTIONAL)

Elements of Atomic, Molecular and Laser Physics

Paper : II

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Calculators may be allowed for solving problems.
2. Write intermediate steps.

Answer any Six of the following questions. **(6×2=12)**

1. a) Who discovered the nucleus?

b) Mention an important outcome of Rutherford's alpha Patrick scattering experiment.

c) What is stark effect?

d) Calculate Lande's 'g' factor for $^2P_{\frac{3}{2}}$ state.

e) Mention the types of molecules based on their moment of inertia.

f) What are stoke's and antistoke's lines.

g) Give two examples of macroscopic properties of a system.

h) Give an example of fermion.

Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

2. a) Derive expression for radius of an atom using Bohr's theory of hydrogen atom.

b) Write a note an spectral series of hydrogen atom. **(8+4)**

(OR)

c) Describe Frank and Hertz experiment to determine excitation potential.

d) The wavelength of first line in Balmer series is 656.3nm . What is the wavelength of second line in Balmer series. **(8+4)**

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Answer 'a'and 'b' OR 'c' and 'd' of the following questions.

3. a) Derive an expression for magnetic dipole moment of an electron due to orbital motion. Hence define gyromagnetic ratio.

   b) Explain L-S and J-J Coupling. **(8+4)**

(OR)

   c) What is Zeeman effect ? Describe the experimental arrangement to study Zeeman effect.

   d) Calculate Zeeman shift observed in normal Zeeman effect when a spectral line of wavelength 5600 Angstrom is subjected to magnetic field of 0.8 T.

   Given : $\frac{e}{m} = 1.76 \times 10^{11}$ ekg^{-1} **(8+4)**

Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

4. a) Explain the theory of a vibrating molecule as a simple harmonic oscillator. Draw the energy level diagram.

   b) The force constant of the bond in CO molecule 187Nm^{-1}. Its reduced mass is 1.14×10^{-26} kg. Compute the frequency of vibration of CO molecule and spacing between its vibrational energy levels (Given: h = 6.63×10^{-34} Js) **(8+4)**

(OR)

   c) With a neat diagram,explain the construction and working of a Ruby laser.

   d) Explain the processes (i) Absorption (ii) Spontaneous emission (iii) Stimulated emission. **(8+4)**

Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

5. a) Derive an expression for Maxwell-Boltzmann distribution function.

   b) Explain different types of ensemble with the help of a neat diagrams. **(8+4)**

(OR)

   c) Differentiate between Maxwell - Boltzmann , Fermi - Dirac and Bose-Einstein Statistics.

   d) Define thermo dynamic probability. Give the expression for thermo dynamic Probability for distinguishable Patrick and explain the terms. **(8+4)**

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V Semester B.Sc. (NEP) Degree Examination, December/January - 2024-25

CHEMISTRY(DSC)

Paper : I

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. **All questions are compulsory.**
2. **Draw neat diagrams and give equations wherever necessary.**

1. Answer any Six questions. **(6×2=12)**

a) What is ligand? Give an example of polydendate ligand.

b) What are ionization isomers? Give example.

c) Write the nitration reaction of Furan and pyridine.

d) Which is more basic between pyridine and piperidine and why?

e) What is zero-point energy? Give its equation.

f) Calculate the vibrational degrees of freedom of H_2O molecule.

g) What type of polymer is Nylon 66? Mention the monomers of it.

h) What are conducting polymers? Give example.

2. Answer any Three questions. **(3×4=12)**

a) Explain the colour property of transition elements.

b) What are lanthanides? Write about the lanthanide contraction and its cause.

c) Discuss the hybridization, geometry and magnetic property of $[CoF_6]^{-3}$ ion by VBT.

d) Write the IUPAC name of following complexes.

i) $K_3[Fe(CN)_6]$

ii) $Na[Ag(CN)_2]$

iii) $[Co(NH_3)_6]cl_3$

iv) $K_3[Cr(C_2O_4)_3]$

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3. **Answer any Three questions.** **(3×4=12)**

a) Explain the molecular orbital picture and aromaticity of Furan.

b) Discuss the constitution of coniine.

c) Give the reactions to show the following in Nicotine

i) Presence of pyridine ring with a sidechain at position-3

ii) Presence of pyrrole /pyrrole derivative

iii) N-methyl pyrrolidinering bonded to pyridine through position-2

d) What is Green Chemistry? Mention the principles of Green chemistry.

4. **Answer any Three questions.** **(3×4=12)**

a) Derive an expression for rotational energy of a rigid diatomic molecule.

b) Give the potential energy curve for bonding molecular orbital and write the characteristics of bonding molecular orbitals.

c) State Frank-Condon principle and explain it with a potential energy curve.

d) The pure rotational spectrum of HCl molecule contains a series of equally spaced lines separated by $20.8cm^{-1}$. Calculate the bond length of the molecule.

(Given $M = 1.63\times10^{-27}\ kg$, $h = 6.626\times10^{-34}\ Js$, $c = 3\times10^{10}\ cms^{-1}$)

5. **Answer any Three questions.** **(3×4=12)**

a) Write the preparation, properties and applications of polytetrafluoro ethene polymer.

b) Give the preparation, properties and application of polystyrene.

c) What are silicones? Write the differences between inorganic and organic polymers.

d) What are nanomaterials? How they are classified based on composition.

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V Semester B.Sc. (NEP) Degree Examination, December/January - 2024-25

CHEMISTRY(DSC)

Paper : II

(Regular/Repeater)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. All questions are compulsory.
2. Draw neat diagrams and give equations wherever necessary.

1. Answer any Six questions. **(6×2=12)**

a) What are alloys? Mention the types of alloys.

b) What are abrasives? Give examples.

c) Write the structure and a use of NBS reagent.

d) Write two requirements of a dye.

e) Mention two applications of salt bridge.

f) Give two examples of metal - insoluble salt-anion electrode.

g) What is chromophore ? Give example.

h) What is Base peak in Mass spectrometry?

2. Answer any Three questions. **(3×4=12)**

a) Explain the manufacture of glass using tank furnace.

b) Write about the following

i) Setting of cement

ii) Annealing of glass.

c) What are fuels? Write their characteristics.

d) Explain the manufacture of Biogas.

3. Answer any Three questions. **(3×4=12)**

a) Write the mechanism of aromatisation of tetralin using DDQ.

b) Discuss the mechanism of oxidation of 1,2-diol to aldehyde using lead tetra acetate.

c) What are Azodyes? Write the synthesis of Congo red.

d) What type of dye is indigo? Write its synthesis.

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4. Answer any Three questions. **(3×4=12)**

a) Write a note on weston standard cell.

b) Derive the Nernst's equation for EMF of a cell.

c) How pH of solution is determined using glass electrode?

d) Mention the type of below cell and calculate its EMF at 25°C

$$Ag \mid AgNO_3(0.01m) \parallel AgNO_3(0.1M) \mid Ag$$

5. Answer any Three questions. **(3×4=12)**

a) Explain the variation in stretching frequency of $\backslash C = O$ **IR** absorption band in organic compounds.

b) Explain in brief the types of electronic transitions.

c) Write about the following with example

i) Alexochromes

ii) Hypochromic shift

d) What is McLafferty rearrangement? Explain it with respect to hexenoic acid.

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V Semester B.Sc.6 (NEP) Degree Examination, December/January - 2024-25

PHYSICS

Classical Machanics and Quantum Mechanics - I

Paper : I

(Regular)

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates :

1. Use calculators for calculations.
2. Write intermediate steps in solving problems.

1. Answer any SIX of the following questions. **(6×2=12)**

a) What is non inertial frame of reference? Give an example.

b) State the Principle of virtual work.

c) State the Newtonian principle of relativity.

d) What are massless particles? Give an example.

e) What is Compton effect?

f) What are De Broglie Waves? Mention expression for their Wavelenght.

g) What is normalization of a wave function?

h) What is the principle of scanning tunneling microscope?

2. Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

a) Establish the relation between (i) Workdone by a force and kinetic energy (ii) Workdone and potential energy for a conservative force. Hence prove the law of conservation of energy.

b) State and prove the law of conservation of angular momentum. **(8+4)**

(OR)

c) Derive Lagrange's equation of motion from D Alembert's principle.

d) Explain the different types of Constraints. **(8+4)**

3. Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

a) Derive Lorentz transformation equations.

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b) How fast would a rocket has to go relative to an observer at rest for its length to be contracted to 99% of its Length at rest. (Given $c=3\times10^8\ ms^{-1}$) **(8+4)**

(OR)

c) With a neat diagram, explain relativistic Doppler effect. Obtain expression for relativistic transformation of frequency. What are transverse and Longitudinal Doppler effect.

d) What is mass energy equivalence. Derive $E = mc^2$. **(8+4)**

4. Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

a) Derive an expression for the Compton Shift.

b) X-rays of wavelength 4 A.U.fall on electron and are scattered at an angle of 60^0 Determine the compton shift.

Given : Plank's constant $h = 6.625\times10^{-34}$ JS

Rest mass of electron $m_0 = 9.11\times10^{-31}$ Kg

Speed of light in air $c = 3\times10^8\ m\ s^{-1}$ **(8+4)**

(OR)

c) Give an illustration of Heisenberg uncertainty Principle by gamma ray microscope thought experiment.

d) Give brief explanation of G.P Thomson's experiment and its significance. **(8+4)**

5. Answer 'a' and 'b' OR 'c' and 'd' of the following questions.

a) Obtain an expression for time independant Schrodinger wave equation.

b) What are the Postulates of quantum mechanics. **(8+4)**

(OR)

c) Derive Schrodinger wave equation for a linear harmonic oscillator.

d) An electron is confined in a box of length 1 angstrom. Calculate the lowest energy of the system. Given :Mass of electron $=9.1\times10^{-31}$ kg, $h = 6.625\times10^{-34}$ JS. **(8+4)**
