



**Holocraft Sticker**

Seat No 4550  
Stk. No 3302847  
Sub. DSA  
Centre 1312

DSA502MJ-DSA



Sent: 20324

Elimination of the  $\beta$ -hydroxy acid

5 Date 28/04/2025

ject D. D. I. B. 34. 740

**kurcQ en-q.enibomj**

No.	DSN502M1	Sec	4
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Cooling

Test No. : In figure & In words

0	3	5	7						
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					9	3	3	0
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with  $\pm b$  and  $\pm a$  and fi

## hundredfold


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1

Signature of M. J. J. J. J.

Signature: \_\_\_\_\_

Call 1-800-441-2222

Specific remarks regarding malpractice  
(in Red ink)

Total	Marks in Figure	Marks in Words	Sign
Examiner	13	Thirteen	
Moderator			

## SAVITRIBAI PHULE PUNE UNIVERSITY

### Instruction to Candidate

1. Candidate has to confirm seat number, subject and centre number printed on Bar code and Write it on attendance sheet.  
निम्नलिखित प्रश्न पर योजनीय अंश ज्ञापक, विषय व केंद्र ज्ञापक समुचित चोप आत्म्याची छापी मळारी आणि उजवियेरी पत्रकारा येवकोती.
2. Paste Bar Code in prescribed space.  
उजवियेरीयेरि डिझीन जगणेपर फार कोड पावपाव.
3. Do not write anything on Bar code sticker, otherwise it will be treated as unfair means,  
फार कोड लिखावपा मळारी गिरू रवे, अन्यथा परिणाम निरासारा ठरणारच जावन.

Q. No.	Examiner		Moderator	
1	0	0		
2	0	2		
3	0	4		
4	0	5		
5	0	2		
6				
7				
8				
9				
10				
11				
12				
Total in Figure	0	1	2	
Total in Words	Thirteen			
Signature	<i>M. A. K.</i>			

१. विद्यार्थ्याने उत्तरपत्रिकेच्या मुद्रापुढावर तसेच उपस्थित पात्रकावर विहित जागेत असलेल्या क्रमांक अंकन व अक्षरात विनम्र लिहून स्वाक्षरी करावी.
२. उत्तरपत्रिकेवर फक्त निळ्या अक्षरात यादीचा उपयोग करावा, अन्यथा उत्तरपत्रिकेचे मूल्यमापन घेले जाणार नाही.
३. उत्तरपत्रिकेच्या पुढाच्या ३ पानांवर लिहिण्यास प्रारंभ करावा.
४. संबंधित प्रश्नाचे अक्षरा उत्तराच्या उत्तर देण्यास सुरु होते तेथेच संपल्यास प्रश्न क्रमांक, उत्तरास क्रमांक अल्फा व स्पष्ट लिहावा, यासाठी येऊन यादीचा उपयोग करावा येणे.
५. प्रत्येक पानाच्या दोन्ही बाजूला लिहावे, उत्तरपत्रिका किंवा पुढाची उत्तरपत्रिकेचे कोणतेही पान फाटू नये, पण उत्तरास परीक्षा वेळापत्रक संपल्यानंतर पुढील पानांवरही उत्तरास घेईल.
६. पेपर संपल्यापूर्वी १० मिनिटे अखेर इतरांना घंटा होईल, त्यानंतर विद्यार्थ्याने उत्तरपत्रिका व पुढाची उत्तरपत्रिकेवर होलोग्राफ स्टिकर लिहित जागेवरच लावावा.
७. काही करणे किंवा नसण्याच्या बाबतचे परीक्षेस बसणे बांधकामाची यादी 'महाराष्ट्र-प्रतिबंधन ऑफ मालप्रॅक्टिस अँड पुनर्विनिर्देश, बोर्ड अँड अदर स्पेसिफाईड एग्जामिनेशन अँड, १९८२' (स.फ.पु.वि. च्या अधिनियम क्रमांक ९) त्यानुसार संपन्न येणेसाठी कायदा या अन्यथा संदर्भ आहे.

Candidate shall fill all information about seat number, paper etc. in prescribed space and sign on the answer book and attendance sheet.

Candidate shall use blue or black ink only. Otherwise answer book will not be evaluated.

Candidate shall start writing answer from page no. 3 of the answer book.

Candidate shall mention question number, sub question number correctly at the beginning of the same and shall not use ink other than blue or black.

Candidate shall write on both sides of pages and shall not tear off any page, it will be treated as unfair means.

Warning bell will be given before 10 minutes of the concluding time. Candidate shall paste Holograft Sticker at appropriate space on the answer book.

An Act of Copying or Impersonations at an Examination is Punishable under 'The Maharashtra Prevention of Malpractices at University, Board and Other Specified Examinations Act, 1982' (Ordinance 9 of SPPU). The Act passed to the effect.

Examiner and Moderator has to write marks on all given appropriate place only. Examiner should give assessment tick (✓) or (x) in the margin.

Q. No.	Examiner	Moderator	Verification	Revaluation
1	00			
2	02			
3	04			
4	05			
5	02			
6	1			
7	1			
8	1			
9	1			
10	1			
11	1			
12	1			
Total	13			



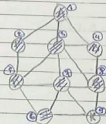
Q.No.							TOTAL
E							
M							



S. B. / Q.No.

Q. 4-a

d-



Q. 4-a - Depth first search

We have to perform an algorithm for Depth search.

Step-1 initialize

initialize the pointer from given graph - as [A]  
from 'A' we perform.

iterater - 1

Enqueue = A

Dequeue = A

Adjacency of A = B, C, D

visited = A

Dequeue = A

iterater - 2

Enqueue = F

Dequeue = F

Adjacency of F = A, G, H

visited = A, F

Dequeue = F



Q.No.						TOTAL
E						
M						



S. B. / Q. No.

iterator - 3

inqueue = C

Dequeue = C

Adjacency of C = A, F, B, D, G, E

visited = A, F, C

Dequeue = C

iterator - 4

inqueue = B

Dequeue = B

Adjacency of B = A, G, C

visited = A, F, C, B

Dequeue = B

iterator - 5

inqueue = D

Dequeue = D

Adjacency of D = F, J, E, C

visited = A, F, C, B, D

Dequeue = D

iterator - 6

inqueue = J

Dequeue = J

Adjacency of J = D, E, K

visited = A, F, C, B, D, J

Dequeue = J

iterator - 7

inqueue = E

Dequeue = E

Adjacency of E = C, D, G, J, K

visited = A, F, C, B, D, J, E

Dequeue = E



Q.No.		4/9							TOTAL
E		5							
M									



Q.No.

iterator - 8

inqueue = G

Adjacency of G = B, C, E, K,

Dequeue = G

visited = A, f, C, B, D, J, E, G

Dequeue = G

iterator - 9

inqueue = K

Adjacency of K = G, E, J

Dequeue = K

visited "K"

remaining is already visited.

Dequeue = K

as all the parts are visited and print the result

So (A) → (F) → (C) → (B) → (D) → (J) → (E) → (G) → (K)

the full printed DFS after applying algorithm  
step by step  
that is the final output.



Q.No.	2/15					TOTAL
E	2					2
M						



S. R. Q.No.

Q.3 C

Q.3 C

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

Symbol	stack	post fix
A		A
*	*	A
(	*(	A
B	*(	AB
*	**	AB
(	*(	AB
C	**	ABC
/	**	ABC
(	*/	ABC
D	*/	ABCD
*	*/	ABCD
E	*/	ABCDE
)	/*	ABCDE*
-	-	ABCDE*(
F	-	ABCDE*(F
)	-)	ABCDE*(F*
)	-))	ABCDE*(F*+)
+	-+	ABCDE*(F*+)
G	-+	ABCDE*(F*+G

posifex<sup>2</sup> - ABCDE\*(/)\*\*FG-+



Q.No.	5/1)						TOTAL
E	2						2
M							



E./Q.No.

(0.5)

a

=&gt;

25, 83, 4, 2, 75, 16, 45, 5, 99, 1

Firstly sort the array in ascending order  
without ascending order we could not find  
any algorithm.

0 1 2 3 4 5 6 7 8 9  
arr = [1, 2, 4, 5, 16, 25, 45, 75, 83, 99]

So as we don't have any

Search key in question so we can  
assume any key from the following array

Search key = 75

we took 75 as search key.

Step 1 = initialize

~~mid = 0~~

low = 0

high = 9

and for finding mid the formula is

~~mid =~~  $\frac{low + high}{2}$

2

Step 2 - iteration - 1

$mid = (0 + 9) / 2 = 4$

$arr[mid] = 16$

16 is less than 75  $\rightarrow$  search right half only

update low =  $mid + 1 = 5$



E	Q.No.						TOTAL
M							

S. E. Q. No.

Iteration - 2

$$\text{mid} = (5+9) // 2 = 7$$

$$\text{arr}[\text{mid}] = 75$$

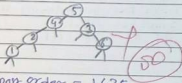
75 ~~75~~ Search ~~an~~ ~~array~~ ~~array~~.~~upside~~

∴ Search key = 75 array[7] = 75

8- found the element at

index = 7.

Q.4/b)



post order = 1, 2, 6, 4, 3, 5



R. Q.No.

Q.2

b

Singly linked list and circular linked list  
 is used store data in allocation by  
 node format in bsa it's help for search  
 and sort the data.

and save time, without lengthy process  
 and also manage the memory allocation  
 management.

It's helpful for user's to manage the  
 data in the linked list format  
 in bsa we have 3 types of  
 linked list.

although somewhere linked list do same  
 work, but the work flow work style  
 of every linked list is different.

we can see the difference between  
 singly and circular linked list.

Aspect	singly linked list	circular linked list
insertion	in singly linked	insertion of node
of Node	list insertion of	is difficult as
	node is easy	node can add
	cause there is only	in both forward
	forward moving	and previous
		side.



Q.No.	2767						TOTAL
E	2						2
M							



7. B./Q.No.

<input type="checkbox"/>	Aspect creation of Node	Singly linked list creation of node is also easy Because only one side forward of linked list we can create	circular compare to singly creation of node cause we have to lookup both side of the linked list.
	time consuming	singly linked list is less time consumed than circular linked list	compare to singly linked list. consume more time.
⑦	memory allocation	easy memory allocation than circular linked list	at this side memory allo- cation is hard because of prev and next node.
	using method	easy to use because of singly linked list only move to the forward side	hard to use because of both side can move previous and forward.
1	Application	queue, booking, etc.	navigation, map, music player.



Q.No.	9/12						TOTAL
E							0
M							



1. Q. / Q.No.

Q5

b

Hash function in Data Structure and algorithms stands for, in hash table we can manage the data and value to the index at any table.

Hashing table is table called hash table.

where we can add data and remove or perform operation as we need.

with the help of hashin as we know if we want to add or remove data at any table or index value we have to do a managing temporary or give iterator.

traverse through every node and then after finding the node we can insert the data, or remove.

with the help of hash table we can mention directly index position and directly at this position we can add remove data

without wasting time.



Q.No.								TOTAL
E								
M								

I. Z. Q.No.

Let say

ex. 25, 15, 5 - index = 5

So assume three element are  
trying to insert in the index position  
of = 5 five.

① 25 → element  
mod → index = 5

② 15 → element  
mod → index = 5  
collision - index = 5

③ 5 → element  
mod → index = 5  
collision → index = 5

Now here because of three element  
is trying to occur in same index  
position.

So here collision is occurring  
For managing the collision

We have chain system or block chain  
system.

but the best method is chaining  
method this can manage  
combined the element at the  
one place and chaining them.

Q.No.

like

[25 → 45 → 5 → 7]

and now after chaining the elements they can be stored in

[25 → 31 → 45 → 5]

now we can store this as an index position of 5.

that's the hashing help to manage.

Q.3  
d-

a queue is used for store data in a formative manner's style.

Queue use FIFO [first in first out] environment.

queue has various application and operation to perform on data or storage management.

Linear :-

manages data in linear format line by line.

systematically so no outages occurs happens.

linear queue is like :

real life example :- Booking theater ticket



Q.No.		24						TOTAL
E		2						2
M								

S. R. Q.No.

for movies the one who came first in queue will be served first.

Operations:-

Linear:- insert data or delete data at the-by-the method

insert:- insert data into queue from the manner First Method

delete:- delete data from queue from it's following method.

peek:- Find the element as if need any particular position

is empty:- print the result and return the element from queue

Circular:- insert and find data from both side rear side and front side.

this can manage from both side.

Applications:- network management, operating system, database management system etc.

S.I.Q.No.

Q 2

C1

1. In between of the list

Step-1 start

Step-2 -

check if the linked list is empty or not  $Head == null$

if empty

print "list is empty"

Step-3 create a new node. and assign to the head node  $new\ node = Head\ node.$

Step-4 create a new node for adding between in the list

$current.next.next = node.new$

now traverse the current loop  
on the finding position

Step-5 reach at the between of list  
now insert the element at this position

Step-6 exit



Q.No.		26							TOTAL
E									0
M									



S. R./Q.No.

1) At the end of the list

Step-1 Start

Step-2 check if the linked list is empty or not.

if list is empty

print "List is empty"

Step-3 assign a new node to the head  
new.node == Head.node.

Step-4 now create a temporary iterator  
for traversing

$i = \text{current} \rightarrow \text{next} \rightarrow \text{next} = \text{null}$

add the element

Step-5. now traverse till temp and  
once reach the position insert the  
element.





Q.No.								TOTAL
E								
M								



E. Q.No.

Q.7

b

String manipulation using arrays for finding the element or changing the element or data set at position managing string manipulation.

In array format array can store data in binary ascending format with memory location, and

from array we can perform various operations, like.

In array forming, inserting, deleting and printing the array elements we have many more operations like this in ppa.

and there's all gone through the array list for this operation. Such data we have the string manipulation method in ppa structure algorithms.

From array we can manipulate the string easily while attempting any operation at the character

string manipulation can help to perform operation non hexah. While it's going to work.



Q.No.		1/6						TOTAL
E								0
M								

Q.No.

we can create the string and manipulate them as we need or user want to do while need in operation.

in data structure and algorithms array list can provide multiple work style for storing the elements and allocation of memory.

and for such type we have perform various operation in array list for that kind of stuff we can take help from strings

that can manage everything to manipulation of strings, in array list for DS, and it's give the work standard way.

instead of hard to use and waiting too many time to manage the operation that's why string manipulation is one of the most important function in array list.



Andhra Pradesh State University

Q.No.							TOTAL
E							
M							



19

W. ID.No.

2021

N-

S



BPPU-20124

Q.No.								TOTAL
E								
M								

Savitribi Phule Pratishthan

S. R. IQ.No.



E M	Q.No.						TOTAL



SPPU- 21/ 24

E. IQ.No.



Q.No.							TOTAL
E							
M							



S. K. IQ.No.



9781433103344

23

U. I. Q. No.

[illegible]



E	M	Q.No.						TOTAL



S. K. / Q.No.

Rough work. pre - Root Left Right  
in Right Root Left  
post L Right Root

in-order - 4, 2, 5, 3, 6

pre-order - 2, 2, 4, 5, 3, 6

2, 2, 4 (5) N 3, 6

 $A * (B * (C / D * E))$ 

$$\frac{0+9}{2}$$

$$\frac{9}{41}$$

$$5+9 \frac{14}{27}$$

1, 2, 4, 5, 3, 6



425 (1) 36

5, 2, 2, 1, 3, 6

1, 2, 4, 5, 3, 6

1, 6, 3, 5