

# Indian Institute of Technology, Madras - Centre for Continuing Education

## Notations :

- 1.Options shown in **green** color and with ✓ icon are correct.
- 2.Options shown in **red** color and with ✗ icon are incorrect.

**Question Paper Name :**

IIT M FOUNDATION DIPLOMA ENDTERM  
QPD1 07 Aug 2022

**Subject Name :**

2022 Aug: IIT M FOUNDATION DIPLOMA  
ENDTERM QPD1

**Creation Date :**

2022-08-03 15:40:29

**Duration :**

90

**Total Marks :**

1121

**Display Marks:**

Yes

**Share Answer Key With Delivery Engine :**

Yes

**Actual Answer Key :**

Yes

**Calculator :**

Scientific

**Magnifying Glass Required? :**

No

**Ruler Required? :**

No

**Eraser Required? :**

No

**Scratch Pad Required? :**

No

**Rough Sketch/Notepad Required? :**

No

**Protractor Required? :**

No

**Show Watermark on Console? :**

Yes

**Highlighter :**

No

**Auto Save on Console?**

Yes

**Change Font Color :**

No

<b>Change Background Color :</b>	No
<b>Change Theme :</b>	No
<b>Help Button :</b>	No
<b>Show Reports :</b>	No
<b>Show Progress Bar :</b>	No

## **Group I**

<b>Group Number :</b>	1
<b>Group Id :</b>	6406538844
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	90
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	1121
<b>Is this Group for Examiner? :</b>	No
<b>Examiner permission :</b>	Cant View
<b>Show Progress Bar? :</b>	No
<b>Revisit allowed for group Instructions? :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Minimum Instruction Time :</b>	0
<b>Group Time In :</b>	Minutes
<b>Navigate To Group Summary From Last Question? :</b>	No
<b>Disable Submit Button During Assessment? :</b>	No

## **Sem1 Eng1**

<b>Section Id :</b>	64065322443
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<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	27
<b>Number of Questions to be attempted :</b>	27
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352539
<b>Question Shuffling Allowed :</b>	No

**Question Number : 1 Question Id : 640653360214 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 1: ENGLISH 1"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**

**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406531193199. ✓ Yes

6406531193200. ✗ No

<b>Sub-Section Number :</b>	2
<b>Sub-Section Id :</b>	64065352540
<b>Question Shuffling Allowed :</b>	No

**Question Id : 640653360215 Question Type : COMPREHENSION Sub Question Shuffling  
Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A  
Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (2 to 11)**

Question Label : Comprehension

Read the following passage and answer the given subquestions that follow:

It was in the times of Wajid Ali Shah. Lucknow was drowned in sensuality. The big and small, the rich and the poor – all were sunk in it. Some were engrossed in dance and music; some just revelled in the drowsiness induced by opium. Love of pleasure dominated every aspect of life. In administration, in literature, in social life, in arts and crafts, in business and industry, in cuisine and custom – sensuality ruled everywhere. The state officials were absorbed in fun and pleasure, poets in descriptions of love and separation, artisans in *zari* and *chikan* work, businessmen in dealings in surma, perfumes and cosmetics. All were drowned in sensual pleasures. No one knew what was happening around the world. Quail fights were on. Rings were being readied for partridge fights. Somewhere the game of *chausar* was being played, with its attendant shouts on the winning throw. Elsewhere a pitched chessboard battle was on. From the king to the pauper – all were engrossed in these pleasures. So much so, that if beggars received money in alms, they preferred to spend it on opium or its extract rather than bread. ‘Playing games like chess or cards or ganjifa sharpens the mind, improves mental faculties and helps in solving complex problems.’ Such arguments were being forcefully advanced. (People subscribing to this thesis can be found even today.) So if Mirza Sajjad Ali and Mir Roshan Ali spent most of their time sharpening their wits, how could any thoughtful person take exception. Both of them were hereditary Jagirdars, free from the worries of a livelihood; they enjoyed their good food without having to work at all. What else could they do? ~

*Chess Players* - Premchand

**Sub questions**

**Question Number : 2 Question Id : 640653360216 Question Type : MCQ Is Question  
Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction  
Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What can be identified during the reign of Wajid Ali Shah?

**Options :**

6406531193201. ✓ Lucknow was in decadence.

6406531193202. ✗ Lucknow was in mismanagement.

6406531193203. ✗ Lucknow was facing the threat of invasion.

6406531193204. ✗ People were dissatisfied under the rule of Wajid Ali Shah.

**Question Number : 3 Question Id : 640653360217 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

An appropriate substitute for the word *sensuality* would be \_\_\_\_\_.

**Options :**

6406531193205. ✓ Erotic

6406531193206. ✗ Sensible

6406531193207. ✗ Sentimental

6406531193208. ✗ Celebratory

**Question Number : 4 Question Id : 640653360218 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The bird referred here is \_\_\_\_\_.

**Options :**

6406531193209. ✗ Quail

6406531193210. ✗ Partridge

6406531193211. ✗ Peacock

6406531193212. ✓ Both Quail and Partridge

**Question Number : 5 Question Id : 640653360219 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

'People subscribing to this thesis can be found even today.' What is the thesis referred to here?

**Options :**

6406531193213. ✘ Bird fights are good.

6406531193214. ✓ Playing chess or cards sharpens one's mind.

6406531193215. ✘ Leisure enhances one's creativity.

6406531193216. ✘ None of these.

**Question Number : 6 Question Id : 640653360220 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose an appropriate substitute for the word *revel*.

**Options :**

6406531193217. ✓ Celebrate

6406531193218. ✘ Criticise

6406531193219. ✘ Oppose

6406531193220. ✘ Play

**Question Number : 7 Question Id : 640653360221 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

'Love of music dominated every aspect of Lucknow's life.' This statement is \_\_\_\_\_ as per the

text.

**Options :**

6406531193221. ✘ TRUE

6406531193222. ✓ FALSE

**Question Number : 8 Question Id : 640653360222 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

*Beggars in Lucknow spent their money on opium rather than on food.* This statement is \_\_\_\_\_ as per the text.

**Options :**

6406531193223. ✓ TRUE

6406531193224. ✘ FALSE

**Question Number : 9 Question Id : 640653360223 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What were Mirza Sajjad Ali and Mir Roshan Ali doing in Lucknow?

**Options :**

6406531193225. ✘ They were warriors.

6406531193226. ✘ They were businessmen.

6406531193227. ✓ They were playing chess.

**Question Number : 10 Question Id : 640653360224 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose an appropriate substitute for the word *engross*.

**Options :**

6406531193228. ✓ Engage

6406531193229. ✗ Compile

6406531193230. ✗ Both Engage and Compile

6406531193231. ✗ None of these

**Question Number : 11 Question Id : 640653360225 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The poets in Lucknow were \_\_\_\_\_.

**Options :**

6406531193232. ✗ Writing pleasure songs

6406531193233. ✓ Writing poems of love and separation

6406531193234. ✗ Writing about the King

6406531193235. ✗ Writing about the God

**Question Id : 640653360226 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (12 to 21)**

Question Label : Comprehension

Listen to the audio sample and answer the given subquestions.



885\_640653\_0\_1984128\_hs1001fdane1s1q11mq.mp3

**Sub questions**

**Question Number : 12 Question Id : 640653360227 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statements is TRUE?

**Options :**

6406531193236. ✓ Neptune has 14 moons.

6406531193237. ✓ At least one of Neptune's moons requires 29 years to travel around it once.

6406531193238. ✗ Triton is Neptune's 7<sup>th</sup> largest moon.

6406531193239. ✗ Neptune only has one moon – Triton – the others are asteroids.

**Question Number : 13 Question Id : 640653360228 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Triton is the biggest moon among all of Neptune's moons. True or false?

**Options :**

6406531193240. ✓ TRUE

6406531193241. ✗ FALSE

**Question Number : 14 Question Id : 640653360229 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

"Also, Triton is one of only four objects in the solar system that we know \_\_\_\_\_ geologically active." Fill the blank, and justify your answer

**Options :**

6406531193242. ✓ Is, because the subject of the sentence is the singular "Triton"

6406531193243. ✘ Are, because the subject of the sentences is “four objects” – which is in the plural

6406531193244. ✘ Is, because we do not know if the other three objects are geologically active yet

6406531193245. ✘ Are, because we know there are four objects that are geologically active

**Question Number : 15 Question Id : 640653360230 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The surface area of Triton is bigger than that of \_\_\_\_\_.

**Options :**

6406531193246. ✘ Australia

6406531193247. ✘ Russia

6406531193248. ✓ Australia and Russia together

6406531193249. ✘ Russia and North America

**Question Number : 16 Question Id : 640653360231 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

How does Triton orbit Neptune?

**Options :**

6406531193250. ✘ In the same direction of Neptune's rotation

6406531193251. ✓ Against the direction of Neptune's rotation

6406531193252. ✘ In the double system, outside Neptune's orbit

6406531193253. ✘ Against the rotation of the other moons of Neptune

**Question Number : 17 Question Id : 640653360232 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following words is not similar to the word "catapult"?

**Options :**

6406531193254. ✘ Sling

6406531193255. ✘ Shoot

6406531193256. ✘ Propel

6406531193257. ✓ Screech

**Question Number : 18 Question Id : 640653360233 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following words can be synonyms of the word "ground"?

**Options :**

6406531193258. ✓ Crushed

6406531193259. ✘ Practical

6406531193260. ✘ None of these

**Question Number : 19 Question Id : 640653360234 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following is true about Triton's history before Neptune?

**Options :**

6406531193261. ✓ That it may have been a dwarf planet

6406531193262. ✘ That it was an asteroid

6406531193263. ✓ That it was previously part of a double system

6406531193264. ✗ That it was part of another galaxy

**Question Number : 20 Question Id : 640653360235 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which among the following, according to experts, could be the future possibilities for Triton?

**Options :**

6406531193265. ✓ Triton may eventually crash into Neptune.

6406531193266. ✓ Triton may be ground by Neptune's gravity into a huge ring system.

6406531193267. ✗ Triton will escape the orbits of Neptune, and go into space.

6406531193268. ✗ Triton will move back into the double system, and leave Neptune's orbit.

**Question Number : 21 Question Id : 640653360236 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following sentences is grammatically correct?

**Options :**

6406531193269. ✓ Triton was probably a dwarf planet that was forced into submission by Neptune, when the solar system was younger and more chaotic.

6406531193270. ✗ Triton was probably a dwarf planet forced into submission by Neptune, when the solar system was much younger and much chaotic.

6406531193271. ✗ Triton was probably a dwarf planet forced into submission by Neptune, when the solar system was much young and more chaotic.

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352541

**Question Shuffling Allowed :** No

**Question Id : 640653360237 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (22 to 26)**

Question Label : Comprehension

Listen to the audio and answer the given subquestions



885\_640653\_0\_1984128\_hs1001fdane1s1q21mq.mp3

**Sub questions**

**Question Number : 22 Question Id : 640653360238 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

How many syllables are there in the word **destiny**?

**Options :**

6406531193272. ✘ 2

6406531193273. ✓ 3

6406531193274. ✘ 4

6406531193275. ✘ 5

**Question Number : 23 Question Id : 640653360239 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

How many syllables are there in the word **successful**?

**Options :**

6406531193276. ✘ 2

6406531193277. ✓ 3

6406531193278. ✘ 4

6406531193279. ✘ 5

**Question Number : 24 Question Id : 640653360240 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

How many syllables are there in the word **environment**?

**Options :**

6406531193280. ✘ 2

6406531193281. ✘ 3

6406531193282. ✓ 4

6406531193283. ✘ 5

**Question Number : 25 Question Id : 640653360241 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate pause for the following sentence as you hear in the audio.

If you think you cannot make a difference I would say you very well can make a difference, if you so desire

**Options :**

6406531193284. ✓ If you think you cannot make a difference/ I would say you very well can make a difference/ if you so desire//

6406531193285. ✘ If you/ think you cannot make a difference I would/ say you very well/ can make a difference if you so desire//

6406531193286. ✶ If you think you cannot make a difference/ I would/ say you very well can make a difference if you so desire//

**Question Number : 26 Question Id : 640653360242 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate pause for the following sentence as you hear in the audio.

It's your job to remove those myths and to get things done

**Options :**

6406531193287. ✶ It's your job to remove/ those myths and to get things done//

6406531193288. ✶ It's/ your job to remove/ those myths and to get/ things done//

6406531193289. ✓ It's/ your job/ to remove those myths/ and to get things done//

**Question Id : 640653360243 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (27 to 31)**

Question Label : Comprehension

Read the following telephone conversation and answer the given subquestions:

A: Hello! Brizbee Customer Services. (i) \_\_\_\_\_

B: Thank you! I want to speak in connection with the replacement of an item that I had ordered a few days ago. The order number is IM349520.

A: I'm afraid I can't hear you (ii) \_\_\_\_\_

B: Order number IM349520.

A: It is still not audible. (iii) \_\_\_\_\_

B: Alright. I'm (iv) \_\_\_\_\_ for now. I will call you back later.

**Sub questions**

**Question Number : 27 Question Id : 640653360244 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which among the following is an appropriate response for the blank (i)?

**Options :**

6406531193290. ✘ What's up?

6406531193291. ✘ Who are you?

6406531193292. ✓ How may I help you?

**Question Number : 28 Question Id : 640653360245 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which among the following is an appropriate response for the blank (ii)?

**Options :**

6406531193293. ✘ See you soon.

6406531193294. ✓ Hello! Your voice is breaking.

6406531193295. ✘ Goodbye! I will talk to you later.

**Question Number : 29 Question Id : 640653360246 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which among the following is an appropriate response for the blank (iii)?

**Options :**

6406531193296. ✓ Hello! Are you there?

6406531193297. ✘ What can I do for you today?

6406531193298. ✎ It was a great conversation. Let us connect regularly.

**Question Number : 30 Question Id : 640653360247 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which among the following is an appropriate response for the blank (iv)?

**Options :**

6406531193299. ✎ Hanging in

6406531193300. ✎ Hanging on

6406531193301. ✓ Hanging up

**Question Number : 31 Question Id : 640653360248 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which expression in telephonic conversation means to end a phone conversation by cutting the connection?

**Options :**

6406531193302. ✎ Hang in

6406531193303. ✓ Hang up

6406531193304. ✎ Hang on

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352542

**Question Shuffling Allowed :** No

**Question Id : 640653360249 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (32 to 36)**

Question Label : Comprehension

Match Column A with suitable options in Column B. (Hint: Word collocation)

Column A	Column B
1. Added	i.Fight
2. Sound	ii.Area
3. Tacit	iii.Advice
4. Endless	iv. Agreement
5. Built-up	v.Advantage

**Sub questions****Question Number : 32 Question Id : 640653360250 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction****Time : 0****Correct Marks : 2**

Question Label : Multiple Choice Question

Added

**Options :**

6406531193305. ✘ i

6406531193306. ✘ ii

6406531193307. ✘ iii

6406531193308. ✘ iv

6406531193309. ✓ v

**Question Number : 33 Question Id : 640653360251 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction****Time : 0****Correct Marks : 2**

Question Label : Multiple Choice Question

Sound

**Options :**

6406531193310. ✘ i

6406531193311. ✘ ii

6406531193312. ✓ iii

6406531193313. ✘ iv

6406531193314. ✘ v

**Question Number : 34 Question Id : 640653360252 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Tacit

**Options :**

6406531193315. ✘ i

6406531193316. ✘ ii

6406531193317. ✘ iii

6406531193318. ✓ iv

6406531193319. ✘ v

**Question Number : 35 Question Id : 640653360253 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Endless

**Options :**

6406531193320. ✓ i

6406531193321. ✘ ii

6406531193322. ✘ iii

6406531193323. ✘ iv

6406531193324. ✘ v

**Question Number : 36 Question Id : 640653360254 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Built-up

**Options :**

6406531193325. ✘ i

6406531193326. ✓ ii

6406531193327. ✘ iii

6406531193328. ✘ iv

6406531193329. ✘ v

**Question Id : 640653360275 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (37 to 41)**

Question Label : Comprehension

Fill in the blanks with the right options.

1) \_\_\_, the house had appeared enormous. 2) \_\_\_, beside the new grey buildings towering above it like unfriendly giants, it seemed a miserable shack. The old Naga tree 3) \_\_\_\_\_ its dry branches towards eternity, covering the roof with sickly yellow leaves. A funereal crow 4) \_\_\_\_\_ croaking on a wire. It flew away as I approached. 5) \_\_\_\_\_ shadows stared.

Based on the above data, answer the given subquestions.

**Sub questions**

**Question Number : 37 Question Id : 640653360276 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate option for blank (1).

**Options :**

6406531193396. ✘ Now

6406531193397. ✓ Once

6406531193398. ✘ Stretched

6406531193399. ✘ Perched

6406531193400. ✘ Furtive

**Question Number : 38 Question Id : 640653360277 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate option for blank (2).

**Options :**

6406531193401. ✓ Now

6406531193402. ✘ Once

6406531193403. ✘ Stretched

6406531193404. ✘ Perched

6406531193405. ✘ Furtive

**Question Number : 39 Question Id : 640653360278 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate option for blank (3).

**Options :**

6406531193406. ✘ Now

6406531193407. ✘ Once

6406531193408. ✓ Stretched

6406531193409. ✘ Perched

6406531193410. ✘ Furtive

**Question Number : 40 Question Id : 640653360279 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate option for blank (4).

**Options :**

6406531193411. ✘ Now

6406531193412. ✘ Once

6406531193413. ✘ Stretched

6406531193414. ✓ Perched

6406531193415. ✘ Furtive

**Question Number : 41 Question Id : 640653360280 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate option for blank (5).

**Options :**

6406531193416. ✘ Now

6406531193417. ✘ Once

6406531193418. ✘ Stretched

6406531193419. ✘ Perched

6406531193420. ✓ Furtive

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352543

**Question Shuffling Allowed :** Yes

**Question Number : 42 Question Id : 640653360255 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The word 'erode' is \_\_\_\_\_.

**Options :**

6406531193330. ✘ Trisyllabic

6406531193331. ✘ Polysyllabic

6406531193332. ✓ Disyllabic

**Question Number : 43 Question Id : 640653360256 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The word 'revenue' has \_\_\_ syllables.

**Options :**

6406531193333. ✘ 1

6406531193334. ✘ 2

6406531193335. ✓ 3

**Question Number : 44 Question Id : 640653360257 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

'The company projects the estimate spending at 75,000\$ for this year.'

Choose the appropriate stress for the usage of the word 'project' in the sentence.

**Options :**

640653119336. ❌ PROject

640653119337. ✓ proJECT

**Question Number : 45 Question Id : 640653360258 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following has an aspirated stop?

**Options :**

640653119338. ❌ Stem

640653119339. ❌ Test

6406531193340. ❌ Imply

6406531193341. ✓ Both Test and imply

**Question Number : 46 Question Id : 640653360259 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Birds \_\_\_\_\_ in the sky.

**Options :**

6406531193342. ✘ Flies

6406531193343. ✓ Fly

**Question Number : 47 Question Id : 640653360260 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

*Payasam is one of the most favourite delicacy of Tamil Nadu.* Spot the error in this sentence.

**Options :**

6406531193344. ✘ Is

6406531193345. ✓ Delicacy

**Question Number : 48 Question Id : 640653360261 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Apple \_\_\_\_\_ a new set of gadgets.

**Options :**

6406531193346. ✓ Has launched

6406531193347. ✘ Have launched

**Question Number : 49 Question Id : 640653360262 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Context: Teacher to students in the classroom.

"You should attend the three-hour lecture tomorrow".

**Options :**

6406531193348. ✓ Command

6406531193349. ✗ Request

**Question Number : 50 Question Id : 640653360263 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

"I can't believe Raksha told the management about Rashi's plans of eventually quitting the company – I didn't think she was someone who would \_\_\_\_\_."

**Options :**

6406531193350. ✗ Sneak on someone

6406531193351. ✓ Sell someone out

6406531193352. ✗ Cheat on someone

6406531193353. ✗ Hurl abuses on someone

**Question Number : 51 Question Id : 640653360265 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Consider the following sentences:

(1) I sleep.

(2) I work out every day.

(3) I love mangoes.

Which of the above sentences has an explicit object?

**Options :**

6406531193358. ✘ All three

6406531193359. ✘ (1) only

6406531193360. ✘ (1) and (2)

6406531193361. ✓ (3) only

**Question Number : 52 Question Id : 640653360266 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

In the sentence '*Shyam goes to college*', the tense and agreement is in the word \_\_\_\_\_.

**Options :**

6406531193362. ✘ College

6406531193363. ✘ Shyam

6406531193364. ✓ Goes

6406531193365. ✘ To college

**Question Number : 53 Question Id : 640653360267 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

'*They cook dinner together*' is a grammatically correct sentence where there is subject-verb agreement.

**Options :**

6406531193366. ✓ TRUE

6406531193367. ✘ FALSE

**Question Number : 54 Question Id : 640653360268 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

In the words '*mountaineer*', '*disassemble*', and '*souvenir*', the stressed syllable is the \_\_\_\_.

**Options :**

6406531193368. ✘ First

6406531193369. ✘ Second

6406531193370. ✓ Third

6406531193371. ✘ In different places in each word

**Question Number : 55 Question Id : 640653360269 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The word '*affiliate*' is stressed on \_\_\_\_\_. .

**Options :**

6406531193372. ✘ 'Liate'

6406531193373. ✘ 'Af'

6406531193374. ✘ 'Fil'

6406531193375. ✓ 'Fi'

**Question Number : 56 Question Id : 640653360270 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identity the stressed syllable in the following word:

*Procedure*

**Options :**

6406531193376. ✘ First syllable

6406531193377. ✓ Second syllable

6406531193378. ✘ Third syllable

6406531193379. ✘ No stress

**Question Number : 57 Question Id : 640653360271 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Choose from the options the word with correctly marked stress:

*Biological*

**Options :**

6406531193380. ✘ B'i'ological

6406531193381. ✘ 'Biological

6406531193382. ✘ Biologi'cal

6406531193383. ✓ Bio'logical

**Question Number : 58 Question Id : 640653360272 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Jane is \_\_\_\_\_ than Anne.

**Options :**

6406531193384. ✘ Tall

6406531193385. ✓ Taller

6406531193386. ✘ More taller

6406531193387. ✘ the tallest

**Question Number : 59 Question Id : 640653360273 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

*The reporters asked insightful questions during the interview. The word insightful qualifies \_\_\_\_\_.*

**Options :**

6406531193388. ✘ Interview

6406531193389. ✘ Reporters

6406531193390. ✓ Questions

6406531193391. ✘ None of these

**Question Number : 60 Question Id : 640653360274 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the subject in the following sentence.

*"The bicycle had been left in the rain."*

**Options :**

6406531193392. ✓ The bicycle

6406531193393. ✘ Rain

6406531193394. ✘ Left in the rain

6406531193395. ✘ Had been left in the rain

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352544

**Question Shuffling Allowed :** Yes

**Question Number : 61 Question Id : 640653360264 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

What does "apple of one's eye" mean?

**Options :**

6406531193354. ✓ A cherished and favoured person

6406531193355. ✓ A thing or person which someone loves above all others

6406531193356. ✖ A memory of something that makes one nostalgic

6406531193357. ✖ A feeling of helplessness

## Sem1 Stats1

<b>Section Id :</b>	64065322444
<b>Section Number :</b>	2
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	13
<b>Number of Questions to be attempted :</b>	13
<b>Section Marks :</b>	40
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352545
<b>Question Shuffling Allowed :</b>	No

**Question Number : 62 Question Id : 640653360281 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 1/DIRECT ENTRY DIPLOMA : STATISTICS FOR DATA SCIENCE 1"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531193421. ✓ Yes

6406531193422. ✗ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352546

**Question Shuffling Allowed :** Yes

**Question Number : 63 Question Id : 640653360282 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

An urn contains 10 white balls and 3 black balls. Four balls are drawn from the urn without replacement. Let a random variable  $X$  be defined as the number of white balls drawn, what are the possible values  $X$  can take?

**Options :**

6406531193423. ✓ 1, 2, 3, 4

6406531193424. ✗ 1, 2, ..., 10

6406531193425. ✗ 0, 1, 2, 3, 4

6406531193426. ✗ 0, 1, 2, ..., 10

**Question Number : 64 Question Id : 640653360298 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

A fair coin is tossed three times. If  $X$  denote the number of heads followed immediately by a tail, then what is the expected value of  $X$ ?

**Options :**

6406531193454. ❌  $\frac{7}{8}$

6406531193455. ❌  $\frac{3}{8}$

6406531193456. ❌  $\frac{4}{8}$

6406531193457. ✓  $\frac{5}{8}$

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352547

**Question Shuffling Allowed :** Yes

**Question Number :** 65 **Question Id :** 640653360287 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

Question Label : Short Answer Question

A student of B.Sc. Online Degree ran out of time while taking a quiz-exam and plans to guess on last 5 questions. Each question has 4 possible choices, one of which is correct. If the random variable  $X$  represents the number of questions answered correctly, among the last 5 questions, then find the  $\text{Var}(X)$ . (Enter the answer correct to two decimal places)

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.91 to 0.97

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352548

**Question Shuffling Allowed :** Yes

**Question Number :** 66 **Question Id :** 640653360288 **Question Type :** MSQ **Is Question**

**Mandatory :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

Question Label : Multiple Select Question

Which of the following options is/are incorrect for a variable having ratio scale of measurement?

**Options :**

6406531193434. ✓ Difference between the values of a variable can not be evaluated.

6406531193435. ✗ Order of the data is meaningful.

6406531193436. ✗ Multiplication and division of values of a variable is possible.

6406531193437. ✓ There is no absolute zero for a variable.

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352549

**Question Shuffling Allowed :** Yes

**Question Number :** 67 **Question Id :** 640653360289 **Question Type :** MCQ **Is Question**

**Mandatory :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 3

Question Label : Multiple Choice Question

If a random variable  $X$  is exponentially distributed with parameter  $\lambda$  and  $P(X \leq 1) = P(X > 1)$ , then what is the value of  $Var(X)$ ?

**Options :**6406531193438. ✘  $\ln 2$ 6406531193439. ✘  $(\ln 2)^2$ 6406531193440. ✘  $\frac{1}{\ln 2}$ 6406531193441. ✓  $\frac{1}{(\ln 2)^2}$ **Question Number : 68 Question Id : 640653360297 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 3**

Question Label : Multiple Choice Question

What is the Interquartile range (IQR) of the dataset 42, 51, 62, 47, 38, 50, 54, 43?

**Options :**

6406531193450. ✘ 4.5

6406531193451. ✘ 42.5

6406531193452. ✘ 52.5

6406531193453. ✓ 10

**Question Number : 69 Question Id : 640653360299 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 3**

Question Label : Multiple Choice Question

An analyst did a survey to know about annual incomes of recent graduates of two different universities and the results are given in Table Q.1.

Age group (in years)	University A	University B
Less than \$20,000	40	20
\$20,000 to 40,000	54	36
More than \$40,000	76	24

Table Q.1

If a randomly selected graduate earns more than \$40, 000, then what is the probability that he/she is from University B?

**Options :**

6406531193458. ✓  $\frac{24}{100}$

6406531193459. ✗  $\frac{24}{80}$

6406531193460. ✗  $\frac{24}{250}$

6406531193461. ✗  $\frac{76}{170}$

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352550

**Question Shuffling Allowed :** Yes

**Question Number : 70 Question Id : 640653360286 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label :** Short Answer Question

Six men and five women apply for a position of administrative in a company and two of the applicants are selected for the interview. If the random variables  $X$  and  $Y$  denote the number of male and number of female in the interview pool respectively, then calculate the value of  $E(X + Y)$ .

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

2

**Question Number :** 71 **Question Id :** 640653360296 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 4

Question Label : Short Answer Question

Six letter words (with or without meaning) are made using the letters of the word 'SACHIN'. If all the formed words are now arranged in ascending order, then find the serial number at which the word 'SACHIN' will appear.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

601

**Sub-Section Number :** 7

**Sub-Section Id :** 64065352551

**Question Shuffling Allowed :** No

**Question Id :** 640653360283 **Question Type :** COMPREHENSION **Sub Question Shuffling**

**Allowed :** No **Group Comprehension Questions :** No **Calculator :** None **Response Time :** N.A

**Think Time :** N.A **Minimum Instruction Time :** 0

**Question Numbers :** (72 to 73)

Question Label : Comprehension

Probability mass function of a random variable  $X$  is given as

$$P(X = x) = \begin{cases} kx & x = 1, 2, 3, 4 \\ 0 & \text{otherwise} \end{cases}$$

Based on the given information, answer the subquestions.

**Sub questions**

**Question Number : 72 Question Id : 640653360284 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Find the value of  $k$ .

(Enter the answer correct to one decimal place)

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

0.1

**Question Number : 73 Question Id : 640653360285 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

What is the value  
of  $P(X \leq 3 | X > 3)$ ?

**Options :**

6406531193428. ✓ 0

6406531193429. ✘ 1

6406531193430. ✘  $\frac{7}{10}$ 6406531193431. ✘  $\frac{6}{10}$ **Question Id : 640653360290 Question Type : COMPREHENSION Sub Question Shuffling****Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A****Think Time : N.A Minimum Instruction Time : 0****Question Numbers : (74 to 75)**

Question Label : Comprehension

To participate in a game of prediction of runs scored by a team in a cricket match, one needs to pay an entry fee of 10 rupee. If the net gain is uniformly distributed between [-10,10] rupee. Then based on the given information answer the subquestions.

**Sub questions****Question Number : 74 Question Id : 640653360291 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 3**

Question Label : Multiple Choice Question

What is the probability that the absolute value of net gain for a person participating in the game will be less than 2 rupees?

**Options :**6406531193442. ✓  $\frac{1}{5}$

6406531193443. ✘  $\frac{3}{5}$

6406531193444. ✘  $\frac{2}{5}$

6406531193445. ✘  $\frac{4}{5}$

**Question Number : 75 Question Id : 640653360292 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

What is the probability that a person participating in this game will have a net gain of 0 rupee?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

0

**Question Id : 640653360293 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (76 to 77)**

Question Label : Comprehension

The ratio of boys to girls at IIT Madras is 1.5 : 1. If a group of 6 students is randomly selected, then based on the given information, answer the subquestions.

**Sub questions**

**Question Number : 76 Question Id : 640653360294 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

What is the probability that there will be at least one girl in the selected group of 6 students?  
(Enter the answer correct to two decimal places)

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

0.91 to 0.99

**Question Number : 77 Question Id : 640653360295 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

What is the probability that there will be exactly 3 girls in the group given that there is at least one girl in the selected group of 6 students? (Enter the answer correct to two decimal places)

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

0.25 to 0.33

## Sem2 Eng2

Section Id :	64065322445
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	35
Number of Questions to be attempted :	35
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	64065352552
Question Shuffling Allowed :	No

**Question Number : 78 Question Id : 640653360300 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 2: ENGLISH 2"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?  
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406531193462. ✓ Yes

6406531193463. ✗ No

**Sub-Section Number :**

**2**

**Sub-Section Id :**

64065352553

**Question Shuffling Allowed :**

No

**Question Id : 640653360301 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (79 to 88)**

Question Label : Comprehension

**Read the following passage and answer the given subquestions**

On weekends, there is hardly any elbow room on Shangumugham Beach in Kerala's capital, Thiruvananthapuram. The smell of roasted corn hangs in the air, vendors mill around the walkway that leads to the beach, families lounge around a 35m-long sculpture of a reclining naked woman — 'Jalakanyaka' by Kanaayi Kunhiraman — that seems to strain against Kerala's conservative ethos yet has come to be one of the most recognised landmarks in the city. It is a familiar beach scene.

The only problem is — there isn't much beach left.

"Every year, I feel the sea is drawing closer," says Indu, a 44-year-old Thiruvananthapuram resident who has been coming to Shangumugham since her childhood. "The beach is so much smaller than it used to be. We would come here to get away from the congestion in the city, and now look how congested the beach has become."

She points to a row of fishing boats lined up along a part of the shore usually reserved for people. The boats were moved after vast tracts of the Shangumugham shoreline were eroded following Cyclone Ockhi, which hit the Kerala coast in December 2017. A nearby road, which runs parallel to the beach, bears testimony to Ockhi's fury — rope and traffic cones cordon off the traffic from long sections of the road that were washed away by the waves.

Even now, the waves are visibly rough — but they do not deter visitors. Beach-goers play a game of racing back to the shore before the water reaches their ankles, laughing aloud when the wave beats them to it. Others try to venture into the water, holding hands with their friends but lose balance when the wave pulls back into the sea. The whistles of coastguards pierce the air,

instructing the crowds to move away from the water. Families with toddlers are turned away from the water.

—Rihan Najib, *The Hindu Business Line*

### **Sub questions**

**Question Number : 79 Question Id : 640653360302 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following options best summarise the given article excerpt?

**Options :**

6406531193464. ❌ The article is about a beach in Kerala.

6406531193465. ✓ The article is about a beach in Thiruvananthapuram, which is diminishing.

6406531193466. ❌ The article is about the history of the people who lived along the coastline of Kerala's beaches.

6406531193467. ❌ The article is about a cyclone that hit Thiruvananthapuram in 2017.

**Question Number : 80 Question Id : 640653360303 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following sentences uses the phrase “*cordon off*” incorrectly?

**Options :**

6406531193468. ❌ The crime scene was cordoned off.

6406531193469. ❌ The police cordon off the street to prevent the mob from entering.

6406531193470. ✓ I cordoned off Valerie for being too rude.

6406531193471. ❌ Due to the ongoing construction, the children's playground has been cordoned off.

**Question Number : 81 Question Id : 640653360304 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following statements is true according to the passage?

**Options :**

6406531193472. ✘ The sculpture named Jalakanyaka goes against the conservative ethos of the state of Kerala.

6406531193473. ✘ The sculpture of the reclining woman is a famous landmark.

6406531193474. ✘ The sculpture of the reclining woman was made by Kanaayi Kunhiraman.

6406531193475. ✓ All of these

**Question Number : 82 Question Id : 640653360305 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

*"A nearby road, which runs parallel to the beach, bears testimony to Ockhi's fury — rope and traffic cones cordon off the traffic from long sections of the road that were washed away by the waves."* What does this sentence mean?

**Options :**

6406531193476. ✘ Cyclone Ockhi has completely destroyed the road running parallel to the beach.

6406531193477. ✘ The road running parallel to the beach is closed and no vehicles are allowed.

6406531193478. ✓ Long parts of the road that were washed away by Ockhi are restricted to vehicles and traffic.

6406531193479. ✘ The impact of Ockhi has forced the authorities to close off a road near the beach.

**Question Number : 83 Question Id : 640653360306 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Because of the rough waves, many beach-goers have stopped visiting the Shangumugham Beach.  
True or False?

**Options :**

6406531193480. ✘ TRUE

6406531193481. ✓ FALSE

**Question Number : 84 Question Id : 640653360307 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statements pertaining to the impact of Cyclone Ockhi on the beach is true?

**Options :**

6406531193482. ✓ The fishing boats on the shoreline were moved.

6406531193483. ✘ People were banned from using the boats.

6406531193484. ✓ Heavy erosion occurred on the shoreline.

6406531193485. ✘ People were no longer allowed to get into the water.

**Question Number : 85 Question Id : 640653360308 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

*"We would come here to get away from the congestion in the city, and now look how congested the beach has become."* Who is the speaker, and what are they talking about?

**Options :**

6406531193486. ✓ A resident of Thiruvananthapuram; about the sea coming closer and the crowd on the beach.

6406531193487. ✗ A resident of Thiruvananthapuram; about the impact of the cyclone and the crowd on the beach.

6406531193488. ✗ A coastguard; about the crowd on the beach.

6406531193489. ✗ A resident of Thiruvananthapuram, about adventurous youngsters.

**Question Number : 86 Question Id : 640653360309 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

"There is hardly any elbow room..." What does this mean?

**Options :**

6406531193490. ✓ There is almost no room

6406531193491. ✗ There is some room

6406531193492. ✗ There are a few rooms

6406531193493. ✗ There is not much scope

**Question Number : 87 Question Id : 640653360310 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What does the author talk about in the last paragraph? Choose the most appropriate option.

**Options :**

6406531193494. ✗ About the restrictions placed on visitors to the beach.

6406531193495. ✓ About the tension between adventurous visitors and the dangerous waves.

6406531193496. ✗ About the coastguards and their frustrations.

6406531193497. ✗ About toddlers who are not allowed into the water.

**Question Number : 88 Question Id : 640653360311 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following words is the opposite of "reclining"?

**Options :**

6406531193498. ✘ Resting

6406531193499. ✘ Lounging

6406531193500. ✓ Standing

6406531193501. ✘ Leaning

**Question Id : 640653360312 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (89 to 98)**

Question Label : Comprehension

Listen to the audio sample and answer the given subquestions:



885\_640653\_0\_1984128\_hs1002fdfne1s1a1.mp3

**Sub questions**

**Question Number : 89 Question Id : 640653360313 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What is the topic of the audio?

**Options :**

6406531193502. ✘ Uneducated young men in India

6406531193503. ✓ Higher Education in India

6406531193504. ✗ Primary Education in India

6406531193505. ✗ The Demography of India

**Question Number : 90 Question Id : 640653360314 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What is the meaning of "*demography*"?

**Options :**

6406531193506. ✗ The study of democracy

6406531193507. ✓ The composition of human population

6406531193508. ✗ The study of oration

6406531193509. ✗ The art of demagoguery

**Question Number : 91 Question Id : 640653360315 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

*"Half the Indian population is pretty much under 25."* What is the phrase "*pretty much*" used to convey?

**Options :**

6406531193510. ✗ To convey uncertainty

6406531193511. ✗ To convey surety

6406531193512. ✓ To convey approximation

6406531193513. ✗ To convey probability

**Question Number : 92 Question Id : 640653360316 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

*"The gap between the average age of the Indian person and of the Indian cabinet – I think we hold the world record for that."* What does Tharoor mean by this?

**Options :**

6406531193514. ✓ That the people in power in the country are much older than the average citizen of the country.

6406531193515. ✗ That the people ruling the country are incompetent.

6406531193516. ✗ That the people ruling the country are all older than 65.

6406531193517. ✗ That the average citizen's age is less than 20, while the average age of those in the Indian cabinet is 45.

**Question Number : 93 Question Id : 640653360317 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

*"We are an amazingly young country."* Why is this such an amazing and important fact for Tharoor?

**Options :**

6406531193518. ✗ Because the average age of China is inching towards 50, while India's average age is still at 25.

6406531193519. ✗ Because young college graduates in India do not generally take part in society.

6406531193520. ✓ Because India consists of a primarily young population, while other countries such as US, China and Japan are ageing rapidly.

6406531193521. ✗ Because all young people in India are college-educated.

**Question Number : 94 Question Id : 640653360318 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

"By 2020, we'll have 160 million people between 20-24 years old in India." Which organisation has worked out this calculation?

**Options :**

6406531193522. ✓ The International Labour Organisation

6406531193523. ✗ The Food and Agricultural Organisation

6406531193524. ✗ The United Nations Organisation

6406531193525. ✗ The International Court of Law

**Question Number : 95 Question Id : 640653360319 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What is the meaning of the phrase "work out" as it is used in this audio?

**Options :**

6406531193526. ✗ Exercise

6406531193527. ✗ Plan or devise something

6406531193528. ✓ Solve something by calculation

6406531193529. ✗ Have a good, desired result

**Question Number : 96 Question Id : 640653360320 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What is the meaning of the word "poised"?

**Options :**

6406531193530. ✗ Be unprepared

6406531193531. ✗ Be ferocious

6406531193532. ✓ Be ready and prepared

6406531193533. ✘ Pose and act

**Question Number : 97 Question Id : 640653360321 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statements is true, from what you can understand from the audio?

**Options :**

6406531193534. ✘ India has not progressed in the education realm since Independence.

6406531193535. ✓ India has expanded educational access, and has also strived for equity in education.

6406531193536. ✓ The quality or excellence of Indian higher educational institutions is lacking.

6406531193537. ✓ Because India is a young country, education of its young people becomes crucial to its development.

**Question Number : 98 Question Id : 640653360322 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What is the meaning of the phrase "*in a nutshell*"?

**Options :**

6406531193538. ✘ In spite of

6406531193539. ✘ In a single word

6406531193540. ✓ In the fewest possible words

6406531193541. ✘ In recognition of the lack of time

**Question Id : 640653360323 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

## Question Numbers : (99 to 108)

Question Label : Comprehension

Listen to the audio and answer the given subquestions:



885\_640653\_0\_1984128\_hs1002fdfne1s1a2.mp3

### Sub questions

**Question Number : 99 Question Id : 640653360324 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The word *sharpening* is stressed on the \_\_\_\_\_. .

#### Options :

6406531193542. ✓ First syllable

6406531193543. ✗ Second syllable

6406531193544. ✗ Third syllable

6406531193545. ✗ No syllables receive stress

**Question Number : 100 Question Id : 640653360325 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The word *achieve* is stressed on the \_\_\_\_\_. .

#### Options :

6406531193546. ✗ First syllable

6406531193547. ✓ Second syllable

6406531193548. ✗ Third syllable

6406531193549. ✗ Fourth syllable

**Question Number : 101 Question Id : 640653360326 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The word *interesting* is stressed on the \_\_\_\_\_.

**Options :**

6406531193550. ✓ First syllable

6406531193551. ✗ Second syllable

6406531193552. ✗ Third syllable

6406531193553. ✗ Fourth syllable

**Question Number : 102 Question Id : 640653360327 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Identify the number of syllables in the word *something*.

**Options :**

6406531193554. ✗ 1

6406531193555. ✓ 2

6406531193556. ✗ 3

6406531193557. ✗ 4

**Question Number : 103 Question Id : 640653360328 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Identify the number of syllables in the word *consecutively*.

**Options :**

6406531193558. ✘ 2

6406531193559. ✘ 3

6406531193560. ✓ 5

6406531193561. ✘ 6

**Question Number : 104 Question Id : 640653360329 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Identify the number of syllables in the word *aspirational*.

**Options :**

6406531193562. ✓ 5

6406531193563. ✘ 1

6406531193564. ✘ 2

6406531193565. ✘ 3

**Question Number : 105 Question Id : 640653360330 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The vowel in the word *says* is \_\_\_\_\_.

**Options :**

6406531193566. ✘ Short

6406531193567. ✓ Long

**Question Number : 106 Question Id : 640653360331 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The vowel in the second syllable of the word *scientists* is \_\_\_\_\_

**Options :**

6406531193568. ✓ Short

6406531193569. ✗ Long

**Question Number : 107 Question Id : 640653360332 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate pauses for the following passage as you hear in the audio:

It's worked dramatically I am already inspired to be addressing this really august intellectual gathering of people from Harvard a place that my mother thought I will never reach

**Options :**

6406531193570. ✗ //It's worked/ dramatically I am already inspired/ to be addressing this really august intellectual/ gathering of people/ from Harvard a place that my mother thought I will never/ reach//

6406531193571. ✗ //It's worked dramatically I am/ already inspired to be addressing this really august intellectual/ gathering of people from Harvard a/ place that my mother thought I/ will never reach//

6406531193572. ✓ //It's worked dramatically I am already inspired/ to be addressing/ this really august intellectual gathering of people from Harvard/ a place that my/ mother thought I will never reach//

6406531193573. ✗ //It's worked dramatically/ I am already inspired/ to be addressing this really august intellectual gathering/ of people from Harvard a place/ that my mother thought I will never reach//

**Question Number : 108 Question Id : 640653360333 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Choose the appropriate pauses for the following sentence as you hear in the audio:

But I am just an actor and I am going to just give you my dream shamelessly because that's the thing that I can do best

**Options :**

6406531193574. ❌ //But I am just// an actor and I am going to/ just give you/ my dream shamelessly because/ that's/ the thing that I/ can do best//

6406531193575. ✓ //But I am just an actor/ and I am going to just give you my dream shamelessly/ because/ that's the thing that I can do best//

6406531193576. ❌ //But/ I am just an actor and I/ am going to just give/ you my dream shamelessly because that's// the thing that I can do best//

6406531193577. ❌ //But I am just an actor and I am/ going to just give you/ my dream shamelessly because/ that's the thing that I can do best//

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352554

**Question Shuffling Allowed :** No

**Question Id : 640653360334 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (109 to 113)**

Question Label : Comprehension

**Read the following exchange between an employer and a candidate (potential employee) and answer the given subquestions:**

**Anisha:** Min, it's so nice to meet you in this setting. Thank you for taking the time to interview for the role of instructional designer at Bridgespan Education. I'm curious to hear more about your interest in the learning design industry. Why are you in this industry?

**Min:** Nice to meet you too! I'm so excited to be here today and thankful to you for having given me this opportunity. So, I've been a curriculum developer in various educational and corporate settings for the past 10 years. I'm very passionate about creating data-driven and aesthetically appealing learning solutions in different formats — be it instructor-led, e-learning, and blended learning. I applied for this role because I watched a news piece on how your CEO Mr. Raul brought in an indoor mapping tool that made hybrid work possible for employees working from anywhere — I thought that was quite amazing, and I'd be thrilled to meet him sometime.

**Anisha:** We can definitely have you meet him if things work out! It's great that you've been following our company for some time now. I'd like to follow up with another question — why this role and this company, in particular?

**Min:** Well, there are three reasons I applied for this role in particular — I'd love to dive into them if you'd like to know more about that!

**Anisha:** *nods enthusiastically*

**Min:** The first is that your company is known to put a strong emphasis on innovations and research, and I'd love to be a part of a company that wants to constantly develop their products. Secondly, I'm also huge on teamwork and collaboration, and given that the role and your company's values emphasise teamwork, it sounded like the perfect fit for me. Thirdly, the position matches my prior experience, but is also challenging enough that I know I'll have the space to pick up new skills and grow.

**Anisha:** That's great, thanks so much!

### **Sub questions**

**Question Number : 109 Question Id : 640653360335 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Why does Anisha use the phrase "*I'm curious to hear more about...*"

**Options :**

6406531193578. ✘ She uses it to intimidate Min.
6406531193579. ✓ She uses it to start off the conversation on an easy note.
6406531193580. ✘ She wants Min to introduce herself.
6406531193581. ✘ She wants to know if Min is lying on her CV.

**Question Number : 110 Question Id : 640653360336 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What is the meaning of the phrase "*I'm huge on...*"?

**Options :**

6406531193582. ✘ I'm talented at
6406531193583. ✘ I'm against
6406531193584. ✓ I prioritise and value
6406531193585. ✘ I dislike

**Question Number : 111 Question Id : 640653360337 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What does Min do as soon as she starts speaking?

**Options :**

6406531193586. ✘ She directly answers Alisha's question on her reason for being in the e-learning industry.
6406531193587. ✘ She falters as she tries to introduce herself.
6406531193588. ✘ She expresses disinterest at the role.
6406531193589. ✓ She expresses her enthusiasm for the interview and the company.

**Question Number : 112 Question Id : 640653360338 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following things about Bridgespan Education were a factor in her applying to the role?

**Options :**

6406531193590. ✓ Their focus on innovation and research.

6406531193591. ✓ Their work culture, which values teamwork.

6406531193592. ✗ Their status as a Fortune 500 company.

6406531193593. ✗ Their reputation as the best learning solutions start-up.

**Question Number : 113 Question Id : 640653360339 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What does Min mean when she says "*I'd love to dive right into them...*"?

**Options :**

6406531193594. ✗ She would like to talk about her CV.

6406531193595. ✓ She enthusiastically signals that she wants to go into more detail.

6406531193596. ✗ She wants to avoid talking about her reasons behind applying.

6406531193597. ✗ She wants to give a broad reason behind her application.

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352555

**Question Shuffling Allowed :** Yes

**Question Number : 114 Question Id : 640653360340 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

*Our motorcycle broke down; we came last.* This sentence is an example of \_\_\_\_\_.

**Options :**

6406531193598. ✓ Compound sentence

6406531193599. ✗ Simple sentence

6406531193600. ✗ Complicated sentence

6406531193601. ✗ Complex sentence

**Question Number : 115 Question Id : 640653360341 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the independent clause in the following sentence:

*Robert ran away because John yelled at him.*

**Options :**

6406531193602. ✓ Robert ran away

6406531193603. ✗ Because John yelled at him.

6406531193604. ✗ Robert ran away because John yelled at him.

6406531193605. ✗ No independent clause

**Question Number : 116 Question Id : 640653360342 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the adjectival clause in the following sentence.

*People whose cats shed need to vacuum often.*

**Options :**

6406531193606. ✘ Whose cats shed need to vacuum often

6406531193607. ✓ Whose cats shed

**Question Number : 117 Question Id : 640653360343 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the number of suffixes in the following sentence.

*It was a warm summer month: the flowers were blooming, the birds were singing, and the days seemed endless.*

**Options :**

6406531193608. ✘ 1

6406531193609. ✘ 3

6406531193610. ✘ 5

6406531193611. ✓ 7

**Question Number : 118 Question Id : 640653360344 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Context :At a job fair, an interviewer to an interviewee.

A question about her hobbies.

**Options :**

6406531193612. ✓ Do you mind sharing with us what your hobbies are?

6406531193613. ✘ If you could tell us what your hobbies are, we can understand what sort of an energy revolves around you as a person by calculating the weightage of what you consider as

worthy of your free time, and thereby see if you are a worthy candidate or not.

6406531193614. ✳ Tell me what your hobbies are. We don't have much time, so make it quick.

6406531193615. ✳ Do you think you can let us into the sacred space of your personal life and share with us what engages you in your free time? With this, we mean your hobbies, if you don't mind.

**Question Number : 119 Question Id : 640653360345 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Context :At a job fair, an interviewer to an interviewee.

About her professional qualifications.

**Options :**

6406531193616. ✳ I don't see any work experience here in your resume. Get out.

6406531193617. ✳ We were wondering if you could elaborate on the lack of work experience in your case, and were strikingly bothered. Could you please let us know if we should continue this interview?

6406531193618. ✓ It shows here that you do not have previous work experience in this field. Is this your first job? Would you mind elaborating?

6406531193619. ✳ None of these.

**Question Number : 120 Question Id : 640653360346 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Imagine that you are in a formal meeting with a client. In such a context, you are asking her whether she would like to review a file. From the options below, which would be the most appropriate way to ask this question?

**Options :**

6406531193620. ✘ Will you like to take a look at the file?  
6406531193621. ✘ You will like to take a look at the file?  
6406531193622. ✓ Would you like to have a look at this file?  
6406531193623. ✘ Do you want this file?

**Question Number : 121 Question Id : 640653360347 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

"Asoka was a great emperor." The interrogative form of this sentence is \_\_\_\_\_

**Options :**

6406531193624. ✘ Will Asoka be a great emperor?  
6406531193625. ✘ Did Asoka become a great emperor?  
6406531193626. ✘ Why is Asoka a great emperor?  
6406531193627. ✓ Was Asoka a great emperor?

**Question Number : 122 Question Id : 640653360348 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Convert the following sentence to active voice.

*The cup was broken by Sandip.*

**Options :**

6406531193628. ✘ The cup were broken by Sandip.  
6406531193629. ✘ Sandip is breaking the cups.  
6406531193630. ✓ Sandip broke the cup.  
6406531193631. ✘ Sandip will break the cup.

**Question Number : 123 Question Id : 640653360349 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

*He rejected their proposals despite of their wonderful marketing.* This sentence is grammatically correct.

**Options :**

6406531193632. ✘ TRUE

6406531193633. ✓ FALSE

**Question Number : 124 Question Id : 640653360350 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Fill in the blank with verbs that are in the present continuous tense.

"Raya \_\_\_\_ the dragon."

**Options :**

6406531193634. ✓ Is slaying

6406531193635. ✘ Slayed

6406531193636. ✘ Will slay

6406531193637. ✘ Will be slaying

**Question Number : 125 Question Id : 640653360351 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the verb tense and aspect of the sentence:

"Raveena's friends will be working tomorrow."

**Options :**

6406531193638. ✘ Simple present

6406531193639. ✘ Simple future

6406531193640. ✓ Future continuous

6406531193641. ✘ Future perfect

**Question Number : 126 Question Id : 640653360352 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the adverb in the following sentence.

*The lazy dog ran into a lovely wolf.*

**Options :**

6406531193642. ✘ Lazy

6406531193643. ✘ Lovely

6406531193644. ✘ A lovely wolf

6406531193645. ✓ This sentence does not have an adverb

**Question Number : 127 Question Id : 640653360353 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

"Before the storm, the city council failed to inform residents of the disaster. \_\_\_\_\_, the death toll was enormous."

**Options :**

6406531193646. ✓ Therefore

6406531193647. ✗ At the same time

6406531193648. ✗ Nevertheless

6406531193649. ✗ Because

**Question Number : 128 Question Id : 640653360354 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Many smokers believe that e-cigarettes can help them quit smoking. \_\_\_\_, scientific researches shows that e-cigarettes are more addictive and lethal than traditional cigarettes.

**Options :**

6406531193650. ✗ In addition

6406531193651. ✓ However

6406531193652. ✗ As a consequence

6406531193653. ✗ but

**Question Number : 129 Question Id : 640653360355 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

In the following sentence, fill in the blank with the most appropriate modal verb.

The junior employee told her boss: "I think we \_\_\_\_\_ confirm the hotel rooms now".

**Options :**

6406531193654. ✗ Would

6406531193655. ✗ Are

6406531193656. ✗ Will

6406531193657. ✓ Could

**Question Number : 130 Question Id : 640653360356 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

In the following sentence, fill in the blank with the most appropriate modal verb.

"They told me that if they had the power, they \_\_\_\_\_ have opposed the majority."

**Options :**

6406531193658. ❌ Can

6406531193659. ❌ Will

6406531193660. ❌ Could

6406531193661. ✓ Would

**Question Number : 131 Question Id : 640653360357 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the modal auxiliary in the following sentence.

*Rohit must play in the series decider.*

**Options :**

6406531193662. ❌ Play

6406531193663. ❌ In

6406531193664. ❌ Series

6406531193665. ✓ Must

**Question Number : 132 Question Id : 640653360358 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

"The tea was \_\_\_ hot while served." The appropriate degree adverb here is \_\_\_\_.

**Options :**

6406531193666. ✓ Very

6406531193667. ✗ Too

6406531193668. ✗ Both Very and Too

6406531193669. ✗ None of these

**Question Number : 133 Question Id : 640653360359 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify the adjective(s) in the following sentence.

*Siva had quite a bad day yesterday.*

**Options :**

6406531193670. ✗ Day

6406531193671. ✓ Bad

6406531193672. ✗ Yesterday

6406531193673. ✗ Quite

**Question Number : 134 Question Id : 640653360360 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

*He won the battle against the pesticide company in court.* The meaning of this sentence is \_\_\_\_.

**Options :**

6406531193674. ✘ He fought a war against the pesticide company

6406531193675. ✓ He won the case against the pesticide company

6406531193676. ✘ He fought a war at court

6406531193677. ✘ He defeated the pesticide company in a war

**Question Number : 135 Question Id : 640653360361 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

These people are so slow, \_\_\_\_\_?

**Options :**

6406531193678. ✘ Don't they

6406531193679. ✘ Didn't they

6406531193680. ✘ Isn't they

6406531193681. ✓ Aren't they

**Question Number : 136 Question Id : 640653360362 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

*"Our boss sent the document to the client by email."* In this sentence, identify the indirect object.

**Options :**

6406531193682. ✘ Sent

6406531193683. ✘ Our boss

6406531193684. ✘ The document

6406531193685. ✓ The client

**Question Number : 137 Question Id : 640653360363 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

For the direct question "*When does the registration begin?*", identify a possible embedded question from the options given below.

**Options :**

6406531193686. ❌ I'd like to know when does the registration begin.

6406531193687. ✓ I'd like to know when the registration begins.

6406531193688. ❌ I was wondering if the registration will begin.

6406531193689. ❌ I wanted to know when does the registration begin.

**Question Number : 138 Question Id : 640653360364 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

\_\_\_\_\_ they outrun you, they will be selected.

**Options :**

6406531193690. ✓ If

6406531193691. ❌ Whether

6406531193692. ❌ Either *if* or *whether* can be used

**Question Number : 139 Question Id : 640653360365 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

"*The engineer constructed this house.*" This sentence is in \_\_\_\_\_.

**Options :**

6406531193693. ✓ Active voice

6406531193694. ✘ Passive voice

**Question Number : 140 Question Id : 640653360366 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

'The town where my uncle lives uses only solar energy.' The relative clause here modifies the subject.

**Options :**

6406531193695. ✓ TRUE

6406531193696. ✘ FALSE

**Question Number : 141 Question Id : 640653360367 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Pick the odd one out.

*Presumably, biologically, honestly, apparently*

**Options :**

6406531193697. ✘ Presumably

6406531193698. ✓ Biologically

6406531193699. ✘ Honestly

6406531193700. ✘ Apparently

**Question Number : 142 Question Id : 640653360368 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Thomas drives a car. The negative of this sentence will be - "Thomas \_\_\_\_\_ drive a car."

**Options :**

6406531193701. ✓ Does not

6406531193702. ✗ Do not

6406531193703. ✗ Not

6406531193704. ✗ Is not

**Question Number : 143 Question Id : 640653360369 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

I've never met \_\_\_\_\_ as bright as her.

**Options :**

6406531193705. ✓ Anybody

6406531193706. ✗ Anything

6406531193707. ✗ Someone

6406531193708. ✗ Something

## Sem2 Maths2

**Section Id :** 64065322446

**Section Number :** 4

**Section type :** Online

**Mandatory or Optional :** Mandatory

**Number of Questions :** 15

**Number of Questions to be attempted :** 15

**Section Marks :** 50

**Display Number Panel :** Yes

**Group All Questions :** No

**Enable Mark as Answered Mark for Review and**

Yes

**Clear Response :**

**Maximum Instruction Time :**

0

**Sub-Section Number :**

1

**Sub-Section Id :**

64065352556

**Question Shuffling Allowed :**

No

**Question Number : 144 Question Id : 640653360370 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 2/DIRECT ENTRY DIPLOMA : MATHEMATICS FOR DATA SCIENCE 2"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531193709. ✓ Yes

6406531193710. ✗ No

**Sub-Section Number :**

2

**Sub-Section Id :**

64065352557

**Question Shuffling Allowed :**

No

**Question Id : 640653360371 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (145 to 146)**

Question Label : Comprehension

Consider a matrix  $A = \begin{bmatrix} a & b \\ b & a \end{bmatrix}$  and a function

$f : \mathbb{R}^2 \rightarrow \mathbb{R}$  such that  $f(a, b) = \det(A)$ .

Answer the given subquestions:

### Sub questions

**Question Number :** 145 **Question Id :** 640653360372 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

Find the number of critical points of the function  $f(a, b)$ .

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1

**Question Number :** 146 **Question Id :** 640653360373 **Question Type :** MSQ **Is Question**

**Mandatory :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Multiple Select Question

Which of the following options is/are true?

**Options :**

$A$  is not a symmetric matrix for all

6406531193712. ✘  $a, b \in \mathbb{R}$ .

6406531193713. ✓  $A^2$  is a symmetric matrix for all  $a, b \in \mathbb{R}$ .

6406531193714. ✓

If  $(\beta, \gamma)$  is a critical point of  $f(a, b)$ , then the matrix

$A = \begin{pmatrix} \beta & \gamma \\ \gamma & \beta \end{pmatrix}$  satisfies that  $A^2 = A$ .

If  $(\beta, \gamma)$  is a critical point of  $f(a, b)$ , then the matrix

$A = \begin{pmatrix} \beta & \gamma \\ \gamma & \beta \end{pmatrix}$  satisfies that  $\text{rank}(A) = 1$ .

6406531193715. \*

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352558

**Question Shuffling Allowed :** No

**Question Id : 640653360374 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (147 to 149)**

Question Label : Comprehension

Consider the matrix  $A = \begin{bmatrix} x & -2 & 0 \\ y & 3 & 2 \\ z & 1 & 3 \end{bmatrix}$ . Answer the given subquestions:

**Sub questions**

**Question Number : 147 Question Id : 640653360375 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Let  $T : \mathbb{R}^3 \rightarrow \mathbb{R}$  be a linear transformation such that  $T(x, y, z) = \det(A)$ . Then which of following options is/are true?

**Options :**

6406531193716. \*  $T$  is injective.

6406531193717. ✓  $T$  is surjective.

6406531193718. ✘  $T$  is an isomorphism.

6406531193719. ✘  $T$  is neither injective nor surjective.

**Question Number : 148 Question Id : 640653360376 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Let  $W$  be a subspace of  $\mathbb{R}^3$  (with inner product as the dot product) such that  $W = \{(x, y, z) \mid \det(A) = 0\}$ . If  $\beta$  is an orthonormal basis of  $W$ , then find the cardinality of the set  $\beta$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

2

**Question Number : 149 Question Id : 640653360377 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Let  $T : \mathbb{R}^3 \rightarrow \mathbb{R}$  be a linear transformation such that  $T(x, y, z) = \det(A)$ . Let  $B$  be the matrix representation of  $T$  with respect to some ordered bases for the domain and the codomain. Let  $m \times n$  be the order of the matrix  $B$  and  $r$  be the nullity of  $B$ . Then find the value of  $m + n + r$ .

Then find the value of  $m + n + r$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

6

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352559

**Question Shuffling Allowed :** No

**Question Id :** 640653360378 **Question Type :** COMPREHENSION **Sub Question Shuffling Allowed :** No **Group Comprehension Questions :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Question Numbers :** (150 to 152)

Question Label : Comprehension

Let  $T: \mathbb{R}^3 \rightarrow \mathbb{R}^3$  be the linear transformation defined by  
 $T(x, y, z) = (x + 3z, x - y + 2z, x + 2y + 5z).$

Based on the above data, answer the given subquestions.

**Sub questions**

**Question Number :** 150 **Question Id :** 640653360379 **Question Type :** SA **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

Question Label : Short Answer Question

Find the nullity of  $T$ .

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1

**Question Number : 151 Question Id : 640653360380 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Find the rank of  $T$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

2

**Question Number : 152 Question Id : 640653360381 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Choose the correct option(s).

**Options :**

{(-6, -2, 2)} is a basis

6406531193724. ✓ for the kernel of  $T$ .

{(-3, 0, 1), (0, 1, -1)} is a

6406531193725. ✗ basis for the kernel of  $T$ .

There exists an isomorphism

6406531193726. ✓ from the range of  $T$  to  $\mathbb{R}^2$ .

There exists an isomorphism

6406531193727. ✗ from the range of  $T$  to  $\mathbb{R}$ .

<b>Sub-Section Number :</b>	5
<b>Sub-Section Id :</b>	64065352560
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 153 Question Id : 640653360382 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

An inner product on a vector space  $V$  is a function  $\langle \cdot, \cdot \rangle : V \times V \rightarrow \mathbb{R}$  satisfying the following conditions:

Condition 1:  $\langle v, v \rangle > 0$  for all  $v \in V \setminus \{0\}$ ;  $\langle v, v \rangle = 0$  if and only if  $v = 0$ .

Condition 2:  $\langle v_1 + v_2, v_3 \rangle = \langle v_1, v_3 \rangle + \langle v_2, v_3 \rangle$ .

Condition 3:  $\langle v_1, v_2 \rangle = \langle v_2, v_1 \rangle$ .

Condition 4:  $\langle cv_1, v_2 \rangle = c\langle v_1, v_2 \rangle$

Let  $V = \mathbb{R}^2$  and consider the function defined as:

$$\begin{aligned}\langle \cdot, \cdot \rangle : V \times V &\rightarrow \mathbb{R} \\ \langle (x_1, x_2), (y_1, y_2) \rangle &= x_1 y_1 - 2x_2 y_2.\end{aligned}$$

Which of the following are satisfied by the above function?

**Options :**

6406531193728. ✘ Condition 1 is satisfied.

6406531193729. ✓ Condition 2 is satisfied.

6406531193730. ✓ Condition 3 is satisfied.

6406531193731. ✓ Condition 4 is satisfied.

**Question Number : 154 Question Id : 640653360389 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following options is/are true?

$$f(x, y) = \frac{x^3y}{x^6 + y^2}$$

**Options :**

6406531193737. ❌  $\lim_{(x,y) \rightarrow (0,0)} f(x, y) = 0$

6406531193738. ❌  $\lim_{(x,y) \rightarrow (0,0)} f(x, y) = \frac{1}{2}$

6406531193739. ❌  $\lim_{(x,y) \rightarrow (0,0)} f(x, y) = 1$

6406531193740. ✓  $\lim_{(x,y) \rightarrow (0,0)} f(x, y)$  does not exist.

6406531193741. ✓  $f(x, y)$  is not continuous at  $(0, 0)$

6406531193742. ❌  $f(x, y)$  is continuous at  $(0, 0)$ .

**Question Number : 155 Question Id : 640653360401 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Let  $A = \begin{pmatrix} 1 & 2 & -1 \\ 2 & 1 & 1 \\ -1 & 1 & -2 \end{pmatrix}$  and  $B = \begin{pmatrix} -1 & 3 & 2 \\ 0 & 2 & 2 \\ -1 & 1 & 0 \end{pmatrix}$ . Choose the correct option(s).

**Options :**

6406531193764. ❌  $A$  is not equivalent to  $B$ .

6406531193765. ✓  $A$  is equivalent to  $B$ .

6406531193766. ❌  $A$  is similar to  $B$ .

6406531193767. ✓ A is not similar to B.

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352561

**Question Shuffling Allowed :** Yes

**Question Number : 156 Question Id : 640653360383 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

If  $a$ ,  $b$  and  $c$  are three positive numbers which satisfy the following two properties:

- The sum of  $a$ ,  $b$  and  $c$  is 12.
- The sum of the squares of  $a$ ,  $b$ ,  $c$  is minimum among the sum of squares of any such positive numbers which sum up to 12.

Find the value of  $a - 2b + c$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

-6

**Sub-Section Number :** 7

**Sub-Section Id :** 64065352562

**Question Shuffling Allowed :** No

**Question Id : 640653360384 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (157 to 160)**

Question Label : Comprehension

Consider the function  $f(x, y) = 2x^3 + 6xy^2 - 3y^3 - 150x$ .

Answer the given subquestions:

### **Sub questions**

**Question Number : 157 Question Id : 640653360385 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Find the number of local maxima using the Hessian test.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

1

**Question Number : 158 Question Id : 640653360386 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Find the number of local minima using the Hessian test.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

1

**Question Number : 159 Question Id : 640653360387 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Find the number of saddle points using the Hessian test.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

2

**Question Number : 160 Question Id : 640653360388 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Find the number of points at which the Hessian test is indeterminate.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

0

**Question Id : 640653360402 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (161 to 163)**

**Question Label : Comprehension**

The price of a product ( $f(x, y)$ ) depends on the price ( $x$ ) of the raw materials and the price ( $y$ ) of transportation of the product to the market according to

$$f : \mathbb{R}^2 \rightarrow \mathbb{R}$$

$$f(x, y) = \begin{cases} x^3 - xy^2 & \text{if } x \neq y \\ x + y & \text{otherwise} \end{cases}$$

Answer the given subquestions:

**Sub questions**

**Question Number : 161 Question Id : 640653360403 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

What will be the ratio of the price of the raw materials and the price of the transportation ( $x : y$ ) when  $y > x$ , if the rate of change of the price of the product with respect to the price of the raw materials is 0? (In this context  $x$  and  $y$  both are always positive).

**Options :**

6406531193768. ✘ 1 : 1

6406531193769. ✘ 1 : 3

6406531193770. ✓ 1 :  $\sqrt{3}$

The ratio cannot be determined using the given information.

6406531193771. ✘

**Question Number : 162 Question Id : 640653360404 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following statements are true?

**Options :**

6406531193772. ✘  $f(x, y)$  is a linear function in its domain.

6406531193773. ✓  $f(cx, cy) = c^3 f(x, y)$  for any real number  $c$ , if  $x \neq y$ .

6406531193774. ✓  $f(x, y)$  is continuous at  $(0, 0)$ .

If the price of raw material and transportation of the product approaches 6406531193775. ✓ 3 and 2 respectively, then the price of the product approaches 15.

If the price of raw material and transportation of the product approaches 6406531193776. ✘ 3 and 2 respectively, then the price of the product approaches 5.

**Question Number : 163 Question Id : 640653360405 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

If the rate of change of the price of the product along the direction of the vector  $(1, 1)$  is  $\frac{1}{\sqrt{2}}[ka^2 + lab + mb^2]$ , when the price of raw material is  $a$  and the price of transportation of the product to the market is  $b$  (where  $a \neq b$ ), then find the value of  $k - l + m$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

4

**Sub-Section Number :** 8

**Sub-Section Id :** 64065352563

**Question Shuffling Allowed :** Yes

**Question Number :** 164 **Question Id :** 640653360390 **Question Type :** MCQ **Is Question**

**Mandatory :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

Question Label : Multiple Choice Question

Which of the following is true for the function:

$$f(x, y) = \frac{x^3 - y^3}{x - y}$$

**Options :**

6406531193743. ❌  $\lim_{(x,y) \rightarrow (1,-1)} f(x, y) = 0$

6406531193744. ✓  $\lim_{(x,y) \rightarrow (1,-1)} f(x, y) = 1$

6406531193745. ❌  $\lim_{(x,y) \rightarrow (1,-1)} f(x, y) = 2$

6406531193746. ❌  $\lim_{(x,y) \rightarrow (1,-1)} f(x, y)$  does not exist.

**Question Number :** 165 **Question Id :** 640653360391 **Question Type :** MCQ **Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the function  $f(x, y) = x^3 + y^3$ . Which of the following affine subspaces represent the tangent line at the point  $(1, 1)$  in the direction of the vector  $(1, 1)$  ?

**Options :**

$$\{(x, y, z) \in \mathbb{R}^3 \mid \frac{x-1}{\frac{1}{\sqrt{2}}} = \frac{y-1}{\frac{1}{\sqrt{2}}}\}$$

6406531193747. ❌

$$\{(x, y, z) \in \mathbb{R}^3 \mid \frac{x-1}{\frac{1}{\sqrt{2}}} = \frac{y-1}{\frac{1}{\sqrt{2}}} = \frac{z-2}{\frac{1}{\sqrt{2}}}\}$$

6406531193748. ❌

$$\{(x, y, z) \in \mathbb{R}^3 \mid \frac{x-1}{\frac{1}{\sqrt{2}}} = \frac{y-1}{\frac{1}{\sqrt{2}}} = \frac{z-2}{\frac{6}{\sqrt{2}}}\}$$

6406531193749. ✓

$$\{(x, y, z) \in \mathbb{R}^3 \mid \frac{x}{\frac{1}{\sqrt{2}}} = \frac{y}{\frac{1}{\sqrt{2}}} = \frac{z}{\frac{6}{\sqrt{2}}}\}$$

6406531193750. ❌

**Question Number : 166 Question Id : 640653360397 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following option is/are true?

**Options :**

If  $L$  and  $L'$  are two affine subspaces of  $\mathbb{R}^3$ , then  $L \cap L'$  is an affine subspace of  $\mathbb{R}^3$ .

6406531193755. ✓

Let  $Ax = b$  be a system of linear equations with infinitely many solutions and let  $P$  be an invertible matrix such that product  $PA$  is well defined.

6406531193756. ❌ Then the system of linear equations  $PAx = b$  has infinitely many solutions.

Let  $A$  and  $B$  be two matrices such that reduced echelon form of  $A$  and  $B$  are the same. Then  $\text{rank}(A) > \text{rank}(B)$ .  
6406531193757. \*

Let  $Ax = 0$  be a system of linear equations such that reduced echelon form of the coefficient matrix  $A$  is the identity matrix.  
6406531193758. \* Then the system  $Ax = 0$  has infinitely many solutions.

**Sub-Section Number :** 9

**Sub-Section Id :** 64065352564

**Question Shuffling Allowed :** No

**Question Id : 640653360392 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (167 to 170)**

Question Label : Comprehension

Consider  $V = \mathbb{R}^3$  with inner product as the dot product and  $W = \{(x, y, z) \mid x = y, z = 0\}$  is a subspace of  $V$ .

Let  $P_W: V \rightarrow W$  be a projection on  $W$ .

Answer the given subquestions:

**Sub questions**

**Question Number : 167 Question Id : 640653360393 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Find the dimension of the image space  $P_W$ .

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1

**Question Number : 168 Question Id : 640653360394 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label : Short Answer Question**

Find the dimension of the null space of  $P_W$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

2

**Question Number : 169 Question Id : 640653360395 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

**Question Label : Short Answer Question**

If  $v \in W$  is such that  $\|v\| = 3$ ,

then find  $\|P_W(v)\|$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

3

**Question Number : 170 Question Id : 640653360396 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Let  $A$  be the matrix representation of  $P_W$  with respect to some orthonormal bases  $\beta$  and  $\gamma$  for  $V$  and  $W$ , respectively. Then find the dimension of the null space  $A^2$ .

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

2

**Sub-Section Number :** 10

**Sub-Section Id :** 64065352565

**Question Shuffling Allowed :** No

**Question Id : 640653360398 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (171 to 172)**

Question Label : Comprehension

Let  $A = \begin{pmatrix} 2 & 0 & 2 \\ -2 & 1 & 2 \\ 1 & 4 & -1 \end{pmatrix}$ . Let  $B$  be the matrix whose rows are obtained by normalizing the rows of  $A$ .

Answer the given subquestions about matrix  $B$ .

**Sub questions**

**Question Number : 171 Question Id : 640653360399 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Choose the correct options about the matrix  $B$ .

**Options :**

$A$  and  $B$  have the same reduced row

6406531193759. ✓ echelon form.

6406531193760. ✗  $BB^T x = 0$  has infinitely many solutions.

6406531193761. ✓  $B$  is an orthogonal matrix.

6406531193762. ✗ The columns of  $B$  are not orthonormal.

**Question Number : 172 Question Id : 640653360400 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

What is  $z_2 + 2z_3$ , where  $z = (z_1, z_2, z_3)^T$  is  
the solution of  $Bz = (2, -2, 1)^T$  obtained  
using the Cramer's rule?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

0

<b>Section Id :</b>	64065322447
<b>Section Number :</b>	5
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	12
<b>Number of Questions to be attempted :</b>	12
<b>Section Marks :</b>	40
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352566
<b>Question Shuffling Allowed :</b>	No

**Question Number : 173 Question Id : 640653360406 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL: SEMESTER 2/DIRECT ENTRY DIPLOMA : STATISTICS FOR DATA SCIENCE 2"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531193778. ✓ Yes

6406531193779. ✗ No

**Question Number : 174 Question Id : 640653360407 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 0**

**Question Label : Multiple Choice Question**

Discrete random variables:

Distribution	PMF ( $f_X(k)$ )	CDF ( $F_X(x)$ )	$E[X]$	$\text{Var}(X)$
Uniform( $A$ ) $A = \{a, a+1, \dots, b\}$	$\frac{1}{n}, \quad x = k$ $n = b - a + 1$ $k = a, a+1, \dots, b$	$\begin{cases} 0 & x < 0 \\ \frac{k-a+1}{n} & k \leq x < k+1 \\ & k = a, a+1, \dots, b-1, b \\ 1 & x \geq n \end{cases}$	$\frac{a+b}{2}$	$\frac{n^2-1}{12}$
Bernoulli( $p$ )	$\begin{cases} p & x = 1 \\ 1-p & x = 0 \end{cases}$	$\begin{cases} 0 & x < 0 \\ 1-p & 0 \leq x < 1 \\ 1 & x \geq 1 \end{cases}$	$p$	$p(1-p)$
Binomial( $n, p$ )	${}^n C_k p^k (1-p)^{n-k}, \quad k = 0, 1, \dots, n$	$\begin{cases} 0 & x < 0 \\ \sum_{i=0}^k {}^n C_i p^i (1-p)^{n-i} & k \leq x < k+1 \\ & k = 0, 1, \dots, n \\ 1 & x \geq n \end{cases}$	$np$	$np(1-p)$
Geometric( $p$ )	$(1-p)^{k-1} p, \quad k = 1, \dots, \infty$	$\begin{cases} 0 & x < 0 \\ 1 - (1-p)^k & k \leq x < k+1 \\ & k = 1, \dots, \infty \end{cases}$	$\frac{1}{p}$	$\frac{1-p}{p^2}$
Poisson( $\lambda$ )	$\frac{e^{-\lambda} \lambda^k}{k!}, \quad k = 0, 1, \dots, \infty$	$\begin{cases} 0 & x < 0 \\ e^{-\lambda} \sum_{i=0}^k \frac{\lambda^i}{i!} & k \leq x < k+1 \\ & k = 0, 1, \dots, \infty \end{cases}$	$\lambda$	$\lambda$

Continuous random variables:

Distribution	PDF ( $f_X(k)$ )	CDF ( $F_X(x)$ )	$E[X]$	$\text{Var}(X)$
Uniform $[a, b]$	$\frac{1}{b-a}, a \leq x \leq b$	$\begin{cases} 0 & x \leq a \\ \frac{x-a}{b-a} & a < x < b \\ 1 & x \geq b \end{cases}$	$\frac{a+b}{2}$	$\frac{(b-a)^2}{12}$
Exp( $\lambda$ )	$\lambda e^{-\lambda x}, x > 0$	$\begin{cases} 0 & x \leq 0 \\ 1 - e^{-\lambda x} & x > 0 \end{cases}$	$\frac{1}{\lambda}$	$\frac{1}{\lambda^2}$
Normal( $\mu, \sigma^2$ )	$\frac{1}{\sigma\sqrt{2\pi}} \exp\left(\frac{-(x-\mu)^2}{2\sigma^2}\right),$ $-\infty < x < \infty$	No closed form	$\mu$	$\sigma^2$
Gamma( $\alpha, \beta$ )	$\frac{\beta^\alpha}{\Gamma(\alpha)} x^{\alpha-1} e^{-\beta x}, x > 0$		$\frac{\alpha}{\beta}$	$\frac{\alpha}{\beta^2}$
Beta( $\alpha, \beta$ )	$\frac{\Gamma(\alpha+\beta)}{\Gamma(\alpha)\Gamma(\beta)} x^{\alpha-1} (1-x)^{\beta-1}$ $0 < x < 1$		$\frac{\alpha}{\alpha+\beta}$	$\frac{\alpha\beta}{(\alpha+\beta)^2(\alpha+\beta+1)}$

1. **Markov's inequality:** Let  $X$  be a discrete random variable taking non-negative values with a finite mean  $\mu$ . Then,

$$P(X \geq c) \leq \frac{\mu}{c}$$

2. **Chebyshev's inequality:** Let  $X$  be a discrete random variable with a finite mean  $\mu$  and a finite variance  $\sigma^2$ . Then,

$$P(|X - \mu| \geq k\sigma) \leq \frac{1}{k^2}$$

3. **Weak Law of Large numbers:** Let  $X_1, X_2, \dots, X_n \sim \text{iid } X$  with  $E[X] = \mu, \text{Var}(X) = \sigma^2$ .

Define sample mean  $\bar{X} = \frac{X_1 + X_2 + \dots + X_n}{n}$ . Then,

$$P(|\bar{X} - \mu| > \delta) \leq \frac{\sigma^2}{n\delta^2}$$

4. **Using CLT to approximate probability:** Let  $X_1, X_2, \dots, X_n \sim \text{iid } X$  with  $E[X] = \mu, \text{Var}(X) = \sigma^2$ .

Define  $Y = X_1 + X_2 + \dots + X_n$ . Then,

$$\frac{Y - n\mu}{\sqrt{n}\sigma} \approx \text{Normal}(0, 1).$$

5. **Bias of an estimator:**  $\text{Bias}(\hat{\theta}, \theta) = E[\hat{\theta}] - \theta$ .

6. **Method of moments:** Sample moments,  $M_k(X_1, X_2, \dots, X_n) = \frac{1}{n} \sum_{i=1}^n X_i^k$

Procedure: For one parameter  $\theta$

- Sample moment:  $m_1$
- Distribution moment:  $E(X) = f(\theta)$
- Solve for  $\theta$  from  $f(\theta) = m_1$  in terms of  $m_1$ .
- $\hat{\theta}$ : replace  $m_1$  by  $M_1$  in the above solution.

7. **Likelihood of i.i.d. samples:** Likelihood of a sampling  $x_1, x_2, \dots, x_n$ , denoted

$$L(x_1, \dots, x_n) = \prod_{i=1}^n f_X(x_i; \theta_1, \theta_2, \dots)$$

8. **Maximum likelihood (ML) estimation:**

$$\theta_1^*, \theta_2^*, \dots = \arg \max_{\theta_1^*, \theta_2^*, \dots} \prod_{i=1}^n f_X(x_i; \theta_1, \theta_2, \dots)$$

9. **Bayesian estimation:** Let  $X_1, \dots, X_n \sim \text{i.i.d. } X$ , parameter  $\Theta$ .

Prior distribution of  $\Theta$ :  $\Theta \sim f_\Theta(\theta)$ .

Samples,  $S$ :  $(X_1 = x_1, \dots, X_n = x_n)$

Posterior:  $\Theta | (X_1 = x_1, \dots, X_n = x_n)$

Bayes' rule: Posterior  $\propto$  Prior  $\times$  Likelihood

Posterior density  $\propto f_\Theta(\theta) \times P(X_1 = x_1, \dots, X_n = x_n | \Theta = \theta)$

10. **Normal samples with unknown mean and known variance:**

$X_1, \dots, X_n \sim \text{i.i.d. Normal}(M, \sigma^2)$ .

Prior  $M \sim \text{Normal}(\mu_0, \sigma_0^2)$ .

Posterior mean:  $\hat{\mu} = \bar{X} \left( \frac{n\sigma_0^2}{n\sigma_0^2 + \sigma^2} \right) + \mu_0 \left( \frac{\sigma^2}{n\sigma_0^2 + \sigma^2} \right)$

## 11. Hypothesis Testing

- Test for mean

Case (1): When population variance  $\sigma^2$  is known ( $z$ -test)

Test	$H_0$	$H_A$	Test statistic	Rejection region
right-tailed	$\mu = \mu_0$	$\mu > \mu_0$	$T = \bar{X}$ $Z = \frac{\bar{X} - \mu_0}{\sigma/\sqrt{n}}$	$\bar{X} > c$
left-tailed	$\mu = \mu_0$	$\mu < \mu_0$	$T = \bar{X}$ $Z = \frac{\bar{X} - \mu_0}{\sigma/\sqrt{n}}$	$\bar{X} < c$
two-tailed	$\mu = \mu_0$	$\mu \neq \mu_0$	$T = \bar{X}$ $Z = \frac{\bar{X} - \mu_0}{\sigma/\sqrt{n}}$	$ \bar{X} - \mu_0  > c$

Case (2): When population variance  $\sigma^2$  is unknown ( $t$ -test)

Test	$H_0$	$H_A$	Test statistic	Rejection region
right-tailed	$\mu = \mu_0$	$\mu > \mu_0$	$T = \bar{X}$ $t_{n-1} = \frac{\bar{X} - \mu_0}{S/\sqrt{n}}$	$\bar{X} > c$
left-tailed	$\mu = \mu_0$	$\mu < \mu_0$	$T = \bar{X}$ $t_{n-1} = \frac{\bar{X} - \mu_0}{S/\sqrt{n}}$	$\bar{X} < c$
two-tailed	$\mu = \mu_0$	$\mu \neq \mu_0$	$T = \bar{X}$ $t_{n-1} = \frac{\bar{X} - \mu_0}{S/\sqrt{n}}$	$ \bar{X} - \mu_0  > c$

- $\chi^2$ -test for variance:

Test	$H_0$	$H_A$	Test statistic	Rejection region
right-tailed	$\sigma = \sigma_0$	$\sigma > \sigma_0$	$T = \frac{(n-1)S^2}{\sigma_0^2} \sim \chi_{n-1}^2$	$S^2 > c^2$
left-tailed	$\sigma = \sigma_0$	$\sigma < \sigma_0$	$T = \frac{(n-1)S^2}{\sigma_0^2} \sim \chi_{n-1}^2$	$S^2 < c^2$
two-tailed	$\sigma = \sigma_0$	$\sigma \neq \sigma_0$	$T = \frac{(n-1)S^2}{\sigma_0^2} \sim \chi_{n-1}^2$	$S^2 > c^2$ where $\frac{\alpha}{2} = P(S^2 > c^2)$ or $S^2 < c^2$ where $\frac{\alpha}{2} = P(S^2 < c^2)$

- Two samples  $z$ -test for means:

Test	$H_0$	$H_A$	Test statistic	Rejection region
right-tailed	$\mu_1 = \mu_2$	$\mu_1 > \mu_2$	$T = \bar{X} - \bar{Y}$ $\bar{X} - \bar{Y} \sim \text{Normal}\left(0, \frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}\right)$ if $H_0$ is true	$\bar{X} - \bar{Y} > c$
left-tailed	$\mu_1 = \mu_2$	$\mu_1 < \mu_2$	$T = \bar{Y} - \bar{X}$ $\bar{Y} - \bar{X} \sim \text{Normal}\left(0, \frac{\sigma_2^2}{n_2} + \frac{\sigma_1^2}{n_1}\right)$ if $H_0$ is true	$\bar{Y} - \bar{X} > c$
two-tailed	$\mu_1 = \mu_2$	$\mu_1 \neq \mu_2$	$T = \bar{X} - \bar{Y}$ $\bar{X} - \bar{Y} \sim \text{Normal}\left(0, \frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}\right)$ if $H_0$ is true	$ \bar{X} - \bar{Y}  > c$

- Two samples  $F$ -test for variances

Test	$H_0$	$H_A$	Test statistic	Rejection region
one-tailed	$\sigma_1 = \sigma_2$	$\sigma_1 > \sigma_2$	$T = \frac{S_1^2}{S_2^2} \sim F_{(n_1-1, n_2-1)}$	$\frac{S_1^2}{S_2^2} > 1 + c$
one-tailed	$\sigma_1 = \sigma_2$	$\sigma_1 < \sigma_2$	$T = \frac{S_1^2}{S_2^2} \sim F_{(n_1-1, n_2-1)}$	$\frac{S_1^2}{S_2^2} < 1 - c$
two-tailed	$\sigma_1 = \sigma_2$	$\sigma_1 \neq \sigma_2$	$T = \frac{S_1^2}{S_2^2} \sim F_{(n_1-1, n_2-1)}$	$\frac{S_1^2}{S_2^2} > 1 + c_R$ where $\frac{\alpha}{2} = P(T > 1 + c_R)$ or $\frac{S_1^2}{S_2^2} < 1 - c_L$ where $\frac{\alpha}{2} = P(T < 1 - c_L)$

Use the following values if required:

$F_Z(-2.33) = 0.01$
$F_Z(2.33) = 0.99$
$F_Z(-1.96) = 0.025$
$F_Z(1.64) = 0.95$
$F_Z(-1.75) = 0.04$
$F_Z(-1.095) = 0.13786$
$F_{\chi^2_{99}}^{-1}(0.05) = 77.046$
$F_{\chi^2_{99}}^{-1}(0.95) = 123.22$
$F_Z(1.095) = 0.86214$
$F_Z(-0.036) = 0.48405$
$F_Z(0.036) = 0.51595$
$F_Z(-1.64) = 0.05$
$F_Z(1.96) = 0.975$
$F_Z(-1.88) = 0.03$
$F_Z(-1.55) = 0.06057$

Table : Useful values

**Options :**

6406531193780. ✓ Useful Data has been mentioned above.

6406531193781. ❗ This data attachment is just for a reference & not for an evaluation.

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352567

**Question Shuffling Allowed :** Yes

**Question Number : 175 Question Id : 640653360415 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label : Multiple Choice Question**

Let  $X_1, X_2, \dots, X_n \sim \text{i.i.d. Uniform}[-a, a]$ , where  $a$  is unknown. An estimator  $\hat{a}$  for  $a$  is given as

$$\hat{a} = \frac{3}{n}(X_1^2 + X_2^2 + \dots + X_n^2)$$

Is  $\hat{a}$  an unbiased estimator of  $a$ ?

**Options :**

6406531193793. ❌ Yes

6406531193794. ✓ No

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352568

**Question Shuffling Allowed :** Yes

**Question Number : 176 Question Id : 640653360416 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label : Multiple Select Question**

Consider the null and alternative hypothesis  $H_0 : \mu = 0, H_A : \mu > 0$ . In which of the following cases can we reject the null hypothesis?

**Options :**

6406531193795. ✓  $P\text{-value} \leq \text{significance level } (\alpha)$ .

6406531193796. ❌  $P\text{-value} > \text{significance level } (\alpha)$ .

6406531193797. ✓ Test statistic ( $T$ ) > critical value ( $c$ ).

6406531193798. ❌ Test statistic ( $T$ ) < critical value ( $c$ ).

<b>Sub-Section Number :</b>	4
<b>Sub-Section Id :</b>	64065352569
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 177 Question Id : 640653360426 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

The standard deviation of the length of bolts manufactured by a machine was 1 mm. A new machine with a supposedly lesser standard deviation is installed. A random sample of 100 bolts from the new machine showed a standard deviation of 0.5 mm. Based on this data, what is your conclusion at a significance level of 0.05, on the standard deviation of length of bolts manufactured by the new machine? Choose the correct options from the following (Select all that apply):

**Options :**

6406531193812. ✓ Null hypothesis,  $H_0: \sigma = 1$

6406531193813. ✗ Null hypothesis,  $H_0: \sigma = 0.5$ .

6406531193814. ✗ Right tailed test is used.

6406531193815. ✓ Left tailed test is used.

6406531193816. ✗ Two tailed test is used.

6406531193817. ✗ F-test is used.

6406531193818. ✓  $\chi^2$ -test is used.

6406531193819. ✘ Test Statistic used is Sample mean.

6406531193820. ✓ Test Statistic used is Sample variance.

6406531193821. ✘ Test Statistic used is population variance.

6406531193822. ✘ Accept  $H_0$  at a significance level of 0.05.

6406531193823. ✓ Reject  $H_0$  at a significance level of 0.05.

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352570

**Question Shuffling Allowed :** Yes

**Question Number : 178 Question Id : 640653360417 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

The average life of a battery is 4 years, with a standard deviation of 1 year. Assuming that the lives of the batteries follow approximately a normal distribution, find the probability that the mean life of a random sample of 30 such batteries falls between 3.8 and 4.2 years. Enter your answer correct to two decimal places.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

0.70 to 0.74

**Sub-Section Number :** 6

**Sub-Section Id :**

64065352571

**Question Shuffling Allowed :**

No

**Question Id : 640653360408 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (179 to 180)**

Question Label : Comprehension

Let  $X_1, X_2, X_3 \sim f_{X_1 X_2 X_3}(t_1, t_2, t_3)$ . The joint PMF is given in the following table:

$t_1$	$t_2$	$t_3$	$f_{X_1 X_2 X_3}(t_1, t_2, t_3)$
0	1	0	1/4
0	2	1	1/4
0	1	1	1/4
1	1	0	1/4

Based on the above data, answer the given subquestions.

**Sub questions**

**Question Number : 179 Question Id : 640653360409 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Choose the correct option(s) from the following ( $T_X$  refers to the values taken by a random variable  $X$ ):

**Options :**

6406531193782. ❌  $T_{X_1} = T_{X_2} = T_{X_3} = \{0, 1, 2\}$ .

6406531193783. ✓  $T_{X_1} = \{0, 1\}, T_{X_2} = \{1, 2\}, T_{X_3} = \{0, 1\}$ .

6406531193784. ✓ Range of  $(X_1 \mid X_2 = 1)$  is  $\{0, 1\}$ .

6406531193785. ❖ Range of  $(X_2 \mid X_1 = 0, X_3 = 1)$  is  $\{1\}$ .

**Question Number : 180 Question Id : 640653360410 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Calculate  $P(X_1 = 0, X_2 = 1 \mid X_3 = 1)$ .

**Note:** Enter the answer correct to one decimal place.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

0.5

**Sub-Section Number :** 7

**Sub-Section Id :** 64065352572

**Question Shuffling Allowed :** No

**Question Id : 640653360411 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (181 to 183)**

Question Label : Comprehension

Let the random variables  $X$  and  $Y$  have the following joint PDF:

$$f_{XY}(x, y) = \begin{cases} 4xy, & 0 < x, y < 1 \\ 0, & \text{otherwise} \end{cases}$$

Based on the above data, answer the given subquestions.

### Sub questions

**Question Number : 181 Question Id : 640653360412 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Find the marginal distribution of  $Y$ .

**Options :**

$$f_Y(y) = \begin{cases} 2y, & 0 < y < 1 \\ 0, & \text{otherwise} \end{cases}$$

6406531193787. ✘

$$f_Y(y) = \begin{cases} 2x, & 0 < x < 1 \\ 0, & \text{otherwise} \end{cases}$$

6406531193788. ✘

$$f_Y(y) = \begin{cases} 2y, & 0 < y < 1 \\ 0, & \text{otherwise} \end{cases}$$

6406531193789. ✓

$$f_Y(y) = \begin{cases} 2x, & 0 < y < 1 \\ 0, & \text{otherwise} \end{cases}$$

6406531193790. ✘

**Question Number : 182 Question Id : 640653360413 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Compute  $E[Y]$ .

**Note:** Enter the answer correct to two decimal places.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.65 to 0.68

**Question Number :** 183 **Question Id :** 640653360414 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

Compute  $E[Y | X = 0.5]$ .

**Note:** Enter the answer correct to two decimal places.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.65 to 0.68

**Question Id :** 640653360427 **Question Type :** COMPREHENSION **Sub Question Shuffling**

**Allowed :** No **Group Comprehension Questions :** No **Calculator :** None **Response Time :** N.A

**Think Time :** N.A **Minimum Instruction Time :** 0

**Question Numbers :** (184 to 185)

Question Label : Comprehension

Suppose the number of deceased people in a week because of a deadly disease in a country has the Poisson( $\lambda$ ) distribution. A researcher wants to estimate  $\lambda$ . From studies in other countries, prior mean should be 3, and the prior standard deviation 1. He decides to use the Gamma( $a, \beta$ ) prior

that matches his prior mean and standard deviation. The number of deceased people recorded over the next 10 weeks are: 3, 5, 7, 0, 1, 7, 4, 9, 6, 4.

Based on the above data, answer the given subquestions.

### **Sub questions**

**Question Number : 184 Question Id : 640653360428 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Find the value of  $\alpha$  and  $\beta$ .

**Options :**

6406531193824. ❌  $\alpha = 3, \beta = 3$

6406531193825. ❌  $\alpha = 9, \beta = 9$

6406531193826. ❌  $\alpha = 3, \beta = 9$

6406531193827. ✓  $\alpha = 9, \beta = 3$

**Question Number : 185 Question Id : 640653360429 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

Find the posterior mean of  $\lambda$  for the given sample. Enter the answer correct to two decimal places.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

4.21 to 4.25

**Sub-Section Number :**

**Sub-Section Id :**

64065352573

**Question Shuffling Allowed :**

No

**Question Id : 640653360418 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (186 to 188)**

Question Label : Comprehension

The time (in minutes) required to repair electronic gadgets by an electrician is an exponential random variable with unknown parameter  $\lambda$ . Consider a sample (in minutes) 10, 11, 25, 1, 4, 5, 8, 35, 14, 15 from his previous repairing time.

Based on the above data, answer the given subquestions.

**Sub questions**

**Question Number : 186 Question Id : 640653360419 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Find the method of moments estimate of  $\lambda$  for the given sample. (Enter the answer correct to three decimal places.)

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

0.070 to 0.085

**Question Number : 187 Question Id : 640653360420 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label :** Short Answer Question

Find the maximum likelihood estimate of  $\lambda$  for the given sample. (Enter the answer correct to three decimal places.)

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.070 to 0.085

**Question Number : 188 Question Id : 640653360421 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label :** Short Answer Question

Using a Uniform[0,1] prior, find the posterior mean of the given sample. (Enter the answer correct to three decimal places)

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.080 to 0.090

**Question Id : 640653360422 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (189 to 191)**

Question Label : Comprehension

Suppose a principal states that the students studying in her school have an average IQ score equal to 98.5. A reporter suspects that the average may be lower, possibly 98 and took a sample of 100 random students from the school and observed the average IQ score to be 98.29. Assume the IQ scores of the students are normally distributed with standard deviation 1.2.

Based on the above data, answer the given subquestions.

### **Sub questions**

**Question Number : 189 Question Id : 640653360423 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Define null hypothesis and alternative hypothesis.

**Options :**

6406531193803. ❌  $H_0: \mu = 98.5, H_A: \mu \neq 98.5$

6406531193804. ❌  $H_0: \mu = 98.5, H_A: \mu > 98.5$

6406531193805. ✓  $H_0: \mu = 98.5, H_A: \mu < 98.5$

6406531193806. ❌  $H_0: \mu \neq 98.5, H_A: \mu = 98.5$

**Question Number : 190 Question Id : 640653360424 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Find the  $P$ -value. Enter the answer correct to two decimal places.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

0.04

**Question Number : 191 Question Id : 640653360425 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Choose the set of correct options.

**Options :**

6406531193808. ✓ Reject  $H_0$  at significance level  $\alpha = 0.05$ .

6406531193809. ✓ Accept  $H_0$  at significance level  $\alpha = 0.01$ .

6406531193810. ✗ Accept  $H_0$  at significance level  $\alpha = 0.05$ .

6406531193811. ✗ Reject  $H_0$  at significance level  $\alpha = 0.01$ .

**Sub-Section Number :** 9

**Sub-Section Id :** 64065352574

**Question Shuffling Allowed :** No

**Question Id : 640653360430 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

## **Question Numbers : (192 to 193)**

Question Label : Comprehension

Answer the given subquestions.

### **Sub questions**

**Question Number : 192 Question Id : 640653360431 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

Suppose  $X_1, X_2, \dots, X_{15}$  is an i.i.d sample from a distribution  $\text{Normal}(\mu_1, 4^2)$ . Suppose  $Y_1, Y_2, \dots, Y_{15}$  is an i.i.d sample from a distribution  $\text{Normal}(\mu_2, 3^2)$ . Let  $\bar{X}$  and  $\bar{Y}$  be 40 and 43, respectively. Suppose we want to check if the distribution means are different. Find the  $P$ - value of the test. Enter the answer correct to two decimal places.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

0.015 to 0.025

**Question Number : 193 Question Id : 640653360432 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 0**

Question Label : Multiple Select Question

Select the steps from the following options, that you will use for finding the  $P$ - value in the previous question.

**Note:** This question is optional. We will check your answer to this question if you make a mistake in the previous one.

**Options :**

6406531193830. ✓ Null hypothesis,  $H_0 : \mu_1 = \mu_2$ .

6406531193831. ✘ Null hypothesis,  $H_0 : \mu_1 \neq \mu_2$ .

6406531193832. ✘ Right tailed test is used.

6406531193833. ✘ Left tailed test is used.

6406531193834. ✓ Two tailed test is used.

6406531193835. ✘  $t$ -test is used.

6406531193836. ✓  $z$ -test is used.

6406531193837. ✓  $\bar{Y} - \bar{X} \sim \text{Normal} \left( \mu_2 - \mu_1, \frac{16}{15} + \frac{9}{15} \right)$

6406531193838. ✘  $\bar{Y} - \bar{X} \sim \text{Normal} (\mu_2 - \mu_1, 25)$

6406531193839. ✘  $\bar{Y} - \bar{X} \sim \text{Normal} \left( 0, \frac{16}{15} + \frac{9}{15} \right)$

6406531193840. ✘ Test: Reject  $H_0$ , if  $|\bar{Y} - \bar{X}| < c$ .

6406531193841. ✓ Test: Reject  $H_0$ , if  $|\bar{Y} - \bar{X}| > c$ .

## App dev1

<b>Section Id :</b>	64065322448
<b>Section Number :</b>	6
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	31
<b>Number of Questions to be attempted :</b>	31
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352575
<b>Question Shuffling Allowed :</b>	No

**Question Number : 194 Question Id : 640653360433 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: MODERN APPLICATION DEVELOPMENT 1"

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?  
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531193842. ✓ Yes

6406531193843. ✘ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352576

**Question Shuffling Allowed :** Yes

**Question Number : 195 Question Id : 640653360434 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following correctly represents the components of the given URL?

`https://www.mywebsite.com/home?user=Mad1&key=madcs2003`

**Options :**

`https` : Domain name;  
`www.mywebsite.com` : Request parameter;  
`/home` : Directory;  
`user=Mad1&key=madcs2003` : domain name

6406531193844. ✘

`https` : Protocol;  
`www.mywebsite.com` : Directory;  
`/home` : Domain name;  
`user=Mad1&key=madcs2003` : Request parameters

6406531193845. ✘

`https` : Protocol;  
`www.mywebsite.com` : Domain name;  
`/home` : Directory;  
`user=Mad1&key=madcs2003` : Request parameters

6406531193846. ✓

`https` : IP Address;  
`www.mywebsite.com` : Domain name;  
`/home` : Directory;  
`user=Mad1&key=madcs2003` : Local Host

6406531193847. ✘

**Question Number : 196 Question Id : 640653360436 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the following flask app and an HTML file in templates folder:

Python file: app.py

```
from flask import Flask, render_template
app = Flask(__name__)

my_list = ['Web development', 'onlinedegree', 'cs2003',
           'MAD-I', 'Data_science']

@app.route('/')
def render():
    return render_template('index.html', my_list = my_list)

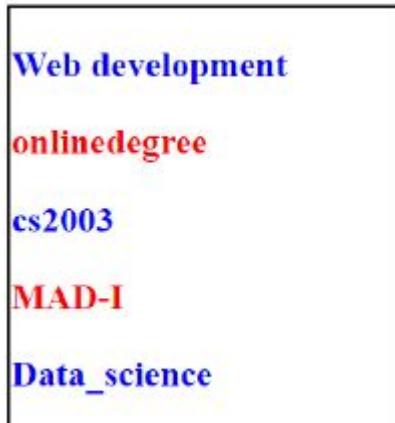
app.run(debug = True)
```

Template file:

```
<!DOCTYPE html>
<head>
    <style>
        body{width: 200px;
              border: 2px solid black}
        #one{color:red;}
        #two{color:blue;}
    </style>
</head>
<body>
    {% for item in my_list %}
        {% set Length = item|length %}
        {% if Length%2 == 0 %}
            <h3 id = "one">{{ item }}</h3>
        {% else %}
            <h3 id = "two">{{ item }}</h3>
        {% endif %}
    {% endfor %}
</body>
```

If the above flask app is running locally on <http://127.0.0.1:5000/>, what will be rendered by the browser for the base URL?

**Options :**



6406531193852. \*

6406531193853. \*

**Web development**

**onlinedegree**

**cs2003**

**MAD-I**

**Data\_science**

**Web development**

**onlinedegree**

**cs2003**

**MAD-I**

**Data\_science**

6406531193854. \*

**Web development**

**onlinedegree**

**cs2003**

**MAD-I**

**Data\_science**

6406531193855. ✓

**Question Number : 197 Question Id : 640653360452 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label : Multiple Choice Question**

**Consider the flask code given below.**

Python file: app.py

```
from flask import Flask, jsonify, request

app = Flask(__name__)

my_shops= [
{
    'name of the shop' : 'Grocery',
    'items' : [
        {
            'item1' : 'Toothpaste',
            'item2' : 'Snacks',
            'item3' : 'Biscuits',
            'item4' : 'Soaps'
        }
    ]
}

@app.route('/')
def show_shop():
    return jsonify({"shops" : my_shops})

=====
CODE HERE
=====

if __name__ == '__main__':
    app.run()
```

Which of the following code snippets must be added in the given space of above application, in order to create a new shop in 'my\_shops' list on the server side apart from the existing one?

**Options :**

```
@app.route('/myshop')
def create_shop():
    new_data = request.get_json()
    new_shop = [
        {
            'New shop' : new_data['name of the shop']
        }
    ]
    my_shops[new_shop]
    return jsonify(new_shop)
```

6406531193905. \*

```

@app.route('/myshop', methods=['POST'])
def create_shop():
    new_data = request.get_json()
    new_shop = {
        'New shop' : new_data['name of the shop']
    }
    my_shops.append(new_shop)
    return jsonify(new_shop)

```

6406531193906. ✓

```

@app.route('/myshop', methods=['POST'])
def create_shop():
    new_data = request.get_json()
    new_shop = {
        'New shop' : new_data['name of the shop']
    }
    return jsonify(new_shop)

```

6406531193907. ✘

6406531193908. ✘ All of these

**Question Number : 198 Question Id : 640653360455 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

A table ‘person’ is created in the database using model class “Person” with fields and their properties given in the table below.

<b>id</b>	<b>firstname</b>	<b>lastname</b>	<b>email</b>	<b>age</b>	<b>occupation</b>
1	Rahul	Mishra	rahul@gmail.com	23	Engineer
2	Ishan	Vadhera	vadhera@gmail.com	35	Lawyer
3	Abhilasha	Verma	vermaa@gmail.com	25	Teacher

Assuming that `flask_sqlalchemy` is to be used in the ‘main.py’ file, which of the following statements is/are true?

**Options :**

Both the queries i.e.,

`Person.query.filter_by(firstname="Ishan").all()` and  
`Person.query.filter_by(firstname="Ishan").first()` will produce the same result.

6406531193917. ✘

Both the queries i.e.,

`Person.query.filter_by(id=3).first()` and  
`Person.query.get(3)` will produce the same result.

6406531193918. ✓

If `person1 = Person.query.get(1)` then, Both the inputs i.e.,

`>>>person1`

6406531193919. ✘

`>>>person1.firstname` will produce the same result.

Both the queries i.e.,

`Person.query.filter_by(firstname="Ishan").first()`, and  
`Person.query.get(3)`

6406531193920. ✘

will produce the same result

**Question Number : 199 Question Id : 640653360456 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

A flask app and a template files are given below.

Python file: app.py

```
from flask import Flask, render_template
app = Flask(__name__)

@app.route('/home')
def HomePage():
    return "Welcome, folks! This is the Home Page!"

@app.route('/about')
def AboutPage():
    users = [
        {"user": "Shobhit", "gender": "Male", "age": 23, "score": 90},
        {"user": "Deepak", "gender": "Male", "age": 17, "score": 88},
        {"user": "Nikita", "gender": "Female", "age": 20, "score": 87}
    ]
    return render_template('home.html', condition=True, users=users)

if __name__ == "__main__":
    app.run(debug=True)
```

Templates file: home.html

```
<!DOCTYPE html>
<html>
<body>
    <p><a href="{{ url_for('HomePage') }}>Go back to home page?</a></p>
    <h2>About page</h2>
    {% if condition %}
        <h3> You are landed on about page.</h3>
        {% for user in users %}
            <ul>
                <li>Username : {{user.user}}, Age : {{user.age}}, Gender :
                    {{user.gender}}, Score : {{user.score}}</li>
            </ul>
        {% endfor %}
    {% else %}
        <h3> Please Go back.</h3>
    {% endif %}
    </body>
</html>
```

If the above flask application is running locally on “<http://127.0.0.1:5000>”, which of the following statement is true?

**Options :**

For URL: “<http://127.0.0.1:5000/home/>”, the rendered output will be "Welcome, 6406531193921. ✘ folks! This is the Home Page!"

6406531193922. ✓

For URL: "http://127.0.0.1:5000/about", the rendered output will be:

[Go back to home page?](#)

## About page

**You are landed on about page.**

- Username : Shobhit, Age : 23, Gender : Male, Score : 90
- Username : Deepak, Age : 17, Gender : Male, Score : 88
- Username : Nikita, Age : 20, Gender : Female, Score : 87

For URL: "http://127.0.0.1:5000/about", the rendered output will be:

[Go back to home page?](#)

## About page

**You are landed on about page.**

- Username : Shobhit
- Age : 23
- Gender : Male
- Score : 90
- Username : Deepak
- Age : 17
- Gender : Male
- Score : 88
- Username : Nikita
- Age : 20
- Gender : Female
- Score : 87

6406531193923. ✶

6406531193924. ✶

For URL: "http://127.0.0.1:5000/about", the rendered output will be:

[Go back to home page?](#)

## About page

You are landed on about page.

Username : Shobhit

Age : 23

Gender : Male

Score : 90

Username : Deepak

Age : 17

Gender : Male

Score : 88

Username : Nikita

Age : 20

Gender : Female

Score : 87

**Question Number : 200 Question Id : 640653360458 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

An HTML document is given below.

```

<!DOCTYPE html>
<html>
<body>
    <h1 id="id1">Welcome to IITM</h1>
    <h3 class="class1">Welcome to the world's first online degree
        program.</h3>
    <a href="">Go back to main link</a>
    <p class="class1">Lorem ipsum dolor sit amet consectetur
        adipisicing elit. Earum, rerum?</p>
    <p class="class1">Have you enrolled in BSC in Data science
        and Programming? </p>
    <p id="id2">Go to the IITM online degree website and enroll
        now!</p>
</body>
</html>

```

Suppose, if we want to give red color to the text within the heading element having id="id1" and green color to the text within the heading element having class="class1", what will be the correct way to do that?

#### Options :

By using external CSS as follows:

```

#id1{
    color:green;
}
h3.class1{
    color:red;
}

```

6406531193929. \*

By using internal CSS as follows:

```

<style>
    .id1{
        color:red;
    }
    p.class1{
        color:green;
    }
</style>

```

6406531193930. \*

6406531193931. ✓

By using inline CSS as follows:

```
<h1 id="id1" style="color:red;">Welcome to IITM</h1>
<h3 class="class1" style="color:green;">Welcome to the world's
first online degree program.</h3>
```

6406531193932. ✘ All of these

**Question Number : 201 Question Id : 640653360463 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

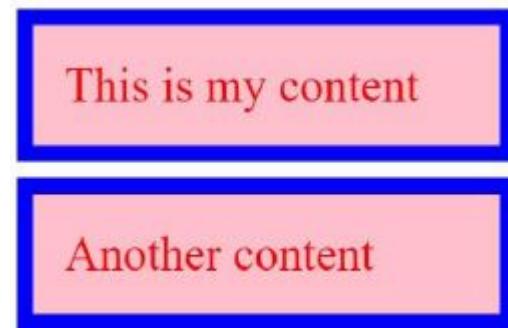
Question Label : Multiple Choice Question

Consider the following HTML document with internal CSS.

```
<!DOCTYPE html>
<html>
  <head>
    <style type="text/css">
      *{
        margin: 0px;
        width: 253px;
      }
      div{
        margin: 10px;
        padding: 20px;
        border-style: dotted;
        border-width: 10px;
        font-size: 30px;
        color: blue;
        background-color: pink;
        border-color: red;
      }
    </style>
    <title>End Sem</title>
  </head>
  <body>
    <div>This is my content</div>
    <div>Another content</div>
  </body>
</html>
```

How will the browser render the above HTML document?

**Options :**



6406531193949. \*

6406531193950. \*

This is my content

Another content

This is my content  
Another content

6406531193951. \*

This is my content  
Another content

6406531193952. ✓

**Sub-Section Number :**

3

**Sub-Section Id :**

64065352577

**Question Shuffling Allowed :**

Yes

**Question Number : 202 Question Id : 640653360437 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

**Question Label : Multiple Select Question**

Consider the following table “workers” created in SQLite database corresponding to model class “Workers” using flask\_sqlalchemy.

Id	Name	Designation	Gender	Salary
Filter	Filter	Filter	Filter	Filter
1	Padma Raja	Supervisor	Female	2000
2	Sameer Gandhi	Labour	Male	1200
3	Latika Murthy	Labour	Female	800
4	Nitya Grover	Supervisor	Female	2000
5	Amit Saxena	Supervisor	Male	2000

The correct way to increase the salary of all the female workers by 500 Rupees using the Python console is:

#### Options :

```
>>> workers = Workers.query.filter_by(Designation = 'Supervisor').all()
>>> for worker in workers:
...     worker.Salary += 500
...
>>> db.session.commit()
```

6406531193856. ✘

```
>>> workers = Workers.query.filter_by(Gender = 'Female').all()
>>> workers.Salary += 500
>>> db.session.commit()
```

6406531193857. ✘

```
>>> workers = Workers.query.filter_by(Gender = 'Female').all()
>>> for worker in workers:
...     worker.Salary += 500
...
>>> db.session.commit()
```

6406531193858. ✓

```
>>> workers = Workers.query.filter(Workers.Gender.like('F%')).all()
>>> for worker in workers:
...     worker.Salary += 500
...
>>> db.session.commit()
```

6406531193859. ✓

**Sub-Section Id :**

64065352578

**Question Shuffling Allowed :**

Yes

**Question Number : 203 Question Id : 640653360435 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

How will the browser render the output of the following Python code snippet?

```
from jinja2 import Template

styles=[
    '.text{color: purple}\n #heading{color:red}\n #subhead{color:blue}',
    '.text{color: purple}\n #subhead{color:green}\n #main{color:blue}',
    '.text{color: purple}\n #main{color:red}\n #heading{color:blue}'
]

template = """
    <!DOCTYPE html>
    <style>
        div{border: 2px solid black;
            width: 300px;
            background-color: rgb(247, 247, 230)}
        {{styles[0]}}
    </style>
    <body>
        <div>
            <h2 style="color:brown;" class="text" id="heading">
Programming Degree</h2>
            <h3 class="text" id="subhead">Modern Application 1</h3>
            <p class="text" id="main">This is a course on Application
Development</p>
        </div>
    </body>
"""
test_render = Template(template)
output = test_render.render(styles = styles)
print(output)
```

**Options :**

**Programming Degree**

**Modern Application 1**

This is a course on Application Development

6406531193848. \*

**Programming Degree**

**Modern Application 1**

This is a course on Application Development

6406531193849. \*

**Programming Degree**

**Modern Application 1**

This is a course on Application Development

6406531193850. \*

**Programming Degree**

**Modern Application 1**

This is a course on Application Development

6406531193851. ✓

**Question Number : 204 Question Id : 640653360441 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

## Question Label : Multiple Choice Question

What will be the output of the following python code if method test\_request\_context() allows flask app to print statements on the terminal?

```
from flask import Flask, url_for

app = Flask(__name__)

@app.route('/')
def home():
    return 'base url'

@app.route('/subscribe')
def subscribe():
    return 'Please subscribe to this page.'

@app.route('/new_course/<coursename>')
def course(coursename):
    return f'The course {coursename} gives basics of web development.'

with app.test_request_context():
    print(url_for('home'))
    print(url_for('subscribe'))
    print(url_for('subscribe', username = 'user_one'))
    print(url_for('course', coursename = 'MAD_I'))
```

### Options :

base url  
Please subscribe to this page  
Please subscribe to this page user one.  
The course MAD\_I gives basics of web development.

6406531193868. ✘

/  
/subscribe  
/subscribe/user\_one  
6406531193869. ✘ /new\_course/MAD\_I

/  
/subscribe  
/subscribe?username=user\_one  
/new\_course/MAD\_I

6406531193870. ✓

```
/  
/subscribe  
/subscribe?username=user_one  
/new_course?coursename=MAD_I
```

6406531193871. ❌

**Question Number : 205 Question Id : 640653360449 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

An internet connection with certain bandwidth is able to serve 10,000 requests of 150 Kilobytes each. What should be the increase in bandwidth (in Gbps) if this internet connection is to handle 12,500 requests of 180 Kilobytes each? (**Use relations:** 1 Byte = 8 bits, 1 MB = 1000 B, 1 GB = 1000 M and so on)

**Options :**

6406531193893. ❌ 600

6406531193894. ✓ 6

6406531193895. ❌ 0.6

6406531193896. ❌ 12

**Question Number : 206 Question Id : 640653360450 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the code snippet given below.

Python file: test\_app.py

```
import pytest

@pytest.fixture
def items():
    return "Books"

@pytest.fixture
def order():
    return "Pens"

@pytest.fixture
def order_items(order, items):
    return [order, items]

@pytest.fixture
def expected_list():
    return ["Books", "Pencils", "Pens"]

def test_1(order_items, expected_list):
    order_items.append("Pencils")
    assert order_items == expected_list

def test_2(order_items):
    order_items.append("Pencils")
    assert order_items == ["Pens", "Books", "Pencils"]
```

Which of the following statement is true about the above code snippet?

**Options :**

6406531193897. ✓ After running pytest, test\_1 will fail, whereas test\_2 will pass.

6406531193898. ✗ After running pytest, test\_2 will fail, whereas test\_1 will pass.

6406531193899. ✗ Both the test cases, test\_1 and test\_2 will pass successfully.

6406531193900. ✗ Both the test cases, test\_1 and test\_2 will fail.

**Question Number : 207 Question Id : 640653360453 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the Python code snippet given below.

Python file: app.py

```
from flask import Flask, request
from flask_restful import Api, Resource, reqparse

app = Flask(__name__)
api = Api(app)

class Add(Resource):
    def post(self):
        data_args = reqparse.RequestParser()
        data_args.add_argument('Name', help='Name is required',
        required =True)
        data_args.add_argument('Age', help='Age is required',
        required =True)
        args = data_args.parse_args()
        return { "Your Name": args['Name'], "Your Age" : args['Age']}

api.add_resource(Add, '/add')

if __name__ == '__main__':
    app.run(debug=True)
```

If this flask application is running on <http://127.0.0.1:5000>, which of the following is the correct output when a POST request is sent to URL "<http://127.0.0.1:5000/add>"?

**Options :**

6406531193909. ✘ The server will throw a “405 METHOD NOT ALLOWED” error.

6406531193910. ✘ The server will throw a “404 NOT FOUND” error.

For the request body;

```
{  
    "Name" : "Rahul",  
    "Age": 23  
}
```

The application will return;

```
{  
    "Your Name": "Rahul",  
    "Your Age": "23"  
}
```

6406531193911. ✓

6406531193912. ✘ None of these

**Question Number : 208 Question Id : 640653360454 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the Python code given below.

```
import pytest

@pytest.fixture
def first_entry():
    return "Apple"

@pytest.fixture
def order(first_entry):
    return [first_entry]

def test_string(order):
    order.append("Kiwi")
    assert order == ["Banana", "Apple"]

def test_int(order):
    order.append("Banana")
    assert order == ["Banana", "Apple", "Kiwi"]
```

Which of the following statement is true?

**Options :**

6406531193913. ✘ After running pytest, both test cases will pass successfully.

6406531193914. ✘ After running pytest, the first test case will fail, whereas the second test case will pass.

6406531193915. ✓ After running pytest, both test cases will show a failure report.

6406531193916. ✘ None of these

**Question Number : 209 Question Id : 640653360457 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the flask app given below.

```
from flask import Flask, abort
from flask_restful import Resource, Api
app = Flask(__name__)
api = Api(app)

item_list=[{"item1": "Cloths"},  
          {"item2" : "Shoes"},  
          {"item3" : "Sunglasses"}]

class ItemList(Resource):  
    def get(self, item_no, item_name):  
        this_item = {'item'+item_no : item_name}  
        if this_item in item_list:  
            return item_list, 200  
        else:  
            abort('400')  
  
    def post(self, item_no, item_name):  
        my_item = {'item'+item_no : item_name}  
        item_list.append(my_item)  
        return my_item, 201  
  
api.add_resource(ItemList, '/items/<item_no>/<item_name>')
app.run(debug=True)
```

If the above flask application is running locally on “<http://127.0.0.1:5000>”, what will be the output of a GET request sent to the URL: ‘<http://127.0.0.1:5000/items/4/watch>’ just after a POST request that is sent on the same URL?

**Options :**

6406531193925. ✘ The server will show a “404 NOT FOUND” error.

{  
 "item4": "watch"

6406531193926. ✘ }

```
[  
  {  
    "item1": "Cloths"  
  },  
  {  
    "item2": "Shoes"  
  },  
  {  
    "item3": "Sunglasses"  
  },  
  {  
    "item4": "watch"  
  }]
```

6406531193927. ✓ ]

6406531193928. ✘ None of these

**Question Number : 210 Question Id : 640653360462 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following flask application.

```

from flask import Flask, render_template

app=Flask(__name__)

@app.route('/')
def home():
    my_items = ['Cake', 'Apple', 'Ice Cream', 'DarkChocolate',
'Donut', 'Grape']
    l1 = []
    for i in range(len(my_items)):
        if i>2:
            l1.append(my_items[i])

    return render_template('index.html', list=l1)

app.run(debug=True)

```

Template File - index.html

```

{% macro display(list) %}
    {% for item in list %}
        <p>{{ item }}</p>
    {% endfor %}
{% endmacro %}
<html>
    <body>
        {{ display(list) }}
    </body>
</html>

```

suppose the application is running locally on the 'http://127.0.0.1:5000', then what will be rendered by the browser?

**Options :**

6406531193945. ✘ Cake

Apple

Ice Cream

6406531193946. ✘ Cake

Apple

Ice Cream

DarkChocolate

Donut

Grape

6406531193947. ✓ DarkChocolate

Donut

Grape

6406531193948. ✗ Ice Cream

DarkChocolate

Donut

Grape

**Question Number : 211 Question Id : 640653360465 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Python code snippets.

File 1: main.py

```
import sys
from new import fun
a = sys.argv[1]
b = sys.argv[2]
c = sys.argv[3]
result = fun(a, b, c)
print(result + " is greater")
```

File 2: new.py

```
def fun(num1,num2,num3):
    if (num1 > num2) and (num1 > num3):
        return num1
    elif (num2 > num1) and (num2 > num3):
        return num2
    else:
        return num3
```

suppose the main.py file is executed in the terminal. What will be the output?

```
python main.py
python main.py 8 10 5
```

**Options :**

6406531193957. ✘ IndexError: list index out of range

NameError: name 'fun' is not defined

6406531193958. ✘ 3 is greater

NameError: name 'fun' is not defined

6406531193959. ✓ IndexError: list index out of range

10 is greater

6406531193960. ✘ NameError: name 'fun' is not defined

8 is greater

**Question Number : 212 Question Id : 640653360467 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider a server that has an Intel i5 processor, 64 GB RAM, 1 TB Hard disk with 3 Gbps network connection. If a client accesses a web page, it requires 1.5 MB. Calculate the maximum number of

such requests per second the server can handle. (**Use relations:** 1 Byte = 8 bits, 1 MB = 1000 B, 1 GB = 1000 M and so on).

**Options :**

6406531193965. ✘ 25

6406531193966. ✘ 32

6406531193967. ✓ 250

6406531193968. ✘ 200

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352579

**Question Shuffling Allowed :** Yes

**Question Number : 213 Question Id : 640653360442 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Consider the following Python code snippet.

```

from flask import Flask, abort, redirect, url_for, render_template

app = Flask(__name__)

weekday_users = ['user_1', 'user_3', 'user_4', 'user_6', 'user_7']
weekend_users = ['user_2', 'user_5']

@app.route('/weekday/<username>')
def user_weekday(username):
    if username in weekday_users:
        return redirect(url_for('login', username = username))
    else:
        abort(401)

@app.route('/weekend/<username>')
def user_weekend(username):
    if username in weekend_users:
        return redirect(url_for('login', username = username))
    else:
        abort(401)

@app.route('/login/<username>')
def login(username):
    return f"<h2>Correct User Found! {username}</h2>"

@app.errorhandler(401)
def page_not_found(error):
    return "<h2>You are not authorized for this day.</h2>", 401

app.run()

```

If the above flask app is running locally on “<http://127.0.0.1:5000>”, Which of the following statements is/are correct?

#### Options :

For the URL, “[http://localhost:5000/weekday/user\\_4](http://localhost:5000/weekday/user_4)”, the browser will render:  
✓ **Correct User Found! user\_4**  
6406531193872.

For the URL, “[http://localhost:5000/weekend/user\\_3](http://localhost:5000/weekend/user_3)”, the browser will render:  
\* **Correct User Found! user\_3**  
6406531193873.

For the URL, “[http://localhost:5000/weekday/user\\_5](http://localhost:5000/weekday/user_5)”, the browser will render:  
✓ **You are not authorized for this day.**  
6406531193874.

For the URL, "[http://localhost:5000/weekend/user\\_2](http://localhost:5000/weekend/user_2)", the browser will render:  
**6406531193875.** \* **You are not authorized for this day.**

**Question Number : 214 Question Id : 640653360459 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Consider the code given below.

```

from flask import Flask, request
from flask_restful import Api, Resource, reqparse

app = Flask(__name__)

api = Api(app)

Mytasks = {
    1: {"mytask": "Studying"}, 
    2: {"mytask": "Exercise"}, 
    3: {"mytask": "Eating"}, 
    4: {"mytask": "Sleeping"}
}

class Display(Resource):
    def get(self):
        return Mytasks

class DisplayAll(Resource):
    def get(self, MytaskList_id):
        return Mytasks[MytaskList_id]

    def post(self, MytaskList_id):
        data_args = reqparse.RequestParser()
        data_args.add_argument("mytask", help='This is required field', required=True)
        args = data_args.parse_args()
        Mytasks[MytaskList_id] = {"mytask" : args["mytask"]}
        return Mytasks[MytaskList_id]

api.add_resource(Display, '/mytask')
api.add_resource(DisplayAll, '/task/<int:MytaskList_id>')

if __name__ == '__main__':
    app.run(debug=True)

```

If the above flask application is running locally on "<http://127.0.0.1:5000>", which of the following statements is/are true?

#### Options :

The status code that we get after sending a POST request to the URL: <http://127.0.0.1:5000/mytask/4> will be "404 NOT FOUND".  
6406531193933. ✓

6406531193934. ✓

The response that we get after sending a GET request to the URL:<http://127.0.0.1:5000/mytask>" will be:

```
{  
    "1": {  
        "mytask": "Studying"  
    },  
    "2": {  
        "mytask": "Exercise"  
    },  
    "3": {  
        "mytask": "Eating"  
    },  
    "4": {  
        "mytask": "Sleeping"  
    }  
}
```

The response that we get after sending POST request to the URL:<http://127.0.0.1:5000/task/4>" with a sending a request body as,

```
{  
    "mytask" : "Swimming"  
}  
will be :  
{  
    "mytask" : "Swimming"  
}
```

6406531193935. ✓

6406531193936. ✘

The response that we get after sending a GET request to the URL: "<http://127.0.0.1:5000/mytask>" will be:

```
{  
    "1": {  
        "mytask": "Studying"  
    },  
    "2": {  
        "mytask": "Exercise"  
    },  
    "3": {  
        "mytask": "Eating"  
    },  
    "4": {  
        "mytask": "Sleeping"  
    },  
    "4": {  
        "mytask": "Swimming"  
    }  
}
```

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352580

**Question Shuffling Allowed :** Yes

**Question Number : 215 Question Id : 640653360446 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

**Question Label : Short Answer Question**

What will be the decimal representation of binary number  $010101100000011_2$ ?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

11011

**Sub-Section Number :**

7

**Sub-Section Id :**

64065352581

**Question Shuffling Allowed :**

Yes

**Question Number : 216 Question Id : 640653360447 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

A machine takes a minimum of 100 seconds to sort 500 entries in a database. What will be the approximate minimum time taken by the machine to sort 1200 entries if the sorting method employs an algorithm with time complexity of  $O(n\log(n))$ . Where “n” is the number of entries?

**Options :**

6406531193885. ✘ 173 seconds

6406531193886. ✓ 273 seconds

6406531193887. ✘ 373 seconds

6406531193888. ✘ 473 seconds

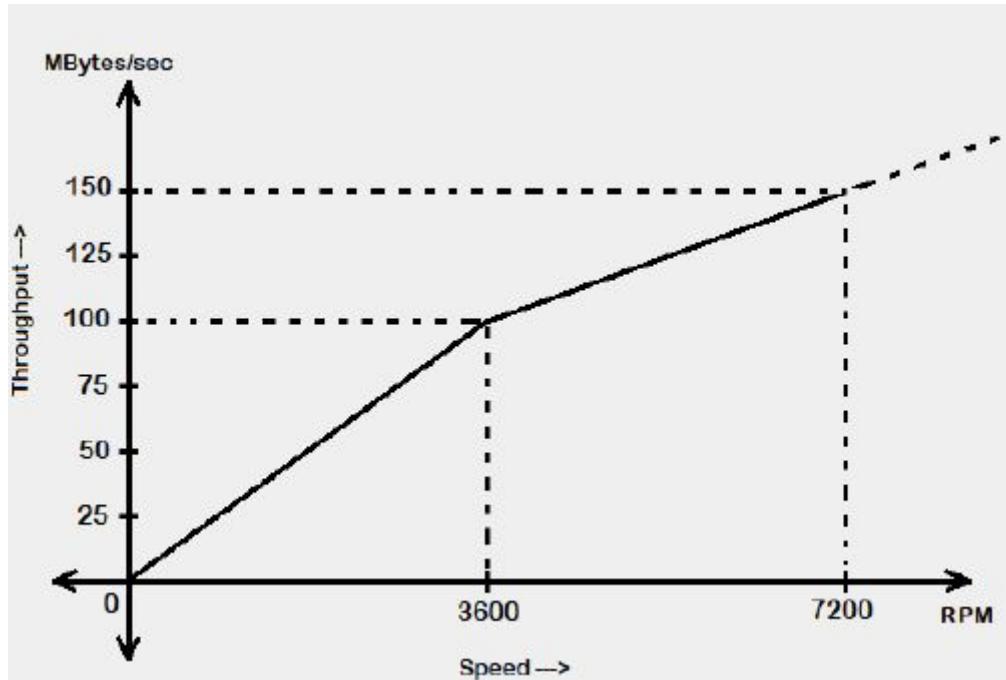
**Question Number : 217 Question Id : 640653360448 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

The speed vs. throughput characteristics of a typical HDD is shown in the figure below. If this HDD is to be used as a replacement of an SSD whose read/write speed is 450 MB/s. At what speed (in RPM) should the disk of HDD rotate with to deliver the same performance as that of the SSD?



**Options :**

6406531193889. ✘ 3600 RPM

6406531193890. ✘ 7200 RPM

6406531193891. ✘ 16,200 RPM

6406531193892. ✓ 28,800 RPM

**Question Number : 218 Question Id : 640653360460 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following Flask app and an HTML file.

Flask app: app.py

```
from flask import Flask, render_template, request
app = Flask(__name__)
users = {
    '3':{'name': 'Ram', 'Designation': 'Teacher'},
    '2':{'name': 'Dilip', 'Designation': 'student'},
    '5':{'name': 'Sonu', 'Designation': 'computer operator'},
    '1':{'name': 'Guru', 'Designation': 'clerk'}
}
@app.route('/')
def country():
    id = request.args.get('id')
    authenticated_users_id = [3, 2, 5]
    user = users.get(id)
    name = user.get('name') if user is not None else None
    Designation = user.get('Designation') if user is not None else
None
    user = {'is_authenticated': False, 'name': name, 'Designation':
Designation}
    if int(id) in authenticated_users_id:
        user['is_authenticated'] = True
        return render_template('index.html', data = user)
    if int(id) not in authenticated_users_id:
        user['is_authenticated'] = False
        return render_template('index.html', data = user)

app.run(debug = True)
```

HTML File: index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Document</title>
  </head>
  <body>
    {% if data.name == None %}
      User not found
    {% elif data.is_authenticated == True %}
      Hello {{data.name}} you can enter into this site:
    {{data.Designation}}
    {% else %}
      Hello {{data.name}} you have no access to this site:
    {{data.Designation}}
    {% endif %}
  </body>
</html>
```

Suppose the application is running locally on the 'http://127.0.0.1:5000', then what will be rendered by the browser for 'http://127.0.0.1:5000/?id=5', http://127.0.0.1:5000/?id=1' and 'http://127.0.0.1:5000/?id=4' respectively?

**Options :**

6406531193937. ✓ Hello Sonu you can enter into this site: computer operator  
Hello Guru you have no access to this site: clerk

User not found

6406531193938. ✖ Hello Ram you can enter into this site: Teacher

Hello Guru you have no access to this site: Student

Hello Sonu you can enter into this site: computer operator

6406531193939. ✖ User not found

Hello Dilip you have no access to this site: Student

Hello Sonu you can enter into this site: computer operator

6406531193940. ✖ Hello Ram you can enter into this site: Teacher

Hello Dilip you have no access to this site: Student

User not found

**Question Number : 219 Question Id : 640653360461 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following Python code snippet.

```
from jinja2 import Template

temp = """{% set numbers = studs | map(attribute = "mark") | list %}
{{numbers | min}} {{numbers | max}}"""

studs = [
{"stud_name":"Reeta","mark":92},
 {"stud_name":"Veena","mark":88},
 {"stud_name":"Meena","mark":62},
 {"stud_name":"uma","mark":98}
]
t1 = """{% for i in studs -%}
    {{i}}
    {- endfor%}"""

output = Template(temp)
out = Template(t1)
print(output.render(studs = studs))
print(out.render(studs = studs))
```

What will be the output of the above program?

**Options :**

6406531193941. ✘ 98 62

{'stud\_name': 'Reeta', 'mark': '92'}

{'stud\_name': 'Veena', 'mark': '88'}

{'stud\_name': 'Meena', 'mark': '62'}

{'stud\_name': 'uma', 'mark': '98'}

6406531193942. ✓ 62 98

{'stud\_name': 'Reeta', 'mark': '92'}{'stud\_name': 'Veena', 'mark': '88'}{'stud\_name': 'Meena', 'mark': '62'}{'stud\_name': 'uma', 'mark': '98'}

6406531193943. ✘ 62 98

{'stud\_name': 'uma', 'mark': '92'}

{'stud\_name': 'Meena', 'mark': '88'}

{'stud\_name': 'Veena', 'mark': '62'}

{'stud\_name': 'Reeta', 'mark': '98'}

6406531193944. ✘ 98 62

{'stud\_name': 'uma', 'mark': '92'}{'stud\_name': 'Meena', 'mark': '88'}{'stud\_name': 'Veena', 'mark': '62'}{'stud\_name': 'Reeta', 'mark': '98'}

**Question Number : 220 Question Id : 640653360464 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following table “newtable” in SQLite database.

ID	Name	Age	Mark	course
Filter	Filter	Filter	Filter	Filter
1	Vishnu	20	98	M1
2	Kumar	18	90	M2
3	Leela	20	90	M1
4	Naren	18	98	M2
5	Vishal	19	95	M1
6	Pranav	20	95	M2
7	Vinu	19	90	M1
8	Viki	18	95	M2

What will be the output of the following SQL queries given below?

```
CREATE UNIQUE INDEX IF NOT EXISTS index_name
ON newtable (Name ASC, Mark ASC) WHERE Age>18;
SELECT ID, Name, Age, Mark, course FROM newtable WHERE Age>18;
```

**Options :**

index\_name will be created

ID	Name	Age	Mark	course
2	Kumar	18	90	M2
4	Naren	18	98	M2
8	Viki	18	95	M2

6406531193953. ✘

index\_name will be created

ID	Name	Age	Mark	course
3	Leela	20	90	M1
6	Pranav	20	95	M2
7	Vinu	19	90	M1
5	Vishal	19	95	M1
1	Vishnu	20	98	M1

6406531193954. ✓

6406531193955. ✘

index\_name will not be created

ID	Name	Age	Mark	course
2	Kumar	18	90	M2
4	Naren	18	98	M2
8	Viki	18	95	M2
3	Leela	20	90	M1
6	Pranav	20	95	M2
7	Vinu	19	90	M1
5	Vishal	19	95	M1
1	Vishnu	20	98	M1

index\_name will not be created

ID	Name	Age	Mark	course
1	Vishnu	20	98	M1
2	Kumar	18	90	M2
3	Leela	20	90	M1
4	Naren	18	98	M2

6406531193956. ✘

**Question Number : 221 Question Id : 640653360466 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following Python snippet.

```

@app.route("/search", methods = ["GET"])
def search():
    q= request.args.get('q')
    query = "%" +q+ "%"
    results = Details.query.filter(Details.Content.like(query)).all()
    Return render template("result.html", q=q, Details = results)

```

File : result.html

```

{% for item in results %}
    {{item["Title"]}}
{% endfor %}

```

SQLite table: details

ID	Title	Content
1	Introduction	Java is a powerful general-purpose ...
2	learn python	Python is a powerful general-purpose ...
3	Basics	Java works on different platforms (Windo
4	Code	Python is currently the most widely used

If the flask application is running locally on URL: <http://127.0.0.1:5000>, what will be rendered by the web browser for URL <http://127.0.0.1:5000/search/q=Java>?

**Options :**

6406531193961. ✖ Introduction

Code

6406531193962. ✖ Java is a powerful general purpose ...

Java works on different platforms(windows)

6406531193963. ✖ Introduction - Java is a powerful general purpose ...

learn python - Python is a powerful general purpose ...

Basics - Java works on different platforms(windows)

6406531193964. ✓ Introduction

Basics

**Sub-Section Number :** 8

**Sub-Section Id :** 64065352582

**Question Shuffling Allowed :** Yes

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Select Question

Consider the HTML code given below.

HTML file: index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
</head>
<body>
<h1>
    <h1>CSS Selectors</h1>
</h1>
<div>
    <h2 id="header-id1" class="header-class">Hi, Folks!</h2>
    <p id="paragraph-id1" class="paragraph-class">Welcome to IITM.</p>
    <a href="https://iitm.ac.in">
        IIT Bsc Degree Website</a>
    <p class="class1 class2">We are launching World's first online
degree course.</p>
</div>
<div>
    <h2 id="header-id2">Have you enrolled to the program?</h2>
    <p id="paragraph-id2">If not, enroll now!</p>
    <a href="https://mywebsite.com
        ">Link to Enroll</a>
    <p class="class2 class3">Happy Learning!</p>
</div>
</body>
</html>
```

## CSS Selectors

**Hi, Folks!**

Welcome to IITM.

[IIT Bsc Degree Website](https://iitm.ac.in)

We are launching World's first online degree course.

**Have you enrolled to the program?**

If not, enroll now!

[Link to Enroll](https://mywebsite.com)

Happy Learning!

To obtain the output as given in figure above, which of the following snippets of CSS code must be used?

**Options :**

```
<style>
    #header-id1, #header-id2, #header-id3
    {
        color: red;
    }
    .header-class{
        color:blue;
    }
    .paragraph-class{
        color:purple;
    }
    p.class2{
        color:green;
    }
</style>
```

6406531193901. \*

```
<style>
    #header-id1, #header-id2, #header-id3
    {
        color: red;
    }
    .header-class{
        color:blue;
    }
    p.class2{
        color:green;
    }
    #paragraph-id1, #paragraph-id2{
        color:purple;
    }
</style>
```

6406531193902. ✓

6406531193903. \*

```
<style>
    h2{
        color: red;
    }
    .header-class{
        color:blue;
    }
    p.class3{
        color:green;
    }
    #paragraph-id{
        color:purple;
    }
</style>
```

```
<style>
    h2{
        color: blue;
    }
    h2{
        color: red;
    }
    #paragraph-id1, #paragraph-id2{
        color:purple;
    }
    p.class2{
        color:green;
    }
</style>
```

6406531193904. ✓

**Sub-Section Number :** 9

**Sub-Section Id :** 64065352583

**Question Shuffling Allowed :** No

**Question Id : 640653360438 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (223 to 224)**

Question Label : Comprehension

Consider the following model classes “State” and “City” corresponding to tables “state” and “city”

respectively in the SQLite database.

```
class State(db.Model):
    state_id = db.Column(db.Integer(), primary_key = True)
    state_name = db.Column(db.String(50), nullable = False)
    cities = db.relationship("City", backref = "stateof")

class City(db.Model):
    city_id = db.Column(db.Integer(), primary_key = True)
    city_name = db.Column(db.String(50), nullable = False)
    state = db.Column(db.Integer(), db.ForeignKey("state.state_id"))
```

Based on the above data, answer the given subquestions.

### Sub questions

**Question Number : 223 Question Id : 640653360439 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

If an object “s1” that represents an existing record in the table “state” is defined as `s1 = State.query.get(1)`,

The correct way(s) to add a city with the name “Chennai” that belongs to s1 using the Python console is.

**Options :**

```
>>> c1 = City(city_name = "Chennai", state = s1)
>>> db.session.add(c1)
>>> db.session.commit()
```

6406531193860. \*

```
>>> c1 = City(city_name = "Chennai", state = 1)
>>> db.session.add(c1)
>>> db.session.commit()
```

6406531193861. ✓

6406531193862. ✓

```
>>> c1 = City(city_name = "Chennai", stateof = s1)
>>> db.session.add(c1)
>>> db.session.commit()
```

```
>>> c1 = City(city_name = "Chennai", stateof = 1)
>>> db.session.add(c1)
>>> db.session.commit()
```

6406531193863. ✘

**Question Number : 224 Question Id : 640653360440 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

If "s1" and "c1" are existing objects in the tables "state" and "city" respectively where:

```
s1 = State.query.filter_by(state_name = "Maharashtra").first()
```

and

```
c1 = City.query.filter_by(city_name = "Mumbai").first()
```

Which of the following statements is/are correct?

**Options :**

6406531193864. ✘ The input s1.cities on Python console will return a single object

6406531193865. ✓ The input s1.cities on Python console will return a list of object(s)

6406531193866. ✓ The input c1.state on Python console will return a single object

6406531193867. ✘ The input c1.state on Python console will return a list of object(s)

**Question Id : 640653360443 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (225 to 226)**

Question Label : Comprehension

Consider the following resource API for the employee information given below and answer the given subquestions.

```
from flask import Flask
from flask_restful import Resource, Api, reqparse, fields,
marshal_with

app = Flask('__main__')
api = Api(app)

parser = reqparse.RequestParser()
parser.add_argument("first_name")
parser.add_argument("last_name")
parser.add_argument("role")
parser.add_argument("salary", type=int, help='Salary must be an
integer')

out_fields_1 = {"first_name": fields.String, "role": fields.String}
out_fields_2 = {"first_name": fields.String, "last_name": fields.String}
out_fields_3 = {"first_name": fields.String, "salary": fields.Integer}

class MyApi(Resource):
    @marshal_with(out_fields_2)
    def get(self):
        info = parser.parse_args()
        return info

    @marshal_with(out_fields_1)
    def post(self):
        info = parser.parse_args()
        return info

    @marshal_with(out_fields_3)
    def put(self):
        info = parser.parse_args()
        return info

api.add_resource(MyApi, '/myinfo')
app.run(debug = True)
```

## Sub questions

Question Number : 225 Question Id : 640653360444 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

If the flask application is running locally on URL "<http://127.0.0.1:5000/myinfo>", what will be the output of the following curl request?

```
curl "http://127.0.0.1:5000/myinfo" -X POST -d "{\"first_name\": \"Shrivatsa\", \"last_name\": \"Tandon\", \"role\": \"Analyst\", \"salary\": 50000}" -H "Content-Type: application/json"
```

Options :

```
{  
    "first_name": "Shrivatsa",  
    "last_name": "Tandon"  
}
```

6406531193876. \*

```
{  
    "first_name": "Shrivatsa",  
    "salary": 50000  
}
```

6406531193877. \*

```
{  
    "first_name": "Shrivatsa",  
    "role": "Analyst"  
}
```

6406531193878. ✓

```
{  
    "first_name": "Shrivatsa",  
    "last_name": "Tandon",  
    "role": "Analyst",  
    "salary": 50000  
}
```

6406531193879. \*

Question Number : 226 Question Id : 640653360445 Question Type : MCQ Is Question

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

**Question Label : Multiple Choice Question**

If the flask application is running locally on URL "<http://127.0.0.1:5000/myinfo>", what will be the output of the following Python code snippet?

```
import requests

data = {"first_name": "Rajnish",
        "last_name": "Dey",
        "role": "Manager",
        "salary": "10 thousand"}

response = requests.put('http://127.0.0.1:5000/myinfo', data = data)
print(response.json())
```

**Options :**

{  
    'first\_name': 'Rajnish',  
    'salary': '10 thousand'  
}

6406531193880. ✘

{  
    'first\_name': 'Rajnish',  
    'role': 'Manager'  
}

6406531193881. ✘

{  
    'first\_name': 'Rajnish',  
    'last\_name': 'Dey'  
}

6406531193882. ✘

6406531193883. ✓ None of these

## App dev2

<b>Section Id :</b>	64065322449
<b>Section Number :</b>	7
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	33
<b>Number of Questions to be attempted :</b>	33
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352584
<b>Question Shuffling Allowed :</b>	No

**Question Number : 227 Question Id : 640653360468 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: MODERN APPLICATION DEVELOPMENT 2"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?  
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531193969. ✓ Yes

6406531193970. ✗ No

**Sub-Section Number :**

2

<b>Sub-Section Id :</b>	64065352585
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 228 Question Id : 640653360469 Question Type : MSQ Is Question**  
**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding JavaScript language?

**Options :**

- 6406531193971. ❌ JavaScript is a low level programming language.
- 6406531193972. ✓ The “const” keyword can be used to declare objects with block level scope.
- 6406531193973. ❌ Int, char are some primitive data types in the JavaScript language.
- 6406531193974. ✓ The JavaScript language supports both the first order and higher order functions.

**Question Number : 229 Question Id : 640653360475 Question Type : MSQ Is Question**  
**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statement(s) is/are false?

**Options :**

- 6406531193995. ✓ A web application must implement token based authentication to make the application secure.
- 6406531193996. ❌ The JAMStack approach separates out the frontend from the backend, and they both can be updated/modified independently without affecting the other.
- 6406531193997. ❌ It is recommended to avoid the usage of verbs in the API data URLs.
- 6406531193998. ✓ The idea behind bringing an API is to implement caching.

**Question Number : 230 Question Id : 640653360476 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding Celery and Redis?

**Options :**

6406531193999. ❌ A Celery system can only use Redis as the message broker.

6406531194000. ✓ A Celery system may consist of a number of batch jobs.

6406531194001. ✓ A Celery system needs worker(s) to execute tasks.

6406531194002. ❌ All of these

**Question Number : 231 Question Id : 640653360484 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding webhooks and polling?

**Options :**

6406531194031. ✓ A webhook uses HTTP protocol.

6406531194032. ✓ The term “polling” generally refers to short polling.

6406531194033. ✓ Webhooks are used for 1 way communication, unlike web sockets.

6406531194034. ❌ In polling, the connection to the server is kept open, until the data is available.

**Question Number : 232 Question Id : 640653360485 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding cookies?

**Options :**

6406531194035. ❌ Cookies are stored on the server.

6406531194036. ✓ Cookies are stored on the browser.

6406531194037. ✓ Browser sends the cookies to the origin server automatically in general.

6406531194038. ❌ Client has to include cookies manually with the request, in general.

**Question Number : 233 Question Id : 640653360487 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding OAuth?

**Options :**

6406531194043. ✓ It is a protocol to allow access to resources, hosted on a different server, on behalf of a user.

6406531194044. ✓ It is used for authorization.

6406531194045. ❌ It is used for authentication.

6406531194046. ❌ None of these

**Question Number : 234 Question Id : 640653360488 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following is true regarding the Closure in JavaScript?

**Options :**

6406531194047. ❌ Closure is the state of the outer function.

6406531194048. ❌ Closure is the state of a variable.

6406531194049. ✓ Closure is a function along with its lexical environment or surrounding state.

6406531194050. ✓ Closures are created every time a function is created in JavaScript.

**Sub-Section Id :**

64065352586

**Question Shuffling Allowed :**

Yes

**Question Number : 235 Question Id : 640653360470 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the following shows the correct output if the javascript program written below is executed?

```
const arr = [1, 2, 3, 4, 5, 6, 7, 8]
const arr1 = arr.map(r => r**3)
const arr2 = arr1.filter(r => ((r % 3 == 2) || (r % 4 == 3)))
console.log(arr2)
```

**Options :**

6406531193975. ❌ [1, 8, 125, 343, 512]

6406531193976. ❌ [8, 27, 64, 343, 512]

6406531193977. ✓ [8, 27, 125, 343, 512]

6406531193978. ❌ None of these

**Question Number : 236 Question Id : 640653360473 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<div id = "app">
  <input v-model = "name" @input = "do_something">
  <p> {{age}} </p>
</div>
<script scr = "app.js"></script>
```

app.js:

```
new Vue({
  el : "#app",
  data : {
    name : "#app",
    age : 0,
  },
  mounted () {
    try {
      this.name = localStorage.getItem("name").split(" ")[0];
      this.age = localStorage.getItem("name").split(" ")[1];
    }
    catch {
      this.name = "Default";
      this.age = "Default";
    }
  },
  methods : {
    do_something() {
      localStorage.setItem("name", this.name);
      localStorage.setItem("age", this.age);
    }
  }
})
```

Suppose you open “index.html” file in a browser, and type the text “IIT Madras” in the text box shown (after removing the previous text, if any), and hard refresh the page twice, without clicking anywhere. What will be the value shown in the text box, and the “age” placeholder, respectively?

**Options :**

6406531193987. ✘ The app will show an error in the console

6406531193988. ✘ Default, Default

6406531193989. ✓ IIT, Madras

6406531193990. ✘ None of these

**Question Number : 237 Question Id : 640653360478 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the following statements is false regarding CORS and CSRF?

**Options :**

6406531194007. ✓ The flask framework enforces CSRF protection by default.

6406531194008. ✘ The CORS mechanism allows a developer to secure a web application from external origins.

6406531194009. ✘ The CORS headers are generally prefixed with the value "Access-Control-Allow".

6406531194010. ✘ An anti CSRF token must be sent with the request, if CSRF protection is enabled.

**Question Number : 238 Question Id : 640653360491 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup "index.html" and javascript file "app.js".

index.html:

```
<html>
  <head>
    <style>
      .onstrike {
        color: blue;
      }
    </style>
  </head>
  <body>
    <div id="app">
      <div :class="{onstrike:changeStrike}" id="run">{{run}}</div>
      <button @click="run+=4">Six</button>
      <button @click="run+=3">Four</button>
    </div>
    <script
      src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
    <script src="app.js" type="module"></script>
  </body>
</html>
```

app.js:

```
new Vue({
  el: '#app',
  data: { run: 0 },
  computed: {
    changeStrike() {
      return this.run % 2 === 0 ? true : false
    },
  },
})
```

What will be the color of text rendered inside the div with ID “run”, if the user clicks on the button with text “Six”, 3 times and the button with text “Four”, 4 times?

**Options :**

6406531194059. ❌ Black

6406531194060. ✓ Blue

6406531194061. ✘ White

6406531194062. ✘ None of these

**Question Number : 239 Question Id : 640653360492 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <style>
      .active {
        color: blue;
      }
      .bold {
        font-weight: bold;
      }
    </style>
  </head>
  <body>
    <div id="app">
      <Home class="bold" />
    </div>
  </body>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script src="app.js" type="module"></script>
</html>
```

app.js:

```
Vue.component('Home', {  
  template: `<div class='active'>  
    IITM online degree  
</div>`,  
})  
  
new Vue({  
  el: '#app',  
})
```

What will be the color and font-weight of the text “IITM online degree”?

**Options :**

6406531194063. ✘ blue, normal

6406531194064. ✘ black, normal

6406531194065. ✓ blue, bold

6406531194066. ✘ black, bold

**Question Number : 240 Question Id : 640653360493 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <template v-for="cont in contributions">
      <div>{{cont.player}}: {{cont.run}}/{{partnerShip}}</div>
    </template>
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
new Vue({
  el: '#app',
  data: {
    partnerShip: 210,
    contributions: [
      { player: 'Rohit', run: 100 },
      { player: 'Kohli', run: 110 },
    ],
  },
})
```

What will be rendered on the screen?

**Options :**

6406531194067. ✓ Rohit: 100/210

Kohli: 110/210

6406531194068. ✗ Rohit: 0.48

Kohli: 0.52

6406531194069. ✗ Rohit: 100

Kohli: 110

6406531194070. ✗ None of these

**Question Number : 241 Question Id : 640653360495 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <div>
      <select v-model="collType">
        <option value="all">All</option>
        <option value="typeOne">Type One</option>
        <option value="typeTwo">Type Two</option>
      </select>
    </div>
    <div id="collections">
      <Numbers :numbers="numbers" v-show="collType==='all'">
        <Numbers :numbers="typeOne" v-show="collType==='typeOne'">
          <Numbers :numbers="typeTwo" v-show="collType==='typeTwo'">
        </Numbers>
      </Numbers>
    </div>
    <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
    <script src="app.js" type="module"></script>
  </body>
```

app.js:

```
Vue.component('Numbers', {
  template: `<div>
    <span v-for="num in numbers">
      {{num}}
    </span></div>`,
  props: ['numbers'],
})

new Vue({
  el: '#app',
  data: {
    numbers: [2, 3, 4, 6, 7],
    collType: 'typeOne',
  },
  computed: {
    typeOne() {
      return this.numbers.filter((num) => num % 2 === 0)
    },
    typeTwo() {
      return this.numbers.filter((num) => num % 2 != 0)
    },
  },
})
```

What will be rendered inside the div with ID “collections”, when the user selects the option “Type Two” ?

**Options :**

6406531194075. ✘ 2 3 4 6 7

6406531194076. ✘ 2 4 6

6406531194077. ✓ 3 7

6406531194078. ✘ None of these

**Question Number : 242 Question Id : 640653360496 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

## Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <custom-input v-model="searchText"></custom-input>
    <div id="result">Searching for: {{searchText}}</div>
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
Vue.component('custom-input', {
  props: ['value'],
  template: `
    <input
      v-bind:value="value"
      v-on:input="$emit('input', $event.target.value)"
    >
  `,
})
new Vue({
  el: '#app',
  data: { searchText: 'type something ...' },
})
```

Suppose the user types “Apple” in the input box (after removing the existing text, if any). What will be rendered inside the div with ID “result”?

**Options :**

6406531194079. ❌ Searching for:

6406531194080. ❌ Apple

6406531194081. ❌ Searching for: ‘type something ...’

**Question Number : 243 Question Id : 640653360497 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <router-view></router-view>
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script
src="https://unpkg.com/vue-router@2.0.0/dist/vue-router.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
const Profile = {
  template: `<div> Welcome {{this.$route.params.name}}</div>`,
}

const Home = {
  template: `<div> This is home page
    <button @click='goToProfile'> Go to profile </button>
  </div>`,
  methods: {
    goToProfile() {
      this.$router.push({ name: 'profile', params: { name: 'narendra' } })
    },
  },
}

const router = new VueRouter({
  routes: [
    { path: '/profile/:name', name: 'profile', component: Profile },
    { path: '/', component: Home },
  ],
})
new Vue({  
  el: '#app',  
  router,  
})
```

Suppose the application is running on '<http://127.0.0.1:8080/>'. If the user visits the application for the first time and clicks on the button "Go to profile", what will be displayed on the screen?

**Options :**

6406531194083. ✓ Welcome narendra

6406531194084. ✗ Welcome

6406531194085. ✗ narendra

6406531194086. ✗ None of these

**Question Number : 244 Question Id : 640653360498 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <router-view></router-view>
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script
src="https://unpkg.com/vue-router@2.0.0/dist/vue-router.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
const Movies = {
  template: `<div><ul>
    <div>Movies</div>
    <router-view />
  </ul></div>`,
}
const Error = {
  template: `<div> Some Error</div>`,
}
const Hindi = {
  template: `<div><ul>
    <li v-for='movie in hindiMovies'>{{movie.name}}</li>
  </ul></div>`,
  data() {
    return {
      movies: [
        { name: 'Soley', language: 'hindi' },
        { name: 'Dexter', language: 'english' },
      ],
    }
  },
  computed: {
    hindiMovies() {
      return this.movies.filter((movie) => {
        return movie.language === 'english'
      })
    },
  },
}
const router = new VueRouter({
  routes: [
    {
      path: '/',
      component: Movies,
      children: [
        { path: 'hindi', component: Hindi },
        { path: '*', component: Error },
      ],
    },
  ],
})
new Vue({
  el: '#app',
  router,
})
```

Suppose the application is running on '<http://127.0.0.1:8080/>'. What will be rendered for the URL "<http://127.0.0.1:8080/#/>"?

**Options :**

6406531194087. ❌ Movies

6406531194088. ✓ Movies

Some Error

6406531194089. ✘ Movies

Soley

6406531194090. ✘ Movies

Dexter

**Question Number : 245 Question Id : 640653360500 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <custom-comp ref="custom" />
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
Vue.component('custom-comp', {
  data() {
    return { name: 'Rohit Sharma' }
  },
  template: `<div>Welcome {{name}}</div>`,
})
```

```
new Vue({
  el: '#app',
  mounted() {
    this.$refs.custom.name = 'Virat Kohli'
  },
})
```

What will be rendered inside the “custom-comp” component?

**Options :**

6406531194095. ❌ Welcome Rohit Sharma

6406531194096. ✓ Welcome Virat Kohli

6406531194097. ❌ Welcome

6406531194098. ❌ None of these

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352587

**Question Shuffling Allowed :** Yes

**Question Number : 246 Question Id : 640653360471 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following is the correct way to do class binding in Vue (to apply 'classA' on the div element), if the data object in the Vue constructor is defined as below?

```
data : {  
  
    classObj : {  
        classA : true,  
        classB : false  
    },  
  
    classA : true,  
    classB : false,  
}
```

**Options :**

6406531193979. ✓ <div :class = “{classA : classA, classB : classB}”> </div>

6406531193980. ✗ <div :class = “{classA : ‘classA’, classB : ‘classB’}”> </div>

6406531193981. ✓ <div :class = “classObj”> </div>

6406531193982. ✗ <div :class = “{classObj}”> </div>

**Question Number : 247 Question Id : 640653360477 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following statement(s) is/are false?

**Options :**

6406531194003. ❌ The server sent events is a mechanism for a server to push events, and it must require service workers on the client to function properly.
6406531194004. ✓ In general, a webhook is meant to pull message(s) from an application.
6406531194005. ❌ The usage of a message broker over “point-to-point” communication makes the application scalable.
6406531194006. ✓ There is no difference between webhooks and short polling.

**Question Number : 248 Question Id : 640653360480 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding Celery and Redis, assuming a task named “send\_email” is defined using 2 approaches given below?

Approach 1: send\_email.delay()

Approach 2: send\_email.apply\_async(countdown = 10)

**Options :**

6406531194015. ❌ The approach 1 will wait for a user input before dispatching the task to the celery system.
6406531194016. ❌ The approach 2 will dispatch the task to the celery system after waiting for 10 seconds, and start the execution, assuming a worker is available.
6406531194017. ✓ The approach 2 will immediately dispatch the task to the celery system, but start the execution after waiting for 10 seconds, assuming a worker is available.
6406531194018. ✓ The approach 1 will immediately dispatch the task to the celery system, and start the execution, assuming a worker is available.

**Question Number : 249 Question Id : 640653360483 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following statement(s) is/are false regarding Vuex and Vue router?

**Options :**

6406531194027. ✓ In general, an application should have separate Vuex stores for all the components.

6406531194028. ❌ A path defined in the routes array in Vue router can consist of a number of children paths.

6406531194029. ✓ The wildcard (\*) should be put at the top of the routes array in the Vue router, so that it matches with all the paths, which are not implemented.

6406531194030. ✓ A Vuex store must be used with all Vue applications.

**Question Number : 250 Question Id : 640653360486 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true regarding fetch API?

**Options :**

6406531194039. ✓ The credentials property of the Request interface allows the user agent to send or receive cookies in cross-origin requests.

6406531194040. ✓ The value "omit" of "credentials" will force the browser not to send cookies with the request.

6406531194041. ✓ The value "include" of "credentials" will allow the browser to send credentials even in cross-origin requests.

6406531194042. ❌ The value "include" of "credentials" will allow the browser to send credentials only for same origin requests.

**Sub-Section Number :**

5

**Sub-Section Id :**

64065352588

**Question Shuffling Allowed :**

Yes

**Question Number : 251 Question Id : 640653360472 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Which of the following shows the correct output, if the javascript program written below is executed?

```
new Promise((reject, resolve) => {
    let a = 2 * 4 || 0 / 4;
    let b = 3 * 4 && 0 / 4;

    if (a > b) resolve(a);
    else reject(b);
}).then(d => console.log("Passed:", d))
.catch(e => console.log("Failed:", e))
.finally(d => {
    console.log("About to finish")
    return "Over"
}).then(d => console.log("Finished !!", d))
```

**Options :**

6406531193983. ✘ Failed: 2

About to finish

Finished !! Over

6406531193984. ✘ Passed: 0

About to finish

Finished !! undefined

6406531193985. ✘ Passed: 0

About to finish

Finished !! Over

6406531193986. ✓ Failed: 8

About to finish

Finished !! undefined

**Question Number : 252 Question Id : 640653360474 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Suppose you own a company where you want to hire candidates for an upcoming project on a deputation basis, and you have received a lot of applications. On discussing with your team members, you decided to shortlist the candidates based on the following 2 criteria:

1. The candidate must have at least 3 years of experience
2. The candidate's age must be less than 30 years

Fill in the **code1** & **code2**, which can be used in Vuex Store to update the “shortlisted” state variable with the objects of those candidates who satisfy the above-mentioned criteria. Also, predict the length of the state variable “shortlisted”, after the mutation has completed its execution.

```

const store = new Vuex.Store({
  state : {
    candidates : [
      {
        name : 'sample1',
        age : 28,
        experience : 2.5
      },
      {
        name : 'sample2',
        age : 35,
        experience : 3.5
      },
      {
        name : 'sample3',
        age : 32,
        experience : 3
      },
      {
        name : 'sample4',
        age : 38,
        experience : 2
      },
    ],
    shortlisted : []
  },
  mutations : {
    update_final(state, minimum) {
      for (candidate of state.candidates)
        code2
    }
  },
  actions : {
    send_task : function (context) {
      code1
    }
  }
})

```

## Options :

code1: this.\$store.commit("update\_final", 2);  
 code2: if (candidate.experience >= minimum && candidate.age < 30)  
           state.shortlisted.push(candidate)

6406531193991. ✖ Length: 3

```
code1: context.commit("update_final", 2);
code2: if (experience >= minimum && candidate.age < 30)
      state.shortlisted.push(company)
```

6406531193992. ✖ Length: 2

```
code1: this.$store.commit("update_final", 3);
code2: if (experience >= minimum && candidate.age < 30)
      state.shortlisted.push(company)
```

6406531193993. ✖ Length: 3

```
code1: context.commit("update_final", 3);
code2: if (candidate.experience >= minimum && candidate.age < 30)
      state.shortlisted.push(company)
```

6406531193994. ✓ Length: 2

**Question Number : 253 Question Id : 640653360479 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following javascript program, and predict the output, if executed.

```
let propA = 10;

const obj1 = {
    propA : 20,
    propB : function () {
        console.log(propA, this.propA)
    }
}

const obj2 = {
    propA : 30,
    propB : function () {

        let func = () => console.log(propA, this.propA)

        func()
    }
}

obj2.propB.call(obj1);
```

**Options :**

6406531194011. ✘ 10 30

6406531194012. ✓ 10 20

6406531194013. ✘ 10 undefined

6406531194014. ✘ The program will raise an error

**Question Number : 254 Question Id : 640653360481 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following javascript program, and predict the output, if executed. Also, predict the minimum time taken (in seconds) to log the value "Executing" on the console.

```
async function some () {  
  
    let promise = await new Promise((res, rej) => {  
        setTimeout(() => res("Execution Started"), 1000)  
    });  
    let a = await promise;  
    let b = a.replace("e", "")  
    return new Promise ((rej, res) => {  
  
        let c = a + "\n" + b;  
        rej(c);  
    })  
}  
some().then(d => console.log(d))  
.catch(e => console.log("Error"))  
console.log("Executing")
```

### Options :

6406531194019. ✨ Executing

Execution Started

Excution Started

Time: 2 seconds

6406531194020. ✨ Execution Started

Excution Startd

Executing

Time: 2 seconds

6406531194021. ✓ Executing

Execution Started

Excution Started

Time: 0 seconds

6406531194022. ✨ Execution Started

Excution Started

Executing

Time: 0 seconds

**Question Number : 255 Question Id : 640653360489 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following JavaScript program.

```
const p = function (t) {
    return new Promise((resolve, reject) => {
        setTimeout(() => {
            resolve(t)
        }, t * 1000)
    })
}

data = []
asyncFunc = async function () {
    p1 = await p(1)
    p2 = await p(2)
    data.push(p2)
    data.push(p1)
}
asyncFunc()
data.push('Outer')
console.log(data)
```

What will be logged on to the console?

**Options :**

6406531194051. ❌ ['Outer', 2, 1]

6406531194052. ❌ ['Outer', 1, 2]

6406531194053. ❌ [2, 1, 'Outer']

6406531194054. ✓ ['Outer']

**Question Number : 256 Question Id : 640653360490 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<html>
  <head>
    <style>
      .onstrike {
        color: blue;
      }
    </style>
  </head>
  <body>
    <div id="app">
      <div :class="{onstrike:changeStrike}" id="run">{{ run }}</div>
      <button @click="run+=4">Six</button>
      <button @click="run+=3">Four</button>
    </div>
    <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
    <script src="app.js" type="module"></script>
  </body>
</html>
```

app.js:

```
new Vue({
  el: '#app',
  data: { run: 0 },
  computed: {
    changeStrike() {
      return this.run % 2 === 0 ? true : false
    },
  },
})
```

What will be rendered inside the div for ID “run”, if the user clicks on the button with text “Six”, 3 times and the button with text “Four”, 4 times?

**Options :**

6406531194055. ✓ 24

6406531194056. ✗ 34

6406531194057. ✗ 48

6406531194058. ✗ None of these

**Question Number : 257 Question Id : 640653360494 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <div>
      <select v-model="collType">
        <option value="all">All</option>
        <option value="typeOne">Type One</option>
        <option value="typeTwo">Type Two</option>
      </select>
    </div>
    <div id="collections">
      <Numbers :numbers="numbers" v-show="collType==='all'">
    /></Numbers>
      <Numbers :numbers="typeOne" v-show="collType==='typeOne'">
    /></Numbers>
      <Numbers :numbers="typeTwo" v-show="collType==='typeTwo'">
    /></Numbers>
    </div>
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
Vue.component('Numbers', {
  template: `<div>
    <span v-for="num in numbers">
      {{num}}
    </span></div>`,
  props: ['numbers'],
})

new Vue({
  el: '#app',
  data: {
    numbers: [2, 3, 4, 6, 7],
    collType: 'typeOne',
  },
  computed: {
    typeOne() {
      return this.numbers.filter((num) => num % 2 === 0)
    },
    typeTwo() {
      return this.numbers.filter((num) => num % 2 != 0)
    },
  },
})
```

What will be rendered inside the div with ID “collections”, when the browser loads the application for the first time?

**Options :**

6406531194071. ✘ 2 3 4 6 7

6406531194072. ✓ 2 4 6

6406531194073. ✘ 3 7

6406531194074. ✘ None of these

**Question Number : 258 Question Id : 640653360499 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4.5**

## Question Label : Multiple Choice Question

Consider the following Vue application with markup “index.html” and javascript file “app.js”.

index.html:

```
<body>
  <div id="app">
    <router-view></router-view>    \  \
  </div>
  <script
src="https://cdn.jsdelivr.net/npm/vue@2/dist/vue.js"></script>
  <script
src="https://unpkg.com/vue-router@2.0.0/dist/vue-router.js"></script>
  <script src="app.js" type="module"></script>
</body>
```

app.js:

```
const Movies = {
  template: `<div><ul>
    <div>Movies</div>
    <router-view />
  </ul></div>`,
}
const Error = {
  template: `<div> Some Error</div>`,
}
const Hindi = {
  template: `<div><ul>
    <li v-for='movie in hindiMovies'>{{movie.name}}</li>
  </ul></div>`,
  data() {
    return {
      movies: [
        { name: 'Soley', language: 'hindi' },
        { name: 'Dexter', language: 'english' },
      ],
    }
  },
  computed: {
    hindiMovies() {
      return this.movies.filter((movie) => {
        return movie.language === 'english'
      })
    },
  },
}
const router = new VueRouter({
  routes: [
    {
      path: '/',
      component: Movies,
      children: [
        { path: 'hindi', component: Hindi },
        { path: '**', component: Error },
      ],
    },
  ],
})
new Vue({
  el: '#app',
  router,
})
```

What will be rendered inside the router-view component of Movies component for the URL "<http://127.0.0.1:8080/#/hindi>"?

**Options :**

6406531194091. ✘ Some Error

6406531194092. ✘ Soley

6406531194093. ✓ Dexter

6406531194094. ✘ None of these

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352589

**Question Shuffling Allowed :** Yes

**Question Number : 259 Question Id : 640653360482 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following statement(s) is/are correct regarding cookies, local storage, and session storage?

**Options :**

6406531194023. ✘ The local storage is a browser based persistent storage.

6406531194024. ✘ Cookies are preferred over session or local storage, when the data needs to be sent with every request.

6406531194025. ✘ The cookies can be set from the server as well as using javascript on the client.

6406531194026. ✓ All of these

## BDM

**Section Id :** 64065322450

**Section Number :** 8

**Section type :** Online

**Mandatory or Optional :** Mandatory

**Number of Questions :** 32

**Number of Questions to be attempted :** 32

**Section Marks :** 40

**Display Number Panel :** Yes

<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352590
<b>Question Shuffling Allowed :</b>	No

**Question Number : 260 Question Id : 640653360501 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: BUSINESS DATA MANAGEMENT"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**

**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406531194099. ✓ Yes

6406531194100. ✗ No

<b>Sub-Section Number :</b>	2
<b>Sub-Section Id :</b>	64065352591
<b>Question Shuffling Allowed :</b>	Yes

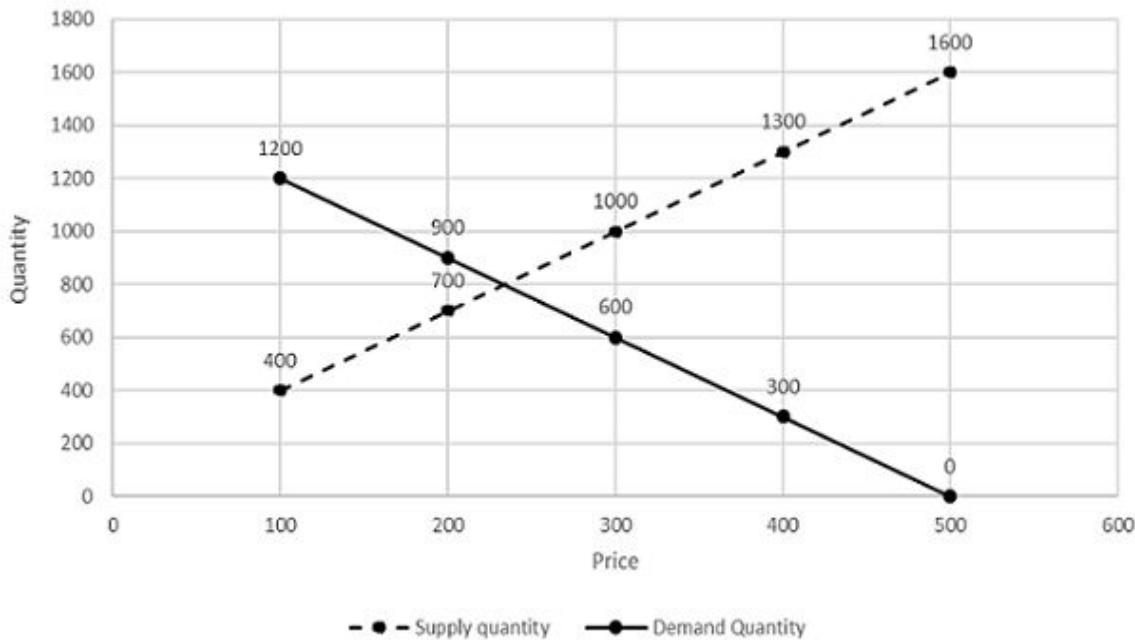
**Question Number : 261 Question Id : 640653360513 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Given the below figure on the relationship between price, supply and demand, what are the equilibrium price, shortage price and surplus price respectively?



**Options :**

6406531194119. ❌ Rs. 233, Rs. 250 and Rs.200

6406531194120. ✓ Rs. 233, Rs. 200 and Rs.250

6406531194121. ❌ Rs. 800, Rs. 1000 and Rs. 600

6406531194122. ❌ Rs. 800, Rs. 600 and Rs. 1000

**Question Number : 262 Question Id : 640653360514 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following is not a source of survey data?

**Options :**

6406531194123. ✓ Stock market data

6406531194124. ❌ Market research data

6406531194125. ❌ Consumer pyramid data

6406531194126. ❌ None of these

**Question Number : 263 Question Id : 640653360515 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Match the following:

1. Grain grinding	a. Ancillary industry
2. Leather work	b. Consumer good industry
3. Textiles	c. Village industry
4. Manufacturing tractors	d.Cottage industry

**Options :**

6406531194127. ✓ 1 - c, 2 - d, 3 - b, 4 - a

6406531194128. ✗ 1 - d, 2 - c, 3 - b, 4 - a

6406531194129. ✗ 1 - b, 2 - d, 3 - c, 4 - a

6406531194130. ✗ 1 - a, 2 - d, 3 - c, 4 - b

**Question Number : 264 Question Id : 640653360517 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

With the following data, figure out which SKU has the maximum Average Days of Inventory

Stock Keeping Unit	Open Stock in Warehouse	Avg Daily Sales
F01	34.2	14.0
F02	24.1	5.8
F03	19.9	5.1
F04	19.6	3.9

**Options :**

6406531194135. ✘ F01

6406531194136. ✘ F02

6406531194137. ✘ F03

6406531194138. ✓ F04

**Question Number : 265 Question Id : 640653360518 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction****Time : 0****Correct Marks : 1**

Question Label : Multiple Choice Question

From the table, calculate the revenue growth on 8th July 2022 with respect to 7th July 2022 and select the closest option given below.

Date	Revenue Generated
01-07-2022	₹ 6,03,880
02-07-2022	₹ 5,72,620
03-07-2022	₹ 5,96,220
04-07-2022	₹ 6,21,660
05-07-2022	₹ 6,39,420
06-07-2022	₹ 6,17,920
07-07-2022	₹ 5,79,140
08-07-2022	₹ 5,80,380
09-07-2022	₹ 6,14,380
10-07-2022	₹ 5,91,360
11-07-2022	₹ 6,20,220
12-07-2022	₹ 5,64,220
13-07-2022	₹ 5,97,820
14-07-2022	₹ 6,05,160
15-07-2022	₹ 5,80,020
<b>Grand Total</b>	<b>₹ 89,84,420</b>

**Options :**

6406531194139. ✘ 3%

6406531194140. ✘ -3%

6406531194141. ✘ 1%

6406531194142. ✓ 0%

**Question Number : 266 Question Id : 640653360519 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Pareto chart does not identify \_\_\_\_\_.

**Options :**

6406531194143. ❌ The Products which contribute to all of the company's revenue and sales volumes

6406531194144. ❌ The Products which do not contribute at all towards the revenue and sales

6406531194145. ❌ Company's best performing Products

6406531194146. ✓ Future Trends

**Question Number : 267 Question Id : 640653360520 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Match the following.

1	Pareto Principle	a	Current Assets - Current Liabilities
2	Working Capital	b	With the available Open Stock, how many days of demand can be met?
3	Average Days of Inventory Cover	c	80:20 Analysis
4	Backorder	d	Accepting an order that is temporarily out of stock

**Options :**

6406531194147. ✓ 1: c; 2: a; 3: b; 4: d

6406531194148. ✘ 1: a; 2: c; 3: b; 4: d

6406531194149. ✘ 1: b; 2: c; 3: a; 4: d

6406531194150. ✘ 1: a; 2: b; 3: d; 4: c

**Question Number : 268 Question Id : 640653360528 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

When arranging the type of plans in ascending order, their duration of the plan (in terms of Time), Which of the following sequence is more appropriate for low technology and quick set up factory operation?

**Options :**

6406531194176. ✘ Strategic Plan – Capacity Requirement Plan – Purchase Plan – Production Plan – Shift Operation Plan

6406531194177. ✓ Shift Operation Plan – Production Plan – Purchase Plan – Capacity Requirement Plan – Strategic Plan

6406531194178. ✘ Shift Operation Plan – Production Plan – Purchase Plan – Strategic Plan - Capacity Requirement Plan

6406531194179. ✘ Shift Operation Plan – Purchase Plan – Production Plan – Capacity Requirement Plan – Strategic Plan

**Question Number : 269 Question Id : 640653360529 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The graph below indicates which of the following

### Production Issue and Order Quantity (Blank-011)



#### Options :

6406531194180. ✘ Order Quantity is constant between Mar-19 and Jan-20
6406531194181. ✘ Order Quantity follows production issues
6406531194182. ✓ Order Quantity is likely to be influenced by existing inventory
6406531194183. ✘ No meaningful conclusion can be arrived from the graph.

**Question Number : 270 Question Id : 640653360530 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Internal Pool Sourcing is\_\_\_\_\_

#### Options :

6406531194184. ✘ pooling employees together to form a team
6406531194185. ✓ filling a vacant position from within the organisation
6406531194186. ✘ transferring an employee to the bench once the project is completed
6406531194187. ✘ firing an employee from the project

**Question Number : 271 Question Id : 640653360533 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following is typically not a component of the “job description”?

**Options :**

6406531194196. ✘ Skills required for the job

6406531194197. ✘ Key responsibilities

6406531194198. ✘ job performance indicators

6406531194199. ✓ recruitment process

**Question Number : 272 Question Id : 640653360534 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following is not true?

**Options :**

6406531194200. ✓ appraisal of the candidate is a mandatory input during the recruitment process

6406531194201. ✘ appraisal is the process of evaluating an employee's current and/or past performance against certain predetermined standards

6406531194202. ✘ All organisations have formal or informal means of appraising their employees' performance

6406531194203. ✘ The performance appraisal process will include defining the job, appraising performance and providing feedback

**Question Number : 273 Question Id : 640653360535 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

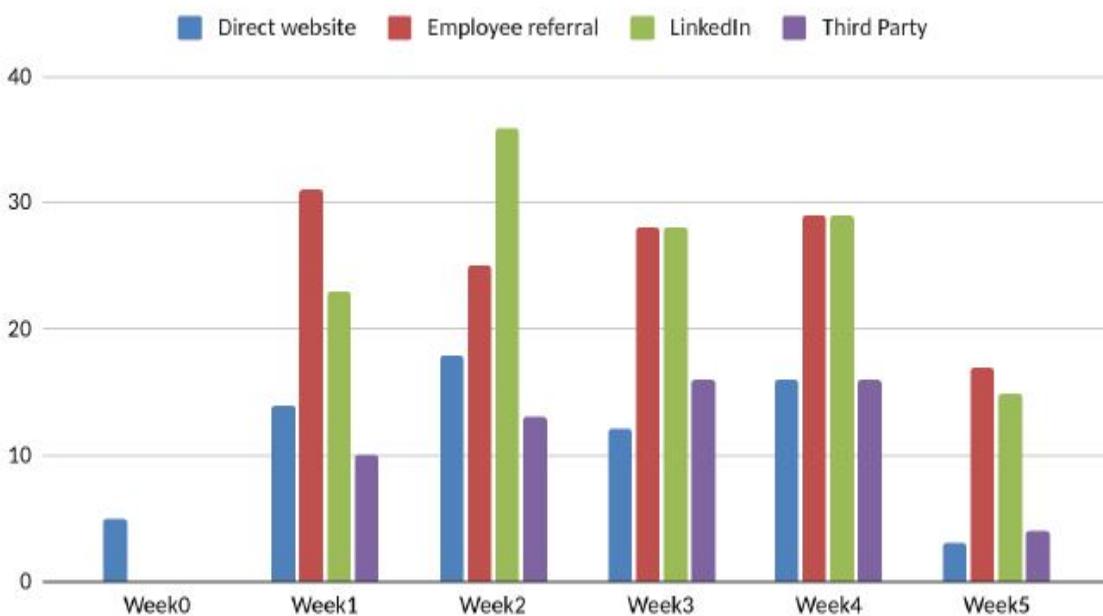
**Correct Marks : 1**

Question Label : Multiple Choice Question

The graph below indicates which of the following?

This graph is based on the HR manager's analysis of various job application channels. Please answer based on the graph only.

Weekly application count



**Options :**

6406531194204. ❌ Third Party and Direct Website Advertisements contribute to the least application receipt per unit cost.

6406531194205. ❌ Employee Referral is the most preferred channel of application receipt

6406531194206. ❌ The likelihood of a candidate getting selected is higher when he applies through LinkedIn rather than the employer's Direct Website

6406531194207. ✓ LinkedIn fares better than Third Party Sources in application receipt

**Question Number : 274 Question Id : 640653360540 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following is not an actionable inference from A/B Testing?

**Options :**

6406531194220. ❌ Understanding Purchase Behaviors of Customers

6406531194221. ✓ Deciding Stock Keeping Limits of Warehouses

6406531194222. ✗ Promoting specific products

6406531194223. ✗ Making UI/UX changes in the website

**Question Number : 275 Question Id : 640653360542 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

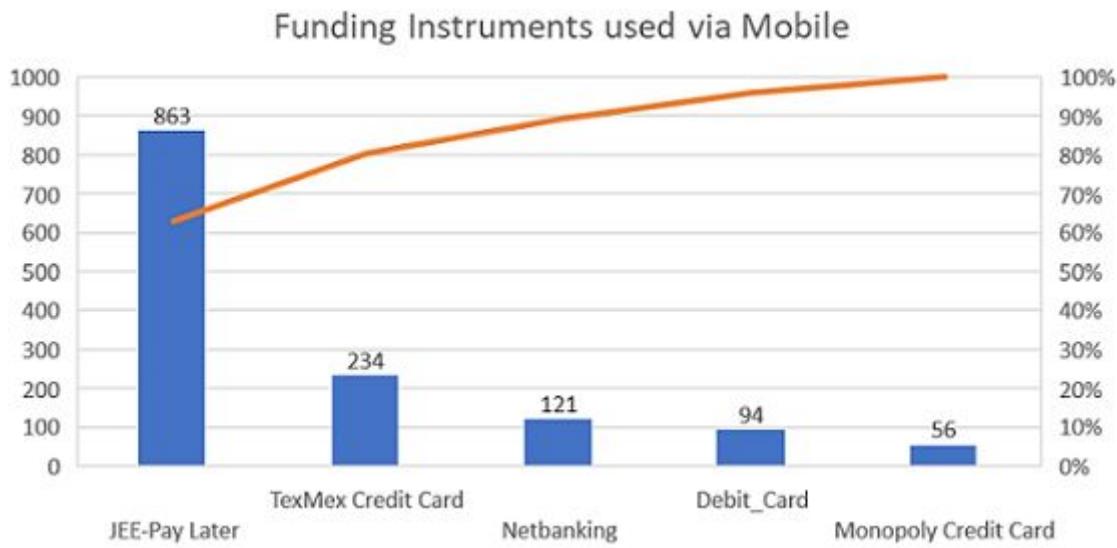
**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The following graph shows the distribution of Funding Instruments used on Mobile Devices by users for various purchases. State whether the following statement is True or False

**Statement :** *The chart follows the Pareto Principle.*



**Options :**

6406531194228. ✓ FALSE

6406531194229. ✗ TRUE

**Question Number : 276 Question Id : 640653360543 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Point out the drawback of BNPL (Buy Now Pay Later) for companies.

**Options :**

- 6406531194230. ✘ It increases the level of engagement of customers
- 6406531194231. ✘ Enables Cash-Strapped millennials to make purchases
- 6406531194232. ✓ Increases prospects of defaulting by customer
- 6406531194233. ✘ Shift's user's loyalty away from the competition

**Question Number : 277 Question Id : 640653360544 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

If a FinTech company wants to cut down losses, which of the following should they do?

**Options :**

- 6406531194234. ✘ Decrease approval cutoff of credit score
- 6406531194235. ✘ Increase approval limit for loans
- 6406531194236. ✓ Increase approval cutoff of credit score
- 6406531194237. ✘ Give more loans

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352592

**Question Shuffling Allowed :** Yes

**Question Number : 278 Question Id : 640653360503 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Why is the quick ratio a more rigorous test of short-term solvency than the current ratio? (Choose all that are applicable)

**Options :**

6406531194102. ✓ The quick ratio considers only cash and marketable securities as current assets
6406531194103. ✗ The quick ratio eliminates prepaid expenses for the numerator
6406531194104. ✗ The quick ratio eliminates prepaid expenses for the denominator
6406531194105. ✓ The quick ratio eliminates inventories from the numerator

**Question Number : 279 Question Id : 640653360512 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Which of the following statement(s) is/are true (choose all that is applicable)

**Options :**

6406531194115. ✓ Cross Price Elasticity and Income Elasticity both measure shift in demand curve
6406531194116. ✗ Cross Price Elasticity and Income Elasticity both measure movement along demand curve
6406531194117. ✗ Cross Price Elasticity measures shift in demand curve and Income Elasticity measure movement along demand curve
6406531194118. ✗ Cross Price Elasticity measure movement along demand curve and Income Elasticity both measure shift in demand curve

**Question Number : 280 Question Id : 640653360516 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Which of the following options is/are correct? (Multi-Select)

If you increase the production volume:

**Options :**

6406531194131. ✓ The capacity utilization is increased
6406531194132. ✗ The capacity utilization is decreased

6406531194133. ❌ ROCE is decreased

6406531194134. ✅ ROCE is increased

**Question Number : 281 Question Id : 640653360521 Question Type : MSQ Is Question**

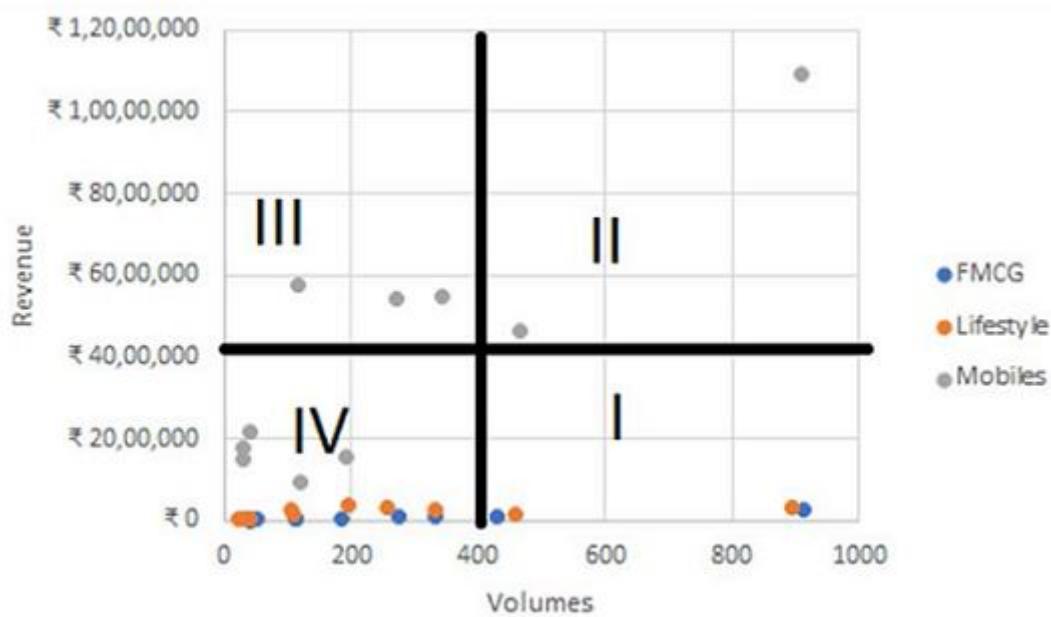
**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

From the following Figure and options, which quadrant products will be placed in the secure area?

- Select all that apply



**Options :**

6406531194151. ❌ I

6406531194152. ✅ II

6406531194153. ✅ III

6406531194154. ❌ IV

**Question Number : 282 Question Id : 640653360522 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Increase in which of the following items reduces the Net Margin? Choose all that apply

**Options :**

6406531194155. ❌ Revenue

6406531194156. ✓ Direct Material Cost

6406531194157. ✓ Direct Labour Cost

6406531194158. ✓ Shipping Cost

6406531194159. ✓ Tax on the Manufactured Product

**Question Number : 283 Question Id : 640653360523 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Enterprise Resource Planning (ERP) enables the integration of which of the following domains?

Choose all that apply

**Options :**

6406531194160. ✓ Sales and Marketing

6406531194161. ✓ Operations

6406531194162. ✓ Human Resources

6406531194163. ✓ Logistics

**Question Number : 284 Question Id : 640653360531 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

In which recruiting process(es) would an HR manager be dealing with qualitative (subjective) data?

Choose all that apply

**Options :**

6406531194188. ✓ resume shortlisting

6406531194189. ✓ job planning

6406531194190. ✗ interview scheduling

6406531194191. ✓ interview

**Question Number : 285 Question Id : 640653360532 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Which parameters would be useful during a typical “Resume Shortlisting” exercise? Choose all that apply

**Options :**

6406531194192. ✓ Last drawn Salary

6406531194193. ✓ Skill set of the Employee

6406531194194. ✓ Years of Work Experience

6406531194195. ✗ Hobbies of the Employee

**Question Number : 286 Question Id : 640653360541 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

From a Credit approver’s perspective, who among the following would be allowed to draw a credit for purchases?

**Options :**

6406531194224. ✓ Person B with High credit score, with low engagement with the platform

6406531194225. ✓ Person C with Average Credit Score, with High Engagement with the platform

6406531194226. ✗ Person A with low credit score with low engagement with the platform

6406531194227. ✗ Person D with maximum number of credit cards with no credit score

**Sub-Section Number :**

4

**Sub-Section Id :**

64065352593

**Question Shuffling Allowed :**

Yes

**Question Number : 287 Question Id : 640653360502 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

A straight-line demand curve with slope of -1 intersects the horizontal axis at 100 tons per week At the midpoint of the demand curve (corresponding to 50 tons per week) the price elasticity of demand is \_\_

*(Hint: The demand curve is moving from the mid-point to the point on the horizontal axis)*

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

-1

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352594

**Question Shuffling Allowed :** No

**Question Id : 640653360504 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (288 to 289)**

Question Label : Comprehension

The data for producing a product is provided in the Table below Using this information, answer the given subquestions

Total Fixed cost (Rs.)	Variable cost per unit (Rs./ unit)	Number of units produced (units)
15	0	0
15	3	10
15	5	14
15	5	19
15	4	21
15	2	32

### Sub questions

**Question Number : 288 Question Id : 640653360505 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

What is the point (in terms of number of units to be produced in the given table) where the production should be located?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

32

**Question Number : 289 Question Id : 640653360506 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

Why do you choose the previous point (choose all that is applicable)?

**Options :**

6406531194107. ✘ Because, fixed cost is constant at all points

6406531194108. ✘ Because it is point where the marginal cost is minimum

6406531194109. ✘ Because it is the point where the profit is maximum

**Question Id : 640653360524 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (290 to 292)**

Question Label : Comprehension

Please answer the given subquestions on the Overall Equipment Effectiveness of fasteners manufacturing.

**Hint:**

Just in case you forgot the formula

Availability = Run Time / Planned Production Time

Run Time = Planned Production Time – Lost Time

Performance = (Total Count / Run Time) / Ideal Run Rate

Quality = Good Count / Total Count

OEE = Availability × Performance × Quality

**Sub questions**

**Question Number : 290 Question Id : 640653360525 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

In a factory that manufactures fasteners, the bolt manufacturing process went out of control only in terms of the number of scraps produced. Which factor(s) of Overall Equipment Effectiveness (OEE) will be affected?

- a) availability, b) performance, c) quality

**Options :**

6406531194164. ✘ only b

6406531194165. ✓ only c

6406531194166. ✗ b and c

6406531194167. ✗ only a

**Question Number : 291 Question Id : 640653360526 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Calculate the OEE of the Bolt Manufacturing Equipment

Parameters	Week 1
Planned Production Hours (PPH)	100
Lost Time (LOT)	16
Designed Gear Output Speed from Equipment (DO) per Hour	60
Total Product Output	4650
Scrap (S)	143

Hint: Choose the closest Answer

**Options :**

6406531194168. ✗ 0.83

6406531194169. ✓ 0.75

6406531194170. ✗ 0.90

6406531194171. ✗ Insufficient Information

**Question Number : 292 Question Id : 640653360527 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

An 8-hour no downtime shift has an OEE of 0.90 performing at its designed speed and produces a total scrap of 90 units. What is the total number of units produced in the shift?

**Options :**

6406531194172. ✘ 810

6406531194173. ✘ 9000

6406531194174. ✓ 900

6406531194175. ✘ Insufficient Information

**Question Id : 640653360536 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (293 to 295)**

Question Label : Comprehension

Company HiringSoft wants to recruit Software Engineers for its new project. The hiring manager was tasked with choosing the appropriate hiring channel. The manager collected previous hiring data (provided in the table below) to help narrow down the appropriate channel. All channels advertised for the vacant positions on the same day.

Recruitment Channels	Application Received in 14 days	Application Shortlisted	No. of Candidates appeared for Interview	No. of Candidates Selected	Cost of Advertisement for 14 Days (INR)
Employee Referrals	40	32	24	12	120000
Direct Company Website	60	12	8	2	5000
Social and Professional Media	260	36	16	4	20000
Hiring Portals	220	90	30	6	100000
Print Ads	20	10	8	1	5000

Based on the above data, answer the given subquestions.

**Sub questions**

**Question Number : 293 Question Id : 640653360537 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which channel has the best shortlist success rate? The Shortlist success rate is defined as the shortlisted applications to applications received.

**Options :**

6406531194208. ❌ Hiring Portals

6406531194209. ❌ Social and Professional Media

6406531194210. ❌ Print Ads

6406531194211. ✓ Employee Referrals

**Question Number : 294 Question Id : 640653360538 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

If the hiring manager has to go only with the parameter, cost per candidated selected, which would be the most appropriate channel?

**Options :**

6406531194212. ✓ Direct Company Website

6406531194213. ❌ Print Ads

6406531194214. ❌ Employee Referrals

6406531194215. ❌ Social and Professional Media

**Question Number : 295 Question Id : 640653360539 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which channel has the worst selection success rate? The Selection success rate is defined as the no. of candidates selected to the no. of applications shortlisted.

**Options :**

6406531194216. ✘ Social and Professional Media

6406531194217. ✘ Print Ads

6406531194218. ✓ Hiring Portals

6406531194219. ✘ Employee Referrals

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352595

**Question Shuffling Allowed :** No

**Question Id : 640653360507 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (296 to 299)**

Question Label : Comprehension

The below table provides the consolidated values of a company-X's financial performance (ignore all other non-mentioned financial parameters) Using this, answer the given subquestions

Particular	Rs.
Current assets	320000
Current liabilities	140000
Total value of inventory	140000
Fixed expenses	120000
Gross profit earned	130000
Total sales achieved	250000

**Sub questions**

**Question Number : 296 Question Id : 640653360508 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

What is the gross profit margin (in %) for company-X (round to two decimal places)

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

51 to 53

**Question Number :** 297 **Question Id :** 640653360509 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

What is the net profit for company-X?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

10000

**Question Number :** 298 **Question Id :** 640653360510 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

What is the current ratio for company-X (round to two decimal places)

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

2.10 to 2.30

**Question Number : 299 Question Id : 640653360511 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

What is the quick ratio for company-X (round to two decimal places)

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

1.10 to 1.30

## Business Analytics

<b>Section Id :</b>	64065322451
<b>Section Number :</b>	9
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	18
<b>Number of Questions to be attempted :</b>	18
<b>Section Marks :</b>	55
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1

**Sub-Section Id :** 64065352596

**Question Shuffling Allowed :** No

**Question Number : 300 Question Id : 640653360545 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: BUSINESS ANALYTICS"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**

**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406531194238. ✓ Yes

6406531194239. ✗ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352597

**Question Shuffling Allowed :** Yes

**Question Number : 301 Question Id : 640653360570 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

A leading European two-wheeler manufacturer is trying to build an ideal scooter for the Indian market. Which of the following tools will help him understand: how important the attributes such as Engine Capacity, LED Lights, Fuel Efficiency, and Smart Connect Technology are to the customers?

**Options :**

6406531194287. ✗ Data Envelopment Analysis

6406531194288. ✓ Conjoint Analysis

6406531194289. ❌ Chi-Square test

6406531194290. ❌ Both Data Envelopment Analysis & Chi-Square test

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352598

**Question Shuffling Allowed :** Yes

**Question Number : 302 Question Id : 640653360561 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Suppose you conduct a chi-squared test of independence on the categorical variables cities and brand preferences at the significance level 0.1. You obtain a p-value of 0.05. What will you conclude?

**Options :**

6406531194266. ❌ Reject the null hypothesis and conclude that the categorical variables are independent

6406531194267. ✓ Reject the null hypothesis and conclude that the categorical variables are not independent

6406531194268. ❌ Fail to reject the null hypothesis and conclude that the categorical variables are independent

6406531194269. ❌ Fail to reject the null hypothesis and conclude that the categorical variables are not independent

**Question Number : 303 Question Id : 640653360567 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

There are 4 business units. Using the DEA, you solve the LP for all the four business units and find the efficiencies for these units. The efficiency is denoted by E. For these units,  $E_1 = 0.92$ ,  $E_2 = 0.89$ ,

E3 = 1, E4 = 0.91. Which of these units are efficient?

**Options :**

6406531194278. ✘ 1

6406531194279. ✘ 2

6406531194280. ✓ 3

6406531194281. ✘ 4

**Question Number : 304 Question Id : 640653360572 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Which of the following is not a form of conjoint analysis?

**Options :**

6406531194295. ✘ Choice based

6406531194296. ✘ Adaptive based

6406531194297. ✘ Full profile

6406531194298. ✓ Selective attribute type

6406531194299. ✘ Menu-based

**Question Number : 305 Question Id : 640653360573 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

In a conjoint problem with 4 products and 2 attributes, how many pair-wise preferences are possible?

**Options :**

6406531194300. ✘ 8

6406531194301. ✓ 6

6406531194302. ✘ 16

6406531194303. ✘ 12

**Question Number : 306 Question Id : 640653360574 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Let's say a customer wants to buy a car and has 3 brands to choose from; 2 engine options; and 3 type of gear boxes. How many options will the customer rate or rank for performing the conjoint analysis?

**Options :**

6406531194304. ✓ 18

6406531194305. ✘ 27

6406531194306. ✘ 54

6406531194307. ✘ 72

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352599

**Question Shuffling Allowed :** Yes

**Question Number : 307 Question Id : 640653360552 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Say a data is distributed as "Normal" with a right tail. If it is compared with an "Symmetric Normal" distribution, then which of the following states is/ are true (choose all that is applicable)

**Options :**

6406531194254. ✘ In a "P-P plot", the data will fall on a line which is indicate at 45-degree to the X-axis

6406531194255. ✓ In a "Q-Q plot", the data will fall on a line which is indicate at 45-degree to the

## X-axis

6406531194256. ✓ In a “P-P plot”, the data will not entirely fall on a line which is indicate at 45-degree to the X-axis

6406531194257. ✗ In a “Q-Q plot”, the data will not entirely fall on a line which is indicate at 45-degree to the X-axis

6406531194258. ✗ Cannot use P-P plot or Q-Q plot as the assumed distribution is discrete

**Question Number : 308 Question Id : 640653360563 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

There are 7 business units and you are using the DEA to compare them. You solve the LP for business unit 5. You find from the constraint expression that the business unit 3 has obtained an efficiency of 0.8 and the business unit 7 has obtained an efficiency of 0.9 with the optimal weights of business unit 5. Which of the following statements are correct?

**Options :**

6406531194271. ✓ Business unit 3 may be inefficient

6406531194272. ✗ Business unit 3 will be efficient

6406531194273. ✓ Business unit 7 may be inefficient

6406531194274. ✗ Business unit 7 will be efficient

**Question Number : 309 Question Id : 640653360571 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

What is the format of data needed for performing the conjoint analysis using the Statistical or Linear Regression Approach?

**Options :**

6406531194291. ✓ Consumer Choice Data is Ranking or Ratings

6406531194292. ✘ Consumer Choice Data is Pairwise Comparison

6406531194293. ✘ Value of the attributes are continuous

6406531194294. ✓ Value of the product attributes are categorical

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352600

**Question Shuffling Allowed :** Yes

**Question Number : 310 Question Id : 640653360562 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

You have estimated the demand to follow the following relationship:  $D(p)=100 - 20*p$ . Now, you intend to maximize the revenue  $R(p)=D(p)*p$ . You find the first derivative of  $R(p)$  with respect to  $p$ , equate it to 0 and find  $p^*$ . What is the value of  $p^*$ ?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

2.4 to 2.6

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352601

**Question Shuffling Allowed :** Yes

**Question Number : 311 Question Id : 640653360565 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

In a multiple linear regression with 3 explanatory variables, you find that R-squared value is 0.75.

The number of observations is 25. What is the value of adjusted R-squared?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.66 to 0.76

**Question Number :** 312 **Question Id :** 640653360569 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 3

**Question Label :** Short Answer Question

You are conducting a multiple linear regression with sales as the dependent variable. Price, quantity and rating score are the independent variables. In the multiple linear regression, you find that the direct effect of price on sales is 0.3, the direct effect of quantity on sales is 0.2 and the direct effect of rating score on sales is 0.4. And, you also know that the effect of price on quantity is 0.2 and the effect of price on rating score is 0.1. What is the total effect of price on sales?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.36 to 0.40

**Sub-Section Number :** 7

**Sub-Section Id :** 64065352602

**Question Shuffling Allowed :** Yes

**Question Number :** 313 **Question Id :** 640653360568 **Question Type :** MSQ Is Question

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

You solve the primal of a linear program with maximization objective, three decision variables and two constraints of the less than or equal to type. Non-negativity restrictions apply on the decision variables. After solving the linear program, you find that the first constraint is not binding ( $\text{lhs} < \text{rhs}$ ) and the second constraint is not binding ( $\text{lhs} < \text{rhs}$ ). Which of the following statements are correct?

**Options :**

6406531194282. ❌ There are three decision variables in the dual

6406531194283. ✓ The dual variable corresponding to the first constraint is zero

6406531194284. ❌ There are four decision variables in the dual

6406531194285. ✓ The dual variable corresponding to the second constraint is zero

**Sub-Section Number :** 8

**Sub-Section Id :** 64065352603

**Question Shuffling Allowed :** Yes

**Question Number : 314 Question Id : 640653360564 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

There are 6 business units. There are two outputs and one input under consideration. You are solving the optimization problem for business unit 3 and find that the efficiency is 0.7. You find that the dual variables corresponding to the constraints of business units 4 and 5 are non-zero and the dual variables corresponding to the constraints of other units are zero. The dual variables corresponding to the constraints of business units 4 and 5 are 0.3 and 0.4 respectively. You are given the following table where sales and number of leads are the two outputs.

	Sales	Number of leads
Business unit 4	8500	10
Business unit 5	8200	12

What is the sales in HCU 3?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

8325 to 8335

**Question Number : 315 Question Id : 640653360566 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

You are conducting a multiple linear regression with sales as the dependent variable. Price, quantity and rating score are the independent variables. In order to calculate the VIF for the variable quantity, you implement a linear regression with quantity as the dependent variable and other variables as independent variables and obtain R-squared of 0.6. What is the VIF for the variable quantity?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

2.4 to 2.6

**Sub-Section Number :** 9

**Sub-Section Id :** 64065352604

**Question Shuffling Allowed :** No

**Question Id : 640653360546 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (316 to 320)**

Question Label : Comprehension

Ms. X is working is with the data given in Table-1 below. Using this information answer the given subquestions

Product	Sales of a Product in a City for a given Year								
	City-1 (1990)	City-2 (1990)	City-3 (1990)	City-1 (1991)	City-2 (1991)	City-3 (1991)	City-1 (1992)	City-2 (1992)	City-3 (1992)
A	100	90	250	120	50	120	140	20	500
B	145	300	500	175	250	250	195	230	1000
C	90	180	30	100	110	15	110	95	58
D	130	220	132	140	200	61	150	180	270

Table-1

### Sub questions

**Question Number : 316 Question Id : 640653360547 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

If X wants visualize how the sales of a product has changed over the years in the different cities, then which visualization would be most appropriate?

**Options :**

6406531194240. ✓ Line graph for each product's sales over the years for each city

6406531194241. ✗ Line graph for each city's sale over the years for each product

6406531194242. ✗ Line graph for each year's sale for every product in each city

6406531194243. ✗ Pie chart for each product's sales in the year 1992 for each city

6406531194244. ✗ Pie chart for each city's sales in the year 1992

6406531194245. ✗ The given table data with columns re-arranged as specified below

Product	Sales of a Product in a City for a given Year								
	City-1 (1990)	City-1 (1991)	City-1 (1992)	City-2 (1990)	City-2 (1991)	City-2 (1992)	City-3 (1990)	City-3 (1991)	City-3 (1992)

**Question Number : 317 Question Id : 640653360548 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

If Ms. X has created the below visualization (Figure-1) for the data of product-A in Table-1. **What is the primary message** that is conveyed through this?

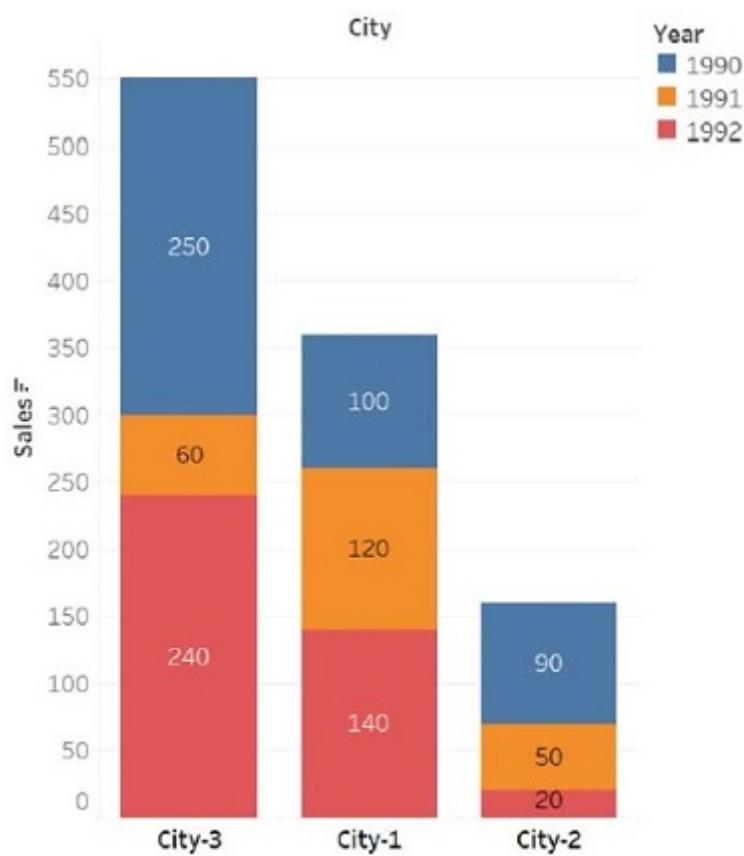


Figure-1

**Options :**

- 6406531194246. ✘ City-3 has the highest sales for the product-A in the current year
- 6406531194247. ✘ The sales of Product-A is constantly fluctuating over the years
- 6406531194248. ✘ The sales of Product-A is drastically different across cities in any given year
- 6406531194249. ✓ The sales of product-A in city-2 is lowest among all the cities in any given year

6406531194250. ✘ None of these

**Question Number : 318 Question Id : 640653360549 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Say you want to see if the distribution of sales of Product-A in the Table-1 follows a uniform distribution within the range of 0 to 300 when split into bins as specified in Table-2. Then what is the expected frequency in any given bin (round your answer to two decimal places)?

Bin Number	Bin Range
Bin-1	Sales value less than or equal to 50
Bin-2	Sales value greater than 50 but less than or equal to 100
Bin-3	Sales value greater than 100 but less than or equal to 150
Bin-4	Sales value greater than 150 but less than or equal to 200
Bin-5	Sales value greater than 200 but less than or equal to 250
Bin-6	Sales value greater than 250 but less than or equal to 300

Table-2

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

1.5

**Question Number : 319 Question Id : 640653360550 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

If a Chi-Square Goodness-Of-Fit Test to check if the data for Product-A in Table-1 follows a Uniform Distribution with bins as specified in Table-2, then what is the value of the Test statistic (round your answer to two decimal places)?

$$\{ \text{Hint: Chi-square} = \sum_k \frac{(observed_k - Expected_k)^2}{Expected_k} \}$$

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

3.50 to 3.70

**Question Number :** 320 **Question Id :** 640653360551 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

**Question Label :** Short Answer Question

A Chi-squared Goodness-Of-Fit test with the bins as specified in Table-2 is going to be carried out to check if the data on sales (whole data in Table-1) is normal or not. Then what is the degrees of freedom for the test?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

3

**Question Id :** 640653360553 **Question Type :** COMPREHENSION **Sub Question Shuffling**

**Allowed :** No Group Comprehension Questions : No **Calculator :** None **Response Time :** N.A

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (321 to 327)**

Question Label : Comprehension

A logistic model has been fit for a data set with the goal to predict the positive class (Y=1). The confusion matrix obtained for this model on the test dataset is provided in Table-3. Using this, answer the given subquestions

Actual	Predictions	
	1	0
1	11	45
0	77	23

Table-3

**Sub questions**

**Question Number : 321 Question Id : 640653360554 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

How many "True Positives" is the model predicting?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

11

**Question Number : 322 Question Id : 640653360555 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

How many “False Positives” is the model predicting?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

77

**Question Number :** 323 **Question Id :** 640653360556 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

How many “True Negatives” is the model predicting?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

23

**Question Number :** 324 **Question Id :** 640653360557 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

How many “False Negatives” is the model predicting?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

45

**Question Number :** 325 **Question Id :** 640653360558 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 1

Question Label : Short Answer Question

What is the accuracy for the model (enter only the numerical value in percentage, without the "%" symbol and round it to two decimal places)?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

21.00 to 22.00

**Question Number :** 326 **Question Id :** 640653360559 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

Question Label : Short Answer Question

What is the recall for the model when predicting the negative class (enter only the numerical value in percentage, without the "%" symbol and round it to two decimal places)?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

22.80 to 23.20

**Question Number : 327 Question Id : 640653360560 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

**Question Label : Short Answer Question**

What is the precision for the model when predicting the positive class (enter only the numerical value in percentage, without the "%" symbol and round it to two decimal places)?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Range**

**Text Areas : PlainText**

**Possible Answers :**

12.00 to 13.00

## DBMS

<b>Section Id :</b>	64065322452
<b>Section Number :</b>	10
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	26
<b>Number of Questions to be attempted :</b>	26
<b>Section Marks :</b>	50
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and</b>	Yes
<b>Clear Response :</b>	

<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352605
<b>Question Shuffling Allowed :</b>	No

**Question Number : 328 Question Id : 640653360575 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: DATABASE MANAGEMENT SYSTEMS"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**

**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406531194308. ✓ Yes

6406531194309. ✗ No

<b>Sub-Section Number :</b>	2
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<b>Sub-Section Id :</b>	64065352606
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<b>Question Shuffling Allowed :</b>	Yes
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**Question Number : 329 Question Id : 640653360579 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Consider the relation  $R(A, B, C, D, E)$  and the functional dependencies set  $\mathcal{F} = \{AD \rightarrow E, B \rightarrow D, BC \rightarrow A, E \rightarrow A, AB \rightarrow C, AC \rightarrow B\}$ .

Let  $R1(A, B, C, E)$  be the one of the decomposed relation. Find out the number of candidate keys applicable to  $R1(A, B, C, E)$ .

**Options :**

6406531194323. ✘ 1

6406531194324. ✓ 2

6406531194325. ✘ 3

6406531194326. ✘ 4

**Question Number : 330 Question Id : 640653360584 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

A role **Department\_Lead** has the privilege of delete and update on all the tables of the database.

A new role **Employee1** is created, and the following statement is executed.

```
grant Department_Lead to Employee1
```

What privileges will be inherited by **Employee1**?

**Options :**

6406531194344. ✘ All privileges - select, insert, delete and update

6406531194345. ✘ Only select

6406531194346. ✓ Only delete and update

6406531194347. ✘ Only select and insert

**Question Number : 331 Question Id : 640653360585 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Consider the following statements:

**Statement 1:** In case a transaction is not completely executed due to logical errors, the redo operation is used for transaction rollback.

**Statement 2:** A transaction  $T_1$  needs to be undone, if it contains the record  $\langle T_1, \text{start} \rangle$  and also contains the record  $\langle T_1, \text{commit} \rangle$ .

**Statement 3:** A transaction  $T_1$  needs to be redone, if it contains the record  $\langle T_1, \text{start} \rangle$ , but does not contain the record  $\langle T_1, \text{commit} \rangle$ .

**Statement 4:** When a transaction  $T_1$  finishes its last statement successfully, the log record  $\langle T_1, \text{commit} \rangle$  is written.

Which among the given statements is/are correct?

**Options :**

6406531194348. ✘ Only statement 1

6406531194349. ✘ Statement 2 & 3

6406531194350. ✘ Statement 1 & 4

6406531194351. ✓ Only statement 4

**Question Number : 332 Question Id : 640653360593 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Consider a relational schema **student**(*roll\_no, name, class*).

In order to insert a record in student table, which of the following category of SQL command is used for this purpose?

**Options :**

6406531194377. ✓ DML

6406531194378. ✘ TCL

6406531194379. ✘ DDL

6406531194380. ✘ DCL

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352607

**Question Shuffling Allowed :** Yes

**Question Number : 333 Question Id : 640653360581 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

**Question Label : Multiple Choice Question**

Consider the relation  $\text{students}(roll\_no, name, course, section, department)$  having functional dependencies

$$\mathcal{F} = \{roll\_no \rightarrow name, \\ roll\_no \rightarrow section, department \\ course \rightarrow department\}$$

If the relation  $\text{students}$  is decomposed into  $\text{student_dept}(roll\_no, course, section, department)$  and  $\text{student_info}(roll\_no, name)$

Then, choose the appropriate SQL query to create  $\text{student_dept}$  and  $\text{student_info}$  tables.

**Options :**

CREATE TABLE student\_dept (roll\_no varchar(10), course varchar(10),  
section varchar(10), department varchar(10), primary key (roll\_no, course))

CREATE TABLE student\_info(roll\_no varchar(10),

6406531194332. ✘ name varchar(10), primary key (roll\_no, name))

CREATE TABLE student\_dept (roll\_no varchar(10), course varchar(10),  
section varchar(10), department varchar(10), primary key (course))

CREATE TABLE student\_info(roll\_no varchar(10) primary key,

6406531194333. ✘ name varchar(10))

CREATE TABLE student\_dept (roll\_no varchar(10), course varchar(10),  
section varchar(10), department varchar(10), primary key (roll\_no))

CREATE TABLE student\_info(roll\_no varchar(10) primary key,

6406531194334. ✘ name varchar(10))

CREATE TABLE student\_dept (roll\_no varchar(10), course varchar(10),  
section varchar(10), department varchar(10), primary key (roll\_no, course))

CREATE TABLE student\_info(roll\_no varchar(10) primary key,

6406531194335. ✓ name varchar(10))

**Question Number : 334 Question Id : 640653360582 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the relation **players**(Name, Team, Coach, Runs) with the data:

Name	Team	Coach	Runs
Sharma	CSK	Steven	99
Sharma	MI	Mahela	50
Sharma	MI	Mahela	99
Sharma	CSK	Steven	50
Khan	RCB	S K Joseph	45
Khan	GT	Matthew	80
Khan	GT	Matthew	45
Khan	RCB	S K Joseph	80

Table 1: players

Check whether the relation **players** is in 4NF or not. If not, then decomposed it into 4NF.

Choose the correct option.

**Options :**

Name	Runs
Sharma	99
Sharma	50
Khan	45
Khan	80

6406531194336. ✓

Table 2: players1

Name	Team	Coach
Sharma	CSK	Steven
Sharma	MI	Mahela
Khan	RCB	S K Joseph
Khan	GT	Matthew

Table 3: players2

6406531194337. ✗

Name	Team	Runs
Sharma	CSK	99
Sharma	MI	50
Khan	RCB	45
Khan	GT	80

Table 4: players1

Team	Coach
CSK	Steven
MI	Mahela
RCB	S K Joseph
GT	Matthew

Table 5: players2

Name	Team	Runs
Sharma	CSK	99
Sharma	MI	50
Khan	RCB	45
Khan	GT	80

Table 6: players1

Name	Coach	Runs
Sharma	Steven	99
Sharma	Mahela	50
Khan	S K Joseph	80
Khan	Matthew	45

Table 7: players2

6406531194338. ✳

6406531194339. ✳ The relation players is in 4NF.

**Question Number : 335 Question Id : 640653360583 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the given **grocery** table which represents the items purchased while grocery shopping

grocery_item	quantity	value	discount
Cereal	3	450	10
Chips	5	200	5
Milk	2	300	0
Banana	10	350	5
Tomato	5	200	5

Figure 1: grocery

Which among the following query will fetch the output given below?

grocery_item	discount
Cereal	10
Milk	0

Options :

SELECT grocery\_item, discount  
FROM grocery

6406531194340. ✘ WHERE quantity<=5 ORDER BY value

SELECT grocery\_item, discount  
FROM grocery

6406531194341. ✘ WHERE quantity>5 ORDER BY discount DESC

SELECT grocery\_item, discount  
FROM grocery

6406531194342. ✘ WHERE quantity>=5 ORDER BY quantity ASC

SELECT grocery\_item, discount  
FROM grocery

6406531194343. ✓ WHERE quantity<5 ORDER BY value DESC

Question Number : 336 Question Id : 640653360592 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the following schedule **S** with four transactions T1, T2, T3, T4:

**S**: R3(A);W4(A);R2(A);W2(A);R4(B);R1(B);

Where, Ri(A) denotes a read operation by transaction Ti on a data item A, Wi(A) denotes a write operation by transaction Ti on a data item A.

What is the possible number of conflict serializable schedule of the above schedule **S**?

**Options :**

6406531194373. ✓ 4

6406531194374. ✗ 3

6406531194375. ✗ 1

6406531194376. ✗ 0

**Question Number : 337 Question Id : 640653360594 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the given relations:

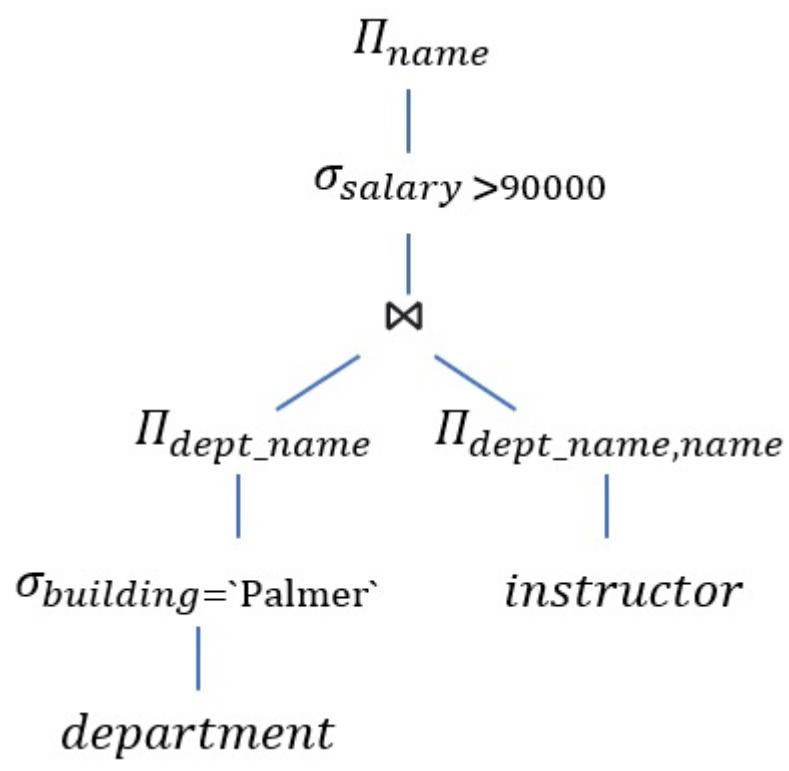
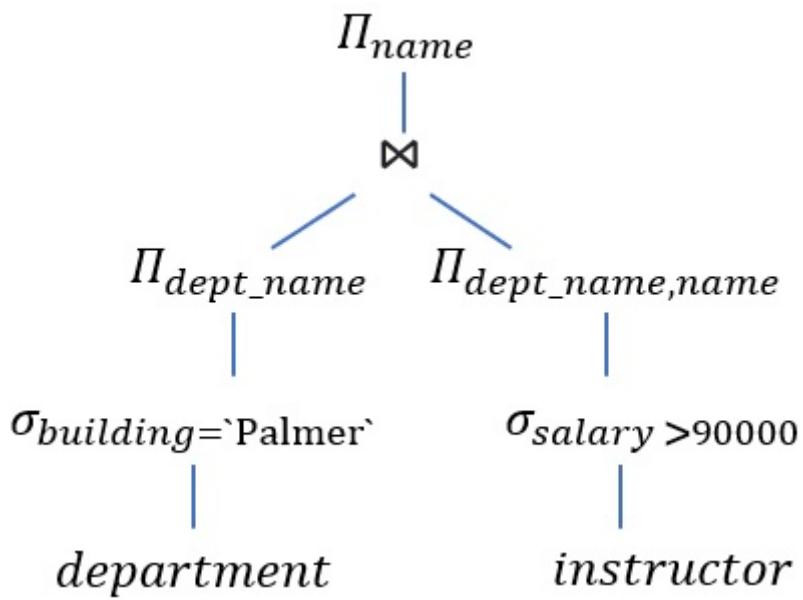
instructor(ID, name, dept\_name, salary)

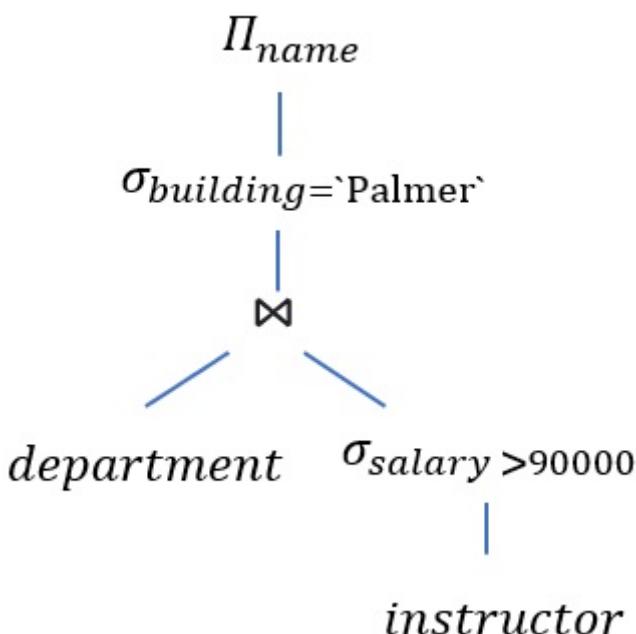
department(dept\_name, building, budget)

Identify the most optimized expression tree from the given options that find the name of instructor whose salary is greater than 90000 and department building is 'Palmer'.

**Options :**

6406531194381. ✓





6406531194384. ✘ All of these expression trees are the same.

**Question Number : 338 Question Id : 640653360595 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the relation **Car**(*Car\_num\_plate*, *Engine\_num*, *Model*, *Make*, *Fuel\_type*).

Construct a bitmap index for relation **Car** on the attribute *Fuel\_type*. The number of records in the relation **Car** is **x**. The size of the bitmap index file is 1000 bytes. The attribute *Fuel\_type* has 4 different values(i.e., Petrol, Diesel, CNG, Electric). The value of the **x** is

**Options :**

6406531194385. ✘ 250

6406531194386. ✘ 500

6406531194387. ✘ 1000

6406531194388. ✓ 2000

**Question Number : 339 Question Id : 640653360597 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider a primary sparse index on the **instructor table**. The number of records in the instructor relation is 10000. The block size is 512 bytes. The record size is 32 bytes. The size of the search key is 16 bytes and the size of the block pointer is 14 bytes. The number of the blocks in the primary sparse indexing file is

**Options :**

6406531194390. ✘ 16

6406531194391. ✘ 36

6406531194392. ✓ 37

6406531194393. ✘ 625

**Question Number : 340 Question Id : 640653360598 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider the **smartphone** relation as shown below:

**smartphone(IMEI, brand, color, price)**

(Note: IMEI is the unique number of each smartphone.)

Construct a B tree indexing of order 8 using search key as IMEI. If the size of the block is 1024 bytes. IMEI attribute is of varchar datatype and size is 13 bytes. The size of the tree pointer is 64 bytes. The size of the record pointer of a non-leaf node of the B tree is

**Options :**

6406531194394. ✓ 60 bytes

6406531194395. ✘ 64 bytes

6406531194396. ✘ 73 bytes

6406531194397. ✘ 128 bytes

**Sub-Section Number :**

4

**Sub-Section Id :**

64065352608

**Question Shuffling Allowed :**

Yes

**Question Number : 341 Question Id : 640653360576 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

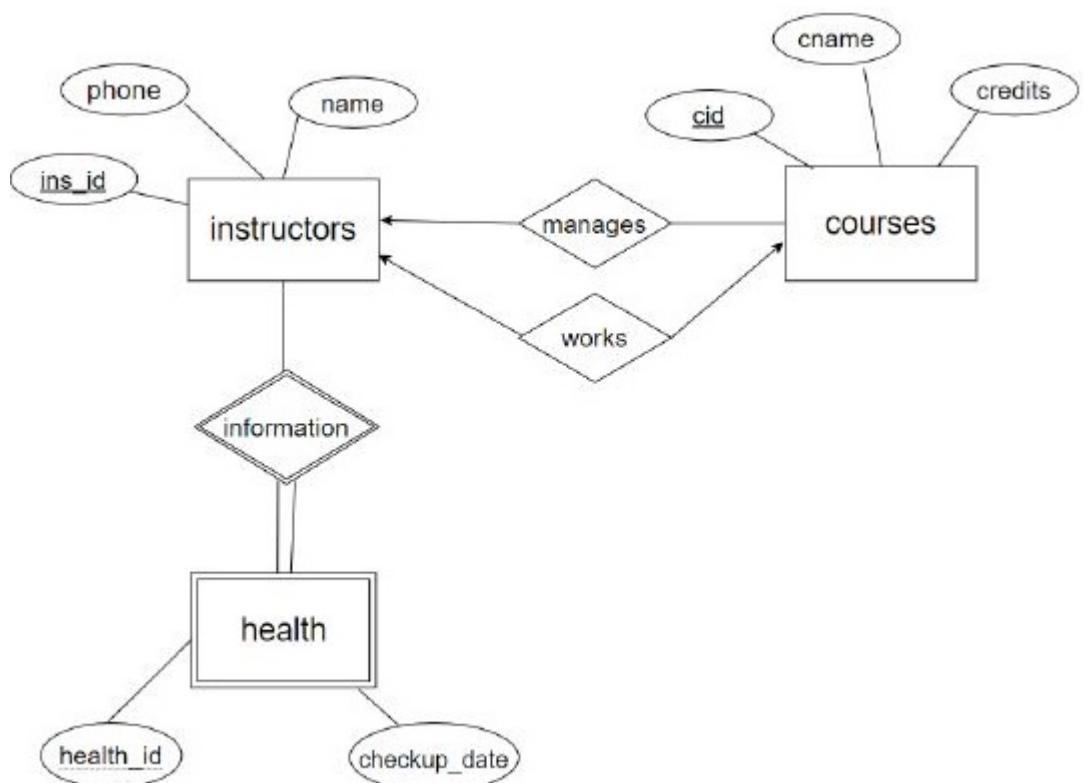
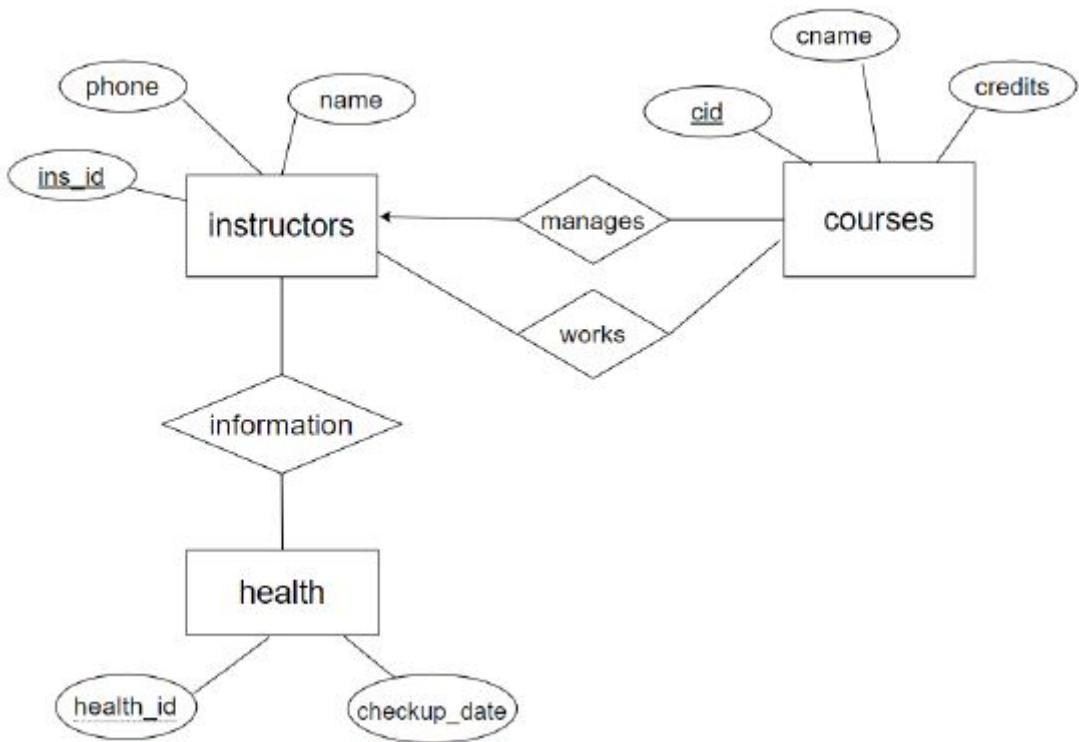
Question Label : Multiple Choice Question

Consider the following case study:

An IITM Online Degree Project needs a database to store information about instructors (identified by ins\_id, name and phone as attributes), courses (identified by cid, cname and credits as attributes), and health information (identified by health\_id and checkup\_date as attributes). The instructor can work in various courses and courses can have more than one instructor; each course is managed by an instructor and an instructor can manage more than one courses. A health information must be identified uniquely by health\_id when the instructor is known. We are not interested in information about a health record once the instructor leaves the organization. Choose the correct ER-Diagram based on the given information.

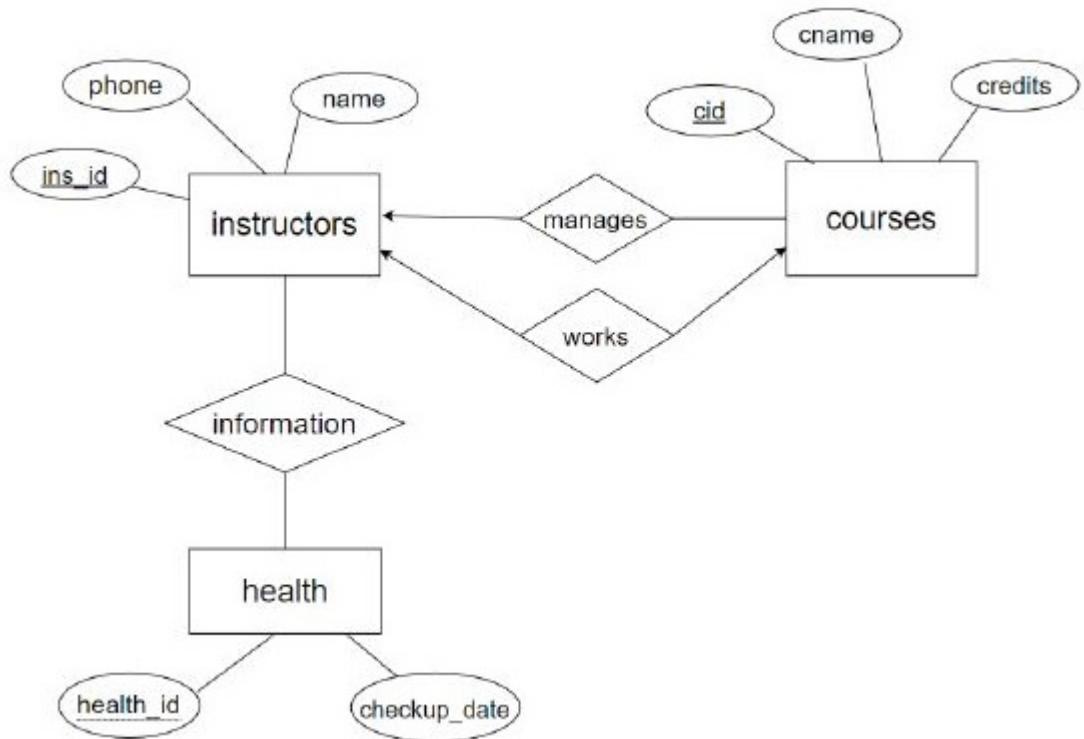
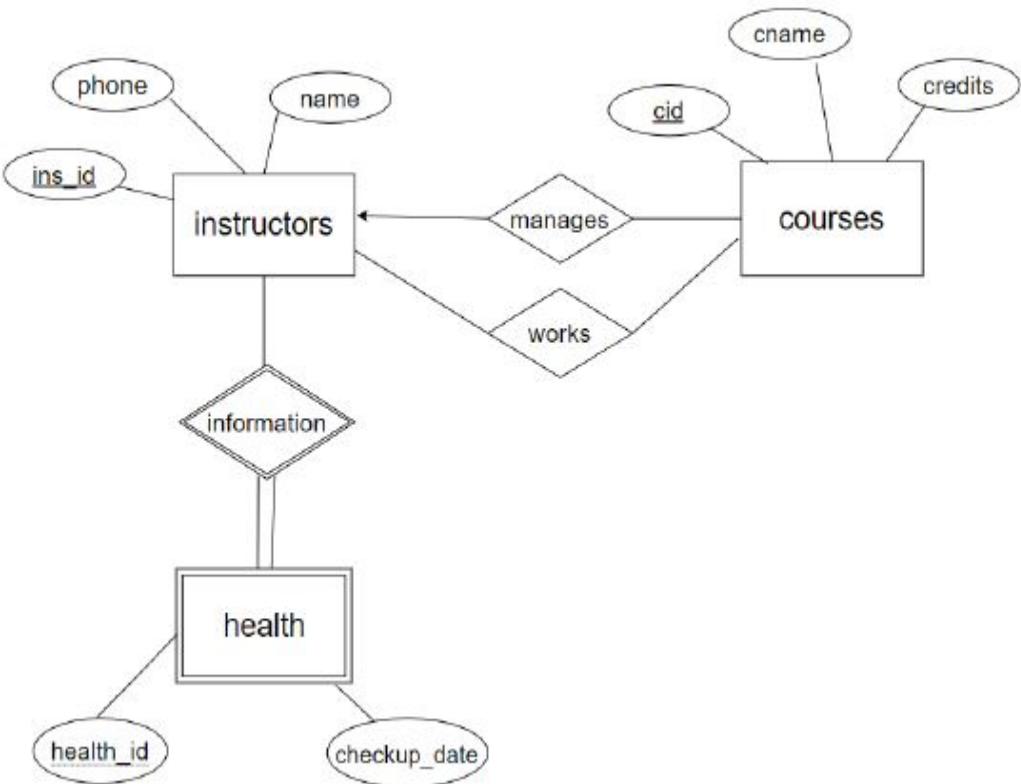
**Options :**

6406531194310. ❌



6406531194311. \*

6406531194312. ✓



6406531194313. \*

**Question Number : 342 Question Id : 640653360587 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

### Question Label : Multiple Choice Question

Consider a RAID-4 system with 5 disks which stores the following data shown in Figure 3:

Disk-1	Disk-2	Disk-3	Disk-4	Disk-5	
0100	1100	---	0101	1001	Block A
0100	0001	---	0100	0101	Block B
0100	0101	---	0010	0110	Block C

Figure 3: RAID-4 data

According to the figure, Disk-3 has crashed. Identify the correct data present in the three blocks of Disk-3. Also, assuming that the binary values represent 8 bit ASCII code, identify the correct data word present inside the RAID-4 storage system.

Consider the following statements and identify the correct statements.

1. Block A: 0100, Block B: 0110, Block C: 0101
2. Block A: 0100, Block B: 1011, Block C: 0010
3. Block A: 0100, Block B: 0100, Block C: 0101
4. The word is : 'leader'
5. The word is: 'LEADER'

*Note:*

- Assuming block size is 4 bits.
- Disk-5 is the parity disk.
- The ASCII value of 'A' is 65 and 'a' is 97.

**Options :**

6406531194356. ✘ Statements 3 & 4

6406531194357. ✘ Statements 2 & 5

6406531194358. ✘ Statements 1 & 4

6406531194359. ✓ Statements 3 & 5

**Question Number : 343 Question Id : 640653360589 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the given schedules **S1** and **S2** which performs independent tasks.

T1	T2
	Lock-X(A)
	Write-(A)
	Lock-S(B)
Lock-S(B)	Read-(B)
Read-(B)	Unlock-(B)
	Commit
	Unlock-(A)
Lock-X(A)	
Write-(A)	
Unlock-(A)	
Unlock-(B)	
Commit	

Table 8: Schedule S1

T1	T2
	Lock-S(A)
	Read-(A)
Lock-X(B)	
Read-(B)	
Write-(B)	
commit	
Unlock-(B)	
	Unlock-(A)
	commit

Table 9: Schedule S2

Which among the following statement is correct?

**Options :**

6406531194364. ✘ Both S1 and S2 follow the rigorous two-phase locking protocol.  
6406531194365. ✘ Both S1 and S2 follow the Strict two-phase locking protocol.

6406531194366. ✓ Only S2 follows Strict two-phase locking protocol.

6406531194367. ✗ Only S1 follows Strict two-phase locking protocol.

**Question Number : 344 Question Id : 640653360600 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the relation as shown in the table :

customer_name
Akash
Akshay
A
A.K.
Aksh
Ak
Ak.S.
Aks

Table 11: customer

Which of the following SQL statement gives the result given below?

customer_name
Ak.S.
Akash
Aks

**Options :**

```
SELECT customer_name
FROM customer
WHERE customer_name LIKE 'Ak_%'
ORDER BY customer_name DESC
```

6406531194402. ✗ FETCH FIRST 3 ROWS ONLY

```
SELECT customer_name  
FROM customer  
WHERE customer_name LIKE 'Ak_%'  
ORDER BY customer_name ASC
```

6406531194403. ✓ FETCH FIRST 3 ROWS ONLY

```
SELECT customer_name  
FROM customer  
WHERE customer_name LIKE 'Ak%'  
ORDER BY customer_name ASC
```

6406531194404. ✗ FETCH FIRST 3 ROWS ONLY

```
SELECT customer_name  
FROM customer  
WHERE customer_name LIKE 'A__%'  
ORDER BY customer_name DESC
```

6406531194405. ✗ FETCH FIRST 3 ROWS ONLY

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352609

**Question Shuffling Allowed :** Yes

**Question Number : 345 Question Id : 640653360577 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

**Question Label : Multiple Select Question**

Consider the following relations:

*players(pid, name, jersey\_no, team\_id)*

*teams(team\_id, matches, points)*

Choose the correct TRC or DRC expression which is equivalent to the below SQL query.

```
SELECT p.name, t.points  
FROM players p natural join teams t  
WHERE p.jersey_no = 7
```

**Options :**

{ $x \mid \exists p \in \text{players} \exists t \in \text{teams}(p.\text{team\_id} = t.\text{team\_id} \wedge p.\text{jersey\_no} = 7 \wedge$

6406531194314. ✓  $x.\text{name} = p.\text{name} \wedge x.\text{points} = t.\text{points})\}$

$\{x \mid \exists p \in players \exists t \in teams(p.team\_id = t.team\_id \wedge p.jersey\_no = 7 \wedge x.name \wedge x.points)\}$

6406531194315. ❌

$\{\langle b, o \rangle \mid \exists a, b, c, d (\langle a, b, c, d \rangle \in players \wedge c = 7) \wedge \exists m, n, o (\langle m, n, o \rangle \in teams \wedge d = m)\}$

6406531194316. ✓

$\{\langle b, o \rangle \mid \exists a, b, c, d (\langle a, b, c, d \rangle \in players \wedge c = 7) \wedge \exists m, n, o (\langle m, n, o \rangle \in teams)\}$

6406531194317. ❌

$\{\langle b, o \rangle \mid (\langle a, b, c, d \rangle \in players \wedge c = 7) \wedge (\langle m, n, o \rangle \in teams \wedge d = m)\}$

6406531194318. ❌

**Question Number : 346 Question Id : 640653360578 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Choose the correct sets of functional dependencies for the relation  $R(A,B,C,D)$  under which  $R$  is in 3NF but not in BCNF.

**Options :**

6406531194319. ❌  $\{AB \rightarrow CD\}$

6406531194320. ✓  $\{AB \rightarrow CD, C \rightarrow A\}$

6406531194321. ❌  $\{AB \rightarrow C, B \rightarrow D, C \rightarrow D\}$

6406531194322. ❌  $\{AB \rightarrow C, C \rightarrow D, AB \rightarrow D\}$

**Question Number : 347 Question Id : 640653360580 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Consider the relation  $R(A, B, C, D, E, G)$  having the following functional dependencies:

$$\mathcal{F} = \{AB \rightarrow C, AC \rightarrow B, AD \rightarrow E, B \rightarrow D, BC \rightarrow A, E \rightarrow G\}$$

Let decompose the relation  $R$  into  $R1(BC)$ ,  $R2(ABDE)$  and  $R3(EG)$ . Check whether the decomposition is lossless or lossy, and if it is lossy, then by adding which of the following functional dependencies, the decomposition will become lossless.

**Options :**

6406531194327. ✘ The decomposition is lossless.

6406531194328. ✘  $B \rightarrow E$

6406531194329. ✘  $B \rightarrow G$

6406531194330. ✓  $D \rightarrow C$

6406531194331. ✓  $D \rightarrow A$

**Question Number : 348 Question Id : 640653360586 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Consider a state of transactions as shown in Figure 2.

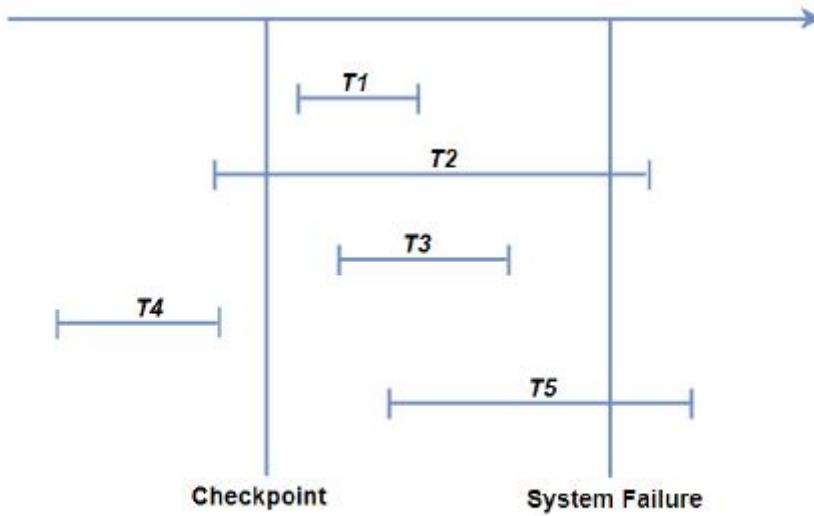


Figure 2: State of Transactions

According to the above figure, which among the following statement(s) is/are incorrect?

**Options :**

6406531194352. ✘ The transaction T4 can be ignored.

6406531194353. ✘ The transactions that need to be undone are T2 and T5.

6406531194354. ✓ The transactions T1 and T3 can be ignored.

6406531194355. ✘ The transactions that need to be redone are T1 and T3.

**Question Number : 349 Question Id : 640653360590 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Consider the following schedule **S** with three transactions T1, T2 and T3:

**S: R2(A);W2(A);C2;R3(A);W3(A);C3;R1(B);W1(B);R1(D);C1;**

Where Ri(A) denotes a read operation by transaction Ti on a data item X, Wi(A) denotes a write operation by transaction Ti on a data item A, Ci denotes a commit by Ti.

Which among the following statement(s) is/are correct?

**Options :**

6406531194368. ✓ S is a recoverable schedule.

6406531194369. ✘ S is a non recoverable schedule.

6406531194370. ✓ S is a cascadeless schedule

6406531194371. ✘ S is a cascading rollback

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352610

**Question Shuffling Allowed :** Yes

**Question Number : 350 Question Id : 640653360588 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Consider two logs of transaction as shown below, where immediate database modification scheme is used in **Table 1** and deferred database modification scheme is used in **Table 2**.

<b>Steps</b>	<b>Details of log</b>
1	$\langle T_0, \text{start} \rangle$
2	$\langle T_0, P, 750, 400 \rangle$
3	$\langle T_0, Q, 1000, 800 \rangle$
4	$\langle T_1, \text{start} \rangle$
5	$\langle T_1, R, 1500, 1000 \rangle$
6	$\langle T_1, \text{commit} \rangle$

**Table 1: Immediate Database Modification Scheme**

<b>Steps</b>	<b>Details of log</b>
1	$\langle T_2, \text{start} \rangle$
2	$\langle T_2, A, 1600, 1200 \rangle$
3	$\langle T_2, \text{commit} \rangle$
4	$\langle T_3, \text{start} \rangle$
5	$\langle T_3, B, 1400, 1100 \rangle$
6	$\langle T_3, \text{commit} \rangle$

**Table 2: Deferred Database Modification Scheme**

In Table 1 & Table 2, if a system crash occurs after the step 6 and the recovery of the system is successfully completed, identify the correct actions from the above diagram.

#### Options :

6406531194360. ❌ After completion of recovery in immediate database modification scheme, the value of  $P$ ,  $Q$  and  $R$  in the buffer will be 750, 1000 and 1000 respectively.

6406531194361. ❌ In Table 1,  $\{T_0\}$  needs to be redone and  $\{T_1\}$  needs to be undone.

6406531194362. ✓ After completion of recovery in immediate database modification scheme, the value of  $P$ ,  $Q$  and  $R$  in the buffer will be 400, 800 and 1500 respectively

6406531194363. ❌ After completion of recovery in deferred database modification scheme, the value of  $A$  and  $B$  in the buffer will be 1600 and 1400 respectively

**Question Number : 351 Question Id : 640653360599 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Consider the following relations:

```
music(music_id, music_name, duration, genre, producer)
singer(singer_id, singer_name, city, country)
music_playback_singer(music_id, singer_id)
```

Choose the correct SQL statement(s) to find names of the music which were produced by producer name 'YourFavMusic.com' but the songs which were not sung by singer 'Lady Jaye'.

**Options :**

6406531194398. ✓

```
SELECT music_name
FROM music
WHERE producer = 'YourFavMusic.com'
EXCEPT
SELECT music_name
FROM music INNER JOIN music_playback_singer
ON music.music_id = music_playback_singer.music_id
INNER JOIN singer ON singer.singer_id = music_playback_singer.singer_id
WHERE singer.singer_name = 'Lady Jaye'
```

6406531194399. ✗

```
SELECT music_name
FROM music
WHERE producer = 'YourFavMusic.com'
UNION
SELECT music_name
FROM music INNER JOIN music_playback_singer
ON music.music_id = music_playback_singer.music_id
INNER JOIN singer ON singer.singer_id = music_playback_singer.singer_id
WHERE singer.singer_name = 'Lady Jaye'
```

6406531194400. ✓

```
SELECT music_name
FROM music INNER JOIN music_playback_singer
ON music.music_id = music_playback_singer.music_id
INNER JOIN singer ON singer.singer_id = music_playback_singer.singer_id
WHERE music.producer= 'YourFavMusic.com' AND
singer.singer_name != 'Lady Jaye'
```

6406531194401. ✗

```
SELECT music_name
FROM music INNER JOIN music_playback_singer
ON music.music_id = music_playback_singer.music_id
INNER JOIN singer ON singer.singer_id = music_playback_singer.singer_id
WHERE music.producer= 'YourFavMusic.com'
OR singer.singer_name = 'Lady Jaye'
```

<b>Sub-Section Number :</b>	7
<b>Sub-Section Id :</b>	64065352611
<b>Question Shuffling Allowed :</b>	Yes

**Question Number : 352 Question Id : 640653360591 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Consider the following schedule **S** with four transactions T1, T2, T3 and T4:

**S: R2(B);R1(B);R1(A);W1(A);R3(C);W3(C);R4(B)**

The number of serial schedule for given schedule **S** is\_\_\_\_\_

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

24

**Question Number : 353 Question Id : 640653360596 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Short Answer Question

Construct a binary search tree by inserting the following values in the following order 30, 20, 27, 86, 103, 25, 60, 90, 10, 15. What is the sum of the key values in non-leaf (including root) nodes of the constructed binary search tree?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

276

## Java

**Section Id :** 64065322453

**Section Number :** 11

**Section type :** Online

**Mandatory or Optional :** Mandatory

**Number of Questions :** 23

**Number of Questions to be attempted :** 23

**Section Marks :** 100

**Display Number Panel :** Yes

**Group All Questions :** No

**Enable Mark as Answered Mark for Review and Clear Response :** Yes

**Maximum Instruction Time :** 0

**Sub-Section Number :** 1

**Sub-Section Id :** 64065352612

**Question Shuffling Allowed :** No

**Question Number :** 354 **Question Id :** 640653360601 **Question Type :** MCQ **Is Question**

**Mandatory :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 0

**Question Label :** Multiple Choice Question

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531194406. ✓ Yes

6406531194407. ✗ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352613

**Question Shuffling Allowed :** Yes

**Question Number : 355 Question Id : 640653360603 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the Java code given below.

```

class Customer{
    private String name;
    public Customer(String n){
        this.name = n;
    }
    public Customer(Customer c){
        this.name = c.name;
    }
    public void setName(String n){
        name = n;
    }
    public String getName(){
        return name;
    }
}
public class Test{
    public static void main(String[] args){
        Customer c1 = new Customer("Latha");
        Customer c2 = c1;
        Customer c3 = new Customer(c1);
        c1.setName("Geeta");
        System.out.println("c2.name : " + c2.getName());
        System.out.println("c3.name : " + c3.getName());
    }
}

```

What will the output be?

**Options :**

c2.name : Latha  
 6406531194413. ✘ c3.name : Latha

c2.name : Geeta  
 6406531194414. ✓ c3.name : Latha

c2.name : Geeta  
 6406531194415. ✘ c3.name : Geeta

c2.name : Latha  
 6406531194416. ✘ c3.name : Geeta

**Question Number : 356 Question Id : 640653360607 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

**Question Label : Multiple Choice Question**

Assume that the file “test.txt” contains the following two lines of text.

M.S Dhoni is a professional Indian cricketer  
M.S Dhoni is from jharkhand

Consider the code given below.

```
import java.io.*;
import java.util.*;
public class FileTest {
    public static void main(String[] args) {
        try {
            var in=new FileInputStream("test.txt");
            var sc=new Scanner(in);
            var data=new TreeSet<String>();
            while(sc.hasNext()) {
                data.add(sc.next()+" ");
            }
            for(String str:data)
                System.out.print(str);
        } catch (FileNotFoundException e) {
            System.out.println("File does not exist.");
        }
        catch (IOException e) {
            System.out.println("Error in writing a file.");
        }
    }
}
```

What will the output be?

**Options :**

6406531194429. ❌ M.S Dhoni is a professional Indian cricketer M.S Dhoni is from jharkhand

6406531194430. ✓ Dhoni Indian M.S a cricketer from is jharkhand professional

6406531194431. ❌ Dhoni Indian M.S a cricketer is professional

6406531194432. ✶ Dhoni M.S from is jharkhand

**Question Number : 357 Question Id : 640653360619 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following java code

```
import java.util.stream.*;
public class Main{
    public static void main(String[] args){
        Integer[] a = {11, 8, 20, 13, 6};
        Stream.of(a)
            .map((i) -> i - 8).filter((i) -> i% 2 == 0)
            .forEach((x) -> System.out.println(x));
    }
}
```

What will the output be?

**Options :**

8

20

6406531194477. ✶ 6

0

6406531194478. ✶ 12

6406531194479. ✶ 12

0

12

6406531194480. ✓ -2

**Sub-Section Number :**

3

**Sub-Section Id :**

64065352614

**Question Shuffling Allowed :**

Yes

**Question Number : 358 Question Id : 640653360602 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
import java.util.*;
class Mountain{
    public String getState(String name){
        String answer;
        switch(name){
            case "Kanchenjunga": answer = "Sikkim";
                break;
            case "Nanda Devi":   answer = "Uttarakhand";
                break;
            default:             answer = null;
                break;
        }
        return answer;
    }
}
public class Test{
    public static void main(String[] args){
        Optional<String> op = Optional.ofNullable(new Mountain()
            .getState("Saraswati"));
        op.ifPresent(n->System.out.println(n.toUpperCase()));
    }
}
```

Choose the correct option.

**Options :**

6406531194408. ✓ This program does not generate any output.

**6406531194409.** ❌ This program generates a NullPointerException.

This program generates the output:

**6406531194410.** ❌ NULL

This program generates the output:

**6406531194411.** ❌ SIKKIM

This program generates the output:

UTTARAKHAND

**6406531194412.** ❌

**Question Number : 359 Question Id : 640653360608 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider the Java code given below.

```

import java.io.*;
class Rewards implements Serializable{
    private String r_type="****";
    private transient String code="****";
    private String exp="****";
    public Rewards(String t, String c, String e) {
        r_type = t;
        code = c;
        exp = e;
    }
    public String toString() {
        return "Reward_Type = " + r_type + ", code = " + code + ", exp = " + exp;
    }
}
public class SerialTest{
    public static void main(String[] args) throws Exception{
        var fos = new FileOutputStream("reward.txt");
        var os = new ObjectOutputStream(fos);
        os.writeObject(new Rewards("Fashion", "BXBP0689", "12/08/22"));
        var fis = new FileInputStream("reward.txt");
        var ois = new ObjectInputStream(fis);
        Rewards r = (Rewards)ois.readObject();
        System.out.println(r);
    }
}

```

What will the output be?

**Options :**

6406531194433. ❌ Reward\_Type = Fashion, code = \*\*\*\*, exp = 12/08/22

6406531194434. ✓ Reward\_Type = Fashion, code = null, exp = 12/08/22

6406531194435. ❌ Reward\_Type = Fashion, code = BXBP0689, exp = 12/08/22

6406531194436. ❌ Reward\_Type = null, code = null, exp = null

**Question Number : 360 Question Id : 640653360621 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider the following java code

```
public class Test{  
    public static double compute(int a, int b){  
        int c = 0;  
        assert a > 0: "a must be > 0";      //assert-1  
        assert b > 0: b;                      //assert-2  
        c = a / b;  
        assert c >= 0: c;                   //assert-3  
        return Math.sqrt(c);  
    }  
    public static void main(String[] args){  
        int a = -10;  
        int b = 5;  
        assert b != 0: "b == 0";           //assert-4  
        compute(a, b);  
    }  
}
```

Identify the first assert statement that throws the `AssertionError` when the class is executed as:

`java -ea Test`

**Options :**

6406531194485. ✓ assert-1

6406531194486. ✘ assert-2

6406531194487. ✘ assert-3

6406531194488. ✘ assert-4

**Sub-Section Number :**

4

**Sub-Section Id :**

64065352615

**Question Shuffling Allowed :**

Yes

**Question Number : 361 Question Id : 640653360605 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
import java.util.*;
public class MapEx {
    public static void main(String args[]) {

        Map<String, Integer> tmap, lhmap, hmap;

        hmap = new HashMap<String, Integer>();
        hmap.put("Banana", 2);
        hmap.put("Apple", 3);
        hmap.put("Grapes", 7);
        hmap.put("Kiwi", 10);

        lhmap = new LinkedHashMap<String, Integer>();
        tmap = new TreeMap<String, Integer>();

        for(Map.Entry<String, Integer> entry:hmap.entrySet()) {
            tmap.put(entry.getKey(), entry.getValue());
        }

        for(Map.Entry<String, Integer> entry:tmap.entrySet()) {
            lhmap.put(entry.getKey(), entry.getValue());
        }

        System.out.println(hmap);
        System.out.println(tmap);
        System.out.println(lhmap);
    }
}
```

Choose the correct option regarding predicting the order of elements, with respect to the original ordering, in each map object.

**Options :**

6406531194421. \* We cannot predict the order of elements in hmap, tmap or lhmap.

6406531194422. ✖ We can predict the order of elements in hmap and lhmap, but not tmap.

6406531194423. ✓ We can predict the order of elements in tmap and lhmap but not that of hmap.

6406531194424. ✖ We can predict the order of elements in hmap, tmap and lhmap.

**Question Number : 362 Question Id : 640653360606 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
import java.util.*;
import java.util.stream.*;
public class CollectRes {
    public static void main(String[] args) {
        var list = new ArrayList<String>();
        list.add(null);
        list.add("Sonalika");
        list.add(null);
        list.add("Mahindra");
        list.add("Mahindra");
        list.add("John Deere");
        list.add("Escorts");
        list.add("Escorts");
        Stream<String> stream = list.stream();
        //CODE BLOCK
        System.out.println(obj);
    }
}
```

Choose the correct option(s) to fill in place of CODE BLOCK so that the output is:

[Escorts, John Deere, Mahindra, Sonalika]

**Options :**

```
var obj = list.stream()
    .filter(str -> str != null)
    .limit(4)
    .collect(Collectors.toSet());
```

6406531194425. ✘

```
var obj = list.stream()
    .map(str -> str != null)
    .collect(Collectors.toList());
```

6406531194426. ✘

```
var obj= list.stream()
    .filter(str -> str != null)
    .collect(Collectors.toCollection(TreeSet::new));
```

6406531194427. ✓

```
var obj = list.stream()
    .filter(str -> str != null)
    .limit(4)
    .collect(Collectors.toList());
```

6406531194428. ✘

**Question Number : 363 Question Id : 640653360609 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the Java code given below.

```

interface ClassOne{
    default void show(){
        System.out.println("Inside show of ClassOne");
    }
}
interface ClassTwo extends ClassOne{                                //LINE-1
    default void show(){
        System.out.println("Inside show of ClassTwo");
    }
}
class ClassThree implements ClassTwo {
    public void show(){                                         //LINE-2
        System.out.println("Inside show of ClassThree");
    }
}
public class AbstrInterface {
    public static void main(String[] args) {
        ClassOne ct = new ClassThree();                         //LINE-3
        ct.show();
    }
}

```

Choose the correct option.

**Options :**

Compilation error at LINE-1, because an interface cannot extend another interface.  
6406531194437. ✘

Compilation error at LINE-2, because there is ambiguity in which show() method is being implemented.  
6406531194438. ✘

Runtime error, because an object of ClassThree cannot be assigned to a variable of type ClassOne (see LINE-3).  
6406531194439. ✘

This program generates the output:  
6406531194440. ✓ Inside show of ClassThree

**Question Number : 364 Question Id : 640653360610 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the Java code given below.

```
import java.util.*;
public class QueueTest{
    public static void main(String[] args) {
        PriorityQueue<String> queue1 = new PriorityQueue<String>();
        queue1.add("Ganga");
        queue1.add("Crompton");
        queue1.add("Usha");
        queue1.add("Orient");
        queue1.add("Havells");

        ArrayDeque<String> queue2 = new ArrayDeque<String>();
        while(queue1.size()>0) {
            queue2.addFirst(queue1.poll()); //LINE-1
        }
        System.out.print(queue2);
    }
}
```

Choose the correct option.

**Options :**

6406531194441. ✓ This program generates the output:  
[Usha, Orient, Havells, Ganga, Crompton]

6406531194442. ❌ This program generates the output:  
[Havells, Orient, Usha, Crompton, Ganga]

6406531194443. ❌ This program generates the output:  
[]

6406531194444. ❌ Compilation error at LINE-1

**Question Number : 365 Question Id : 640653360611 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the Java code given below.

```

interface Iterable{
    public boolean has_previous();
    public Object get_previous();
}
class Data{
    private String[] arr = {"Apple", "Banana", "Cipla", "Dog", "Eagle", "Fanta"};
    public Iterable getIterable(int i) {
        return new IterableImpl(i);
    }
    private class IterableImpl implements Iterable{
        private int index;
        public IterableImpl(int i) {
            index = i;
        }
        public boolean has_previous() {
            if (index-2 >= 0 )
                return true;
            return false;
        }
        public String get_previous() {
            index-=2;
            return arr[index];
        }
    }
}
public class IteratorTest{
    public static void main(String[] args) {
        Data d;
        Iterable it;

        d = new Data();
        it=_____ //LINE 1
        while(it.has_previous())
            System.out.println(it.get_previous());

        System.out.println("=====");
        d = new Data();
        it=_____ //LINE 2
        while(it.has_previous())
            System.out.println(it.get_previous());
    }
}

```

Choose the correct option to fill in the blank at LINE 1 and LINE 2 so that the output is:

```

Eagle
Cipla
Apple
=====
Fanta
Dog
Banana

```

### Options :

LINE 1 : d.getIterable(7);  
6406531194445. ❗ LINE 2 : d.getIterable(6);

LINE 1 : d.getIterable(6);  
6406531194446. ✓ LINE 2 : d.getIterable(7);

LINE 1 : d.getIterable(5);  
LINE 2 : d.getIterable(6);

6406531194447. \*

LINE 1 : d.getIterable(6);  
LINE 2 : d.getIterable(5);

6406531194448. \*

**Question Number : 366 Question Id : 640653360616 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the following java code

```
import java.util.*;
class MiddleElementException extends Exception{
    public String toString(){
        return "middle element cannot be processed";
    }
}
public class Test{
    public static void update(int[] a, int i) throws MiddleElementException{
        if(i == a.length/2){
            throw new MiddleElementException();
        }
        a[i] = a[i] * 2;
    }
    public static void main(String[] args) {
        int[] arr = {4, 5, 6, 7, 8};
        try{
            for(int i = 0; i < arr.length; i++){
                update(arr, i);
            }
        } catch(MiddleElementException e){
            System.out.println(e);
        }
        for(int i = 0; i < arr.length; i++){
            System.out.print(arr[i] + " ");
        }
    }
}
```

What will the output be?

**Options :**

middle element cannot be processed  
6406531194465. ✘ 8 10

6406531194466. ✘ middle element cannot be processed

6406531194467. ✘ 8 10 6 7 8

middle element cannot be processed  
8 10 6 7 8  
6406531194468. ✓

**Question Number : 367 Question Id : 640653360617 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the following java code

```

class Department implements Cloneable{
    String dname;
    public Department(String n){
        dname = n;
    }
    public Department clone() throws CloneNotSupportedException{
        return (Department)super.clone();
    }
}
class University implements Cloneable{
    String uName;
    Department[] dept;
    public University(String n, Department[] d){
        uName = n;
        dept = d;
    }
    public University(University u){
        this.uName = u.uName;
        this.dept = u.dept;
    }
    public University clone() throws CloneNotSupportedException{
        University unv = (University)super.clone();
        unv.dept = dept.clone();
        return unv;
    }
}
public class Test{
    public static void main(String[] args){
        Department[] dep = {new Department("CSE"), new Department("EEE")};
        University u1 = new University("xyz", dep);
        try{
            University u2 = u1.clone();
            u2.dept[1] = new Department("MECH");
            System.out.println(u1.dept[1].dname + " " + u2.dept[1].dname);

            University u3 = new University(u1);
            u3.dept[1] = new Department("CIVIL");
            System.out.println(u1.dept[1].dname + " " + u3.dept[1].dname);
        }
        catch(CloneNotSupportedException e) {
            System.out.println("clone() not supported");
        }
    }
}

```

What will the output be?

### Options :

MECH MECH  
6406531194469. ✘ MECH CIVIL

EEE MECH  
6406531194470. ✓ CIVIL CIVIL

EEE MECH

EEE CIVIL

6406531194471. \*

MECH MECH

CIVIL CIVIL

6406531194472. \*

**Question Number : 368 Question Id : 640653360618 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider the following java code

```
import java.util.*;
public class Marks{
    public static void main(String[] args){
        Map<String, Integer> quiz1 = new TreeMap<String, Integer>();
        quiz1.put("Sita", 300);
        quiz1.put("Geeta", 200);
        quiz1.put("Latha", 300);
        quiz1.put("Reena", 340);

        Map<String, Integer> quiz2 = new TreeMap<String, Integer>();
        quiz2.put("Sita", 400);
        quiz2.put("Latha", 400);
        quiz2.put("Reena", 360);
        quiz2.put("Pragna", 400);

        Map<String, Integer> avg = new TreeMap<String, Integer>();

        for(Map.Entry<String, Integer> m1 : quiz1.entrySet())
            avg.put(m1.getKey(), m1.getValue());

        for(Map.Entry<String, Integer> m2 : quiz2.entrySet())
            avg.merge(m2.getKey(), m2.getValue(), (x, y) -> (x + y)/2); // LINE 1

        System.out.println(avg);
    }
}
```

Choose the correct option

**Options :**

6406531194473. ❌ Compile time error at LINE 1 because of invalid key

This program generates the output:  
6406531194474. ✓ {Geeta=200, Latha=350, Pragna=400, Reena=350, Sita=350}

This program generates the output:  
6406531194475. ❌ {Sita=350, Geeta=200, Latha=350, Reena=350, Pragna=400}

This program generates the output:  
6406531194476. ❌ {Latha=350, Reena=350, Sita=350}

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352616

**Question Shuffling Allowed :** Yes

**Question Number : 369 Question Id : 640653360613 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider the two Java files given below.

Test1.java:

```
package pack1;
public class Test1 {
    protected void f1() {
        System.out.println("Inside Test1");
    }
}
```

Test2.java:

```
package pack2;
import pack1.Test1; //LINE-1

public class Test2 extends Test1{ //LINE-2
    public static void main(String[] args) {
        Test2 obj = new Test2();
        obj.f2();
    }
    public void f2() {
        f1(); //LINE-3
    }
}
```

Choose the correct option.

**Options :**

The program generates the output:

6406531194453. ✓ Inside Test1

6406531194454. ❌ Runtime error, because custom packages cannot be imported (see LINE-1).

6406531194455. ❌ LINE-2 generates a compilation error because of extending class **Test1**, which is located in another package.

6406531194456. ❌ LINE-3 generates a compilation error because method **f1()** is not visible from class **Test2**.

**Question Number : 370 Question Id : 640653360614 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

Time : 0

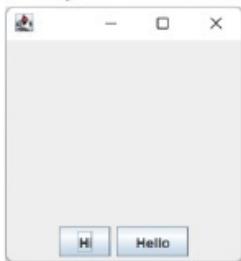
Correct Marks : 4

Question Label : Multiple Select Question

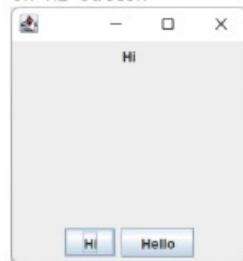
Consider the Java program given below.

```
import javax.swing.*;
import java.awt.event.*;
public class ButtonEvents extends JFrame implements ActionListener{
    private JButton b1, b2;
    private JLabel l1;
    JPanel panel1, panel2;
    public ButtonEvents() {
        b1=new JButton("Hi");
        b2=new JButton("Hello");
        panel1=new JPanel();
        panel1.add(b1);
        panel1.add(b2);
        add(panel1,"South");
        l1=new JLabel("");
        panel2=new JPanel();
        panel2.add(l1);
        add(panel2,"North");
        setVisible(true);
        setSize(400,400);
        b1.setActionCommand("s1");
        b2.setActionCommand("s2");
        b1.addActionListener(this);
        b2.addActionListener(this);
    }
    public void actionPerformed(ActionEvent e) {
        //CODE BLOCK
    }
    public static void main(String[] args) {
        new ButtonEvents();
    }
}
```

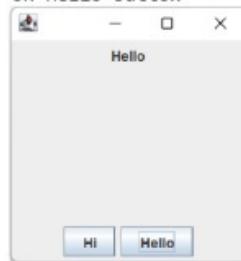
GUI 1: Before clicking on any of the buttons



GUI 2: After clicking on Hi button



GUI 3: After clicking on Hello button



Choose the correct code segment inside method `actionPerformed()` such that whenever either of the two buttons (Hi/Hello) is clicked on panel1, the label text of panel2 will change accordingly.

Options :

```
if(e.getSource().equals(b1))
    l1.setText("Hi");
else if(e.getSource().equals(b2))
    l1.setText("Hello");
```

6406531194457. ✓

```
if(e.getActionCommand().equals(b1))
    l1.setText("Hi");
else if(e.getActionCommand().equals(b2))
    l1.setText("Hello");
```

6406531194458. ✗

```
if(e.getActionCommand().equals("s1"))
    l1.setText("Hi");
else if(e.getActionCommand().equals("s2"))
    l1.setText("Hello");
```

6406531194459. ✓

```
if(e.getSource().equals("s1"))
    l1.setText("Hi");
else if(e.getSource().equals("s2"))
    l1.setText("Hello");
```

6406531194460. ✗

**Question Number : 371 Question Id : 640653360615 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider the following code

```

import java.util.*;
interface Rankable{
    public Map<String, Integer> rank();
}
class BankAccount implements Rankable{
    Map<String, Integer> account; // account number mapped to account balance
    public BankAccount(Map<String, Integer> a){
        account = a;
    }
    public Map<String, Integer> rank(){
        // returns a new account map object ranked on decreasing order of
        // account balance
    }
}
class Bakery implements Rankable{
    Map<String, Integer> bak; // item number mapped to item price
    public Bakery(Map<String, Integer> b){
        bak = b;
    }
    public Map<String, Integer> rank(){
        // returns a new bak map object ranked on decreasing order of item price
    }
}

public class Test {
    //----- FUNCTION HEADER -----
    Map<String, Integer> m1 = obj.rank();
    // prints the key that is mapped to 1
}
public static void main(String[] args) {
    Map<String, Integer> m = new HashMap<>();
    m.put("1024", 100);
    m.put("1023", 230);
    m.put("0013", 140);
    BankAccount ba = new BankAccount(m);
    Bakery bk = new Bakery(m);
    findRankOne(ba);
    findRankOne(bk);
}
}

```

Identify the appropriate option(s) to fill in place of FUNCTION HEADER such that the code generates the following output:

1023  
1023

### Options :

6406531194461. ❌ public static <T> void findRankOne(T obj){

6406531194462. ✓ public static <T extends Rankable> void findRankOne(T obj){

6406531194463. ❌ public static void findRankOne(<?> obj){

6406531194464. ✓ public static void findRankOne(Rankable obj){

**Question Number : 372 Question Id : 640653360622 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider the Java code given below:

```

class Stock{
    int available = 40;
    public synchronized void request(String uname, int n){
        if(available >= n){
            available = available - n;
            System.out.println(uname + " ordered " + n + " item(s)");
        }
        else
            System.out.println(uname + " cannot order " + n + " item(s)");
    }
}
class OnlineOrder implements Runnable{
    Stock st;
    String username;
    int nItems;
    public OnlineOrder(Stock s, String u, int n){
        st = s;
        username = u;
        nItems = n;
    }
    public void run(){
        st.request(username, nItems);
    }
}
public class SaleThreadTest {
    public static void main(String[] args) {
        Stock stk = new Stock();
        OnlineOrder od1 = new OnlineOrder(stk, "user123", 16);
        OnlineOrder od2 = new OnlineOrder(stk, "iamjohn", 25);
        Thread t1 = new Thread(od1);
        Thread t2 = new Thread(od2);
        t1.start();
        t2.start();
    }
}

```

From among the options given below, which are possible outputs of the given code?

#### Options :

iamjohn ordered 25 item(s)  
 6406531194489. ✓ user123 cannot order 16 item(s)

user123 ordered 16 item(s)  
 6406531194490. ✓ iamjohn cannot order 25 item(s)

user123 ordered 16 item(s)

6406531194491. ✖ iamjohn ordered 25 item(s)

iamjohn cannot order 25 item(s)

6406531194492. ✖ user123 cannot order 16 item(s)

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352617

**Question Shuffling Allowed :** Yes

**Question Number : 373 Question Id : 640653360623 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Select Question

Consider the following code

```

class BookSeat{
    int available = 1;
    public void request(int n, String name){
        if(available >= n){
            available = available - n;
            System.out.println(name + " booked " + n + " seat");
        }
        else{
            System.out.println(name + " cannot book " + n + " seat");
        }
    }
}

class WorkShopRegistration implements Runnable{
    BookSeat b;
    String name;
    int n_seats;
    public WorkShopRegistration(BookSeat b1, String n, int s){
        // constructor to initialize the instance variables
    }
    public void run(){
        b.request(n_seats, name);
    }
}

public class Student {
    public static void main(String[] args) {
        BookSeat obj = new BookSeat();
        WorkShopRegistration r1 = new WorkShopRegistration(obj, "Rohan", 1);
        WorkShopRegistration r2 = new WorkShopRegistration(obj, "Priya", 1);
        Thread t1 = new Thread(r1);
        Thread t2 = new Thread(r2);
        t1.start();
        t2.start();
    }
}

```

Which of the following is/are NOT possible outputs?

**Options :**

Rohan cannot book 1 seat  
 6406531194493. ❌ Priya booked 1 seat

Rohan cannot book 1 seat  
 6406531194494. ✓ Priya cannot book 1 seat

Rohan booked 1 seat

Priya cannot book 1 seat

6406531194495. \*

Rohan booked 1 seat

Priya booked 1 seat

6406531194496. \*

Priya cannot book 1 seat

Rohan booked 1 seat

6406531194497. \*

**Sub-Section Number :**

7

**Sub-Section Id :**

64065352618

**Question Shuffling Allowed :**

Yes

**Question Number : 374 Question Id : 640653360604 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 6**

Question Label : Multiple Select Question

Consider the Java code given below.

```

abstract class Payable{
    abstract double pay();
}

class Salary extends Payable{
    double empSalary;
    public Salary(double s) {
        empSalary = s;
    }
    public double pay() {
        return empSalary;
    }
}

class SalaryWithBonus extends Salary{
    final double BONUS = 0.1; //10% BONUS
    public SalaryWithBonus(double s) {
        super(s);
    }
    public double pay() {
        return empSalary * (1 + BONUS);
    }
}

public class Employee {
    String name;
    double sal;
    public Employee(String n, double s) {
        name = n; sal = s;
    }
    public double getFinalPay(){
        // CODE BLOCK
    }
    public static void main(String[] args) {
        Employee e1 = new Employee("Alan",20000);
        Employee e2 = new Employee("Calvin",10000);
        System.out.println(e1.getFinalPay());
        System.out.println(e2.getFinalPay());
    }
}

```

If the code generates the following as output, what should be filled in place of CODE BLOCK?

20000.0  
11000.0

### Options :

```

        Payable p;
        if (sal > 10000)
            p = new Salary(sal);
        else
            p = new SalaryWithBonus(sal);
6406531194417. ✓ return p.pay();

```

```
Salary s;
SalaryWithBonus sb;
if (sal > 10000) {
    s = new Salary(sal);
    return s.pay();
}
else{
    sb = new SalaryWithBonus(sal);
    return sb.pay();
}
```

6406531194418. ✓

```
Payable p = new Salary(sal);
```

6406531194419. ✗ return p.pay();

```
Salary s;
SalaryWithBonus sb;
if (sal > 10000) {
    s = new Payable(sal);
    return s.pay();
}
else{
    sb = new Payable(sal);
    return sb.pay();
}
```

6406531194420. ✗ }

**Question Number : 375 Question Id : 640653360612 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Select Question

Consider the Java code given below.

```

interface Washable{
    void wash();
}

interface Dryable extends Washable{
    void dry();
}

class WashingMachine{
    public Dryable getPulsator(){
        return new Pulsator();
    }

    private class Pulsator implements Dryable {
        public void wash() {
            System.out.println("Wash support to a washing machine");
        }

        public void dry() {
            System.out.println("Dry support to a washing machine");
        }
    }
}

public class PrivateTest {
    public static void main(String[] args) {
        WashingMachine wm = new WashingMachine();
        //CODE BLOCK
    }
}

```

Choose the correct option(s) to fill in place of CODE BLOCK so that the output is:

Wash support to a washing machine  
Dry support to a washing machine

#### Options :

6406531194449. ✓  
Dryable d = wm.getPulsator();  
d.wash();  
d.dry();

6406531194450. ✗  
Washable w = wm.getPulsator();  
w.wash();  
w.dry();

6406531194451. ✓  
Dryable d=wm.getPulsator();  
((Washable)d).wash();  
d.dry();

6406531194452. ✗

```
Washable w = wm.getPulsator();
w.wash();
Dryable d = w;
d.dry();
```

**Question Number : 376 Question Id : 640653360620 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

Question Label : Multiple Select Question

Consider the following java code

```

import java.util.*;
abstract class Employee{
    double salary;
    public Employee(double s){
        salary = s;
    }
    //Accessor Method getSalary() here
    public abstract double bonus();
}
class Manager extends Employee{
    public Manager(double s){
        super(s);
    }
    public double bonus(){
        return 0.2 * getSalary();
    }
}
class Developer extends Employee{
    public Developer(double s){
        super(s);
    }
    public double bonus(){
        return 0.1 * getSalary();
    }
}
public class Industry{
    // ----- FUNCTION HEADER -----
    double total_bonus = 0;
    for(Employee e : emp){
        total_bonus = total_bonus + e.bonus();
    }
    return total_bonus;
}
public static void main(String[] args){
    Manager m1 = new Manager(200);
    Manager m2 = new Manager(100);
    List<Manager> mList = new ArrayList<Manager>();
    mList.add(m1);
    mList.add(m2);
    Developer d1 = new Developer(250);
    Developer d2 = new Developer(150);
    List<Developer> dList = new ArrayList<Developer>();
    dList.add(d1);
    dList.add(d2);
    double m_bous = getTotalBonus(mList);
    double d_bonus = getTotalBonus(dList);
    System.out.println("Manager_bonus " + m_bous + ", " + "Developer_bonus: "
        + d_bonus);
}
}

```

Identify the correct option to be filled in place of FUNCTION HEADER to generate the output

Manager\_bonus 60.0, Developer\_bonus: 40.0.

### Options :

6406531194481. ❌ public static double getTotalBonus(List<Employee> emp){

6406531194482. ✓ public static double getTotalBonus(List<? extends Employee> emp){

6406531194483. ❌ public static double getTotalBonus(List<?> emp){

6406531194484. ✓ public static <T extends Employee> double getTotalBonus(List<T> emp){

## MLT

<b>Section Id :</b>	64065322454
<b>Section Number :</b>	12
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	33
<b>Number of Questions to be attempted :</b>	33
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352619
<b>Question Shuffling Allowed :</b>	No

**Question Number : 377 Question Id : 640653360624 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

**Question Label : Multiple Choice Question**

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531194498. ✓ Yes

6406531194499. ✗ No

**Question Number : 378 Question Id : 640653360625 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**Note:**

Do not write your answer as percentage. Always enter fractions as they are. e.g. if your answer is 0.245, enter the same, do not enter 24.5 %.

**Options :**

6406531194500. ✓ Useful Data has been mentioned above.

6406531194501. ✗ This data attachment is just for a reference & not for an evaluation.

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352620

**Question Shuffling Allowed :** Yes

**Question Number : 379 Question Id : 640653360636 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

During classification of linearly separable data-set using perceptron algorithm, as the value of learning rate  $\alpha$  is decreased,

**Options :**

6406531194532. ✘ The number of steps required for convergence increases.

6406531194533. ✘ The number of steps required for convergence decreases.

6406531194534. ✓ The number of steps required for convergence is independent of the learning rate.

6406531194535. ✘ The perceptron algorithm may not converge.

**Question Number : 380 Question Id : 640653360640 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

A knn algorithm with  $k = 30$  gives high training error and high validation error. What value of the  $k$  we should choose to get the better performance of the algorithm?

**Options :**

6406531194543. ✓ Less than 30

6406531194544. ✘ Greater than 30

**Question Number : 381 Question Id : 640653360646 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

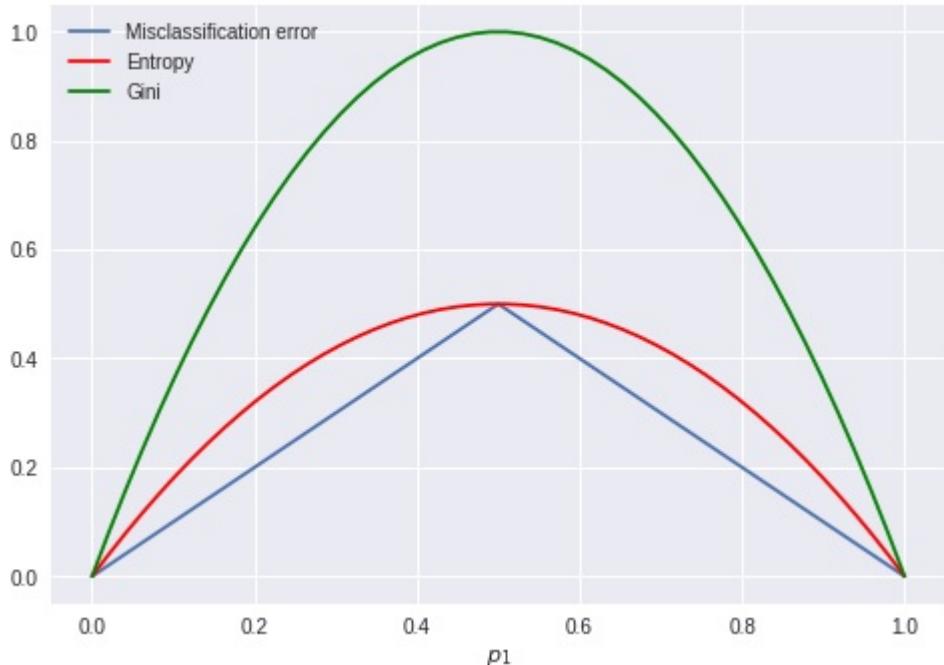
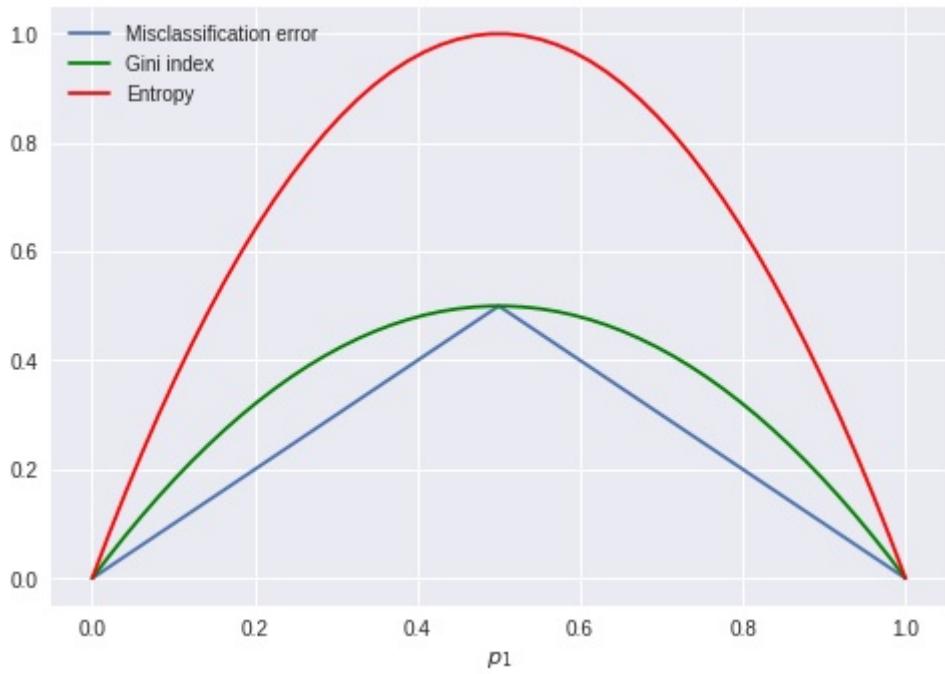
**Correct Marks : 2**

Question Label : Multiple Choice Question

Consider a binary classification problem. Let  $p_1$  denote the proportion of class 0 examples in a particular node. Which of the following graphs shows correct curves for the Gini-index, Entropy and misclassification error of that node?

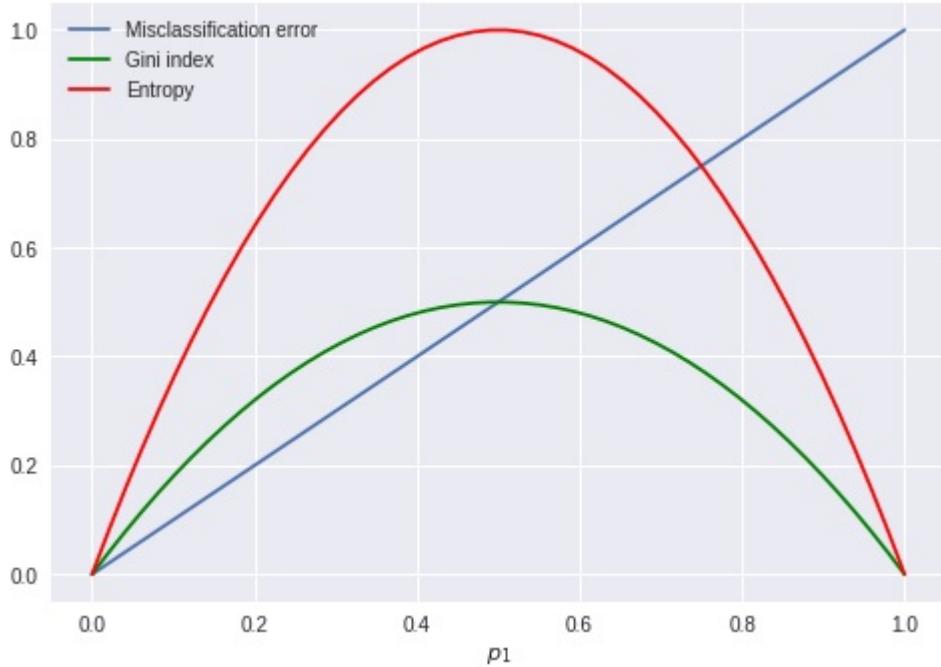
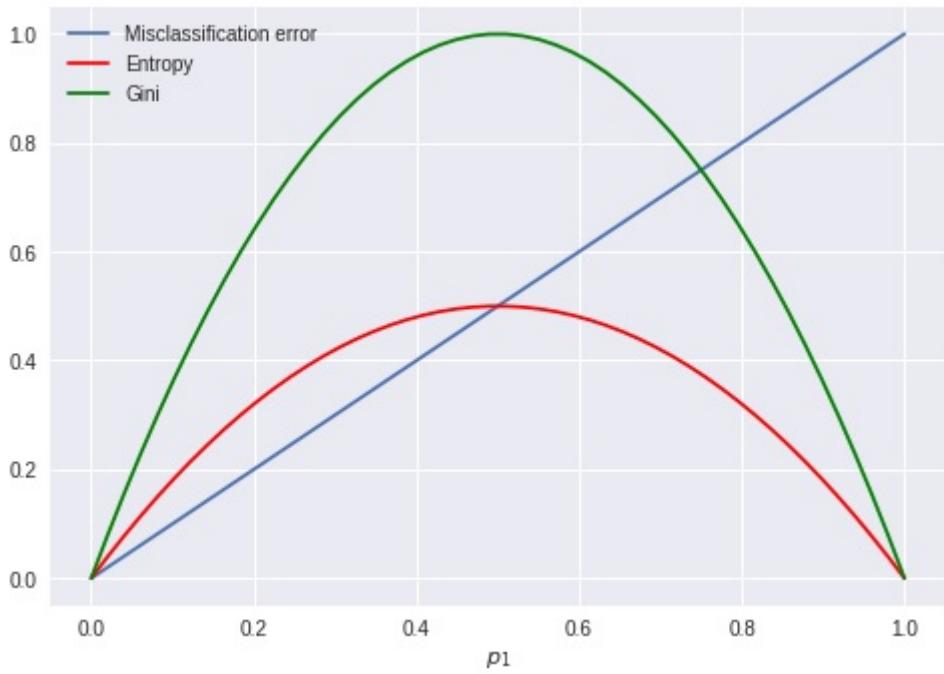
**Options :**

6406531194549. ✓



6406531194550. ✎

6406531194551. ✎



6406531194552. \*

**Question Number : 382 Question Id : 640653360657 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Choice Question

The following is the activation vector output by some hidden layer in a neural network when some input vector is given to it:

$$\begin{bmatrix} 0.2 \\ 1.8 \\ 3.9 \\ 0.1 \\ 0 \\ 5.8 \end{bmatrix}$$

Which of the following could be the activation function used in this layer?

**Options :**

6406531194575. ✘ Softmax

6406531194576. ✘ Sigmoid

6406531194577. ✓ ReLU

6406531194578. ✘ Tanh

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352621

**Question Shuffling Allowed :** Yes

**Question Number : 383 Question Id : 640653360626 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

Which of the following are multi label problems? For each option, assume suitable features are available.

**Options :**

6406531194502. ✘ Predicted number of run Indian Cricket team will score in their next ODI.

6406531194503. ✓ Amount of money that Amitabh Bachchan's next three movies each will make.

6406531194504. ✓ Predicting number of goals Ronaldo will score in next 10 matches each.

6406531194505. ✘ Predicting blood group of a person

6406531194506. ✓ Predicting blood sugar level of a person for next 15 days each.

**Question Number : 384 Question Id : 640653360650 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Multiple Select Question

In a random forest model let  $p < m$  be the number of randomly selected features that are used to identify the best split at any node of a tree. Which of the following are true? ( $m$  is the original number of features)

**Options :**

6406531194555. ❌ Increasing  $p$  reduces the correlation between any two trees in the forest.

6406531194556. ✓ Decreasing  $p$  reduces the correlation between any two trees in the forest.

6406531194557. ✓ Increasing  $p$  increases the performance of individual trees in the forest.

6406531194558. ❌ Decreasing  $p$  increases the performance of individual trees in the forest.

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352622

**Question Shuffling Allowed :** Yes

**Question Number : 385 Question Id : 640653360629 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

Consider feature matrix  $\mathbf{X} = \begin{bmatrix} 1 & 2 \\ 2 & 1 \\ 2 & 3 \end{bmatrix}$ , label vector  $\mathbf{y} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$  and the weight

vector is  $\mathbf{w} = \begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix}$ . Add a dummy feature to  $\mathbf{X}$ .

What will be the value of the loss function if a regression model without regularization is fitted?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

14 to 15

**Question Number :** 386 **Question Id :** 640653360660 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 2

**Question Label :** Short Answer Question

Consider a test-dataset of 100 points for a binary classification problem, where 60 belong to the positive class (true label) and the rest belong to the negative class (true label). The following is a table for some classifier that has been prepared by an ML engineer:

	Predicted label (+)	Predicted label (-)
True label (+)	30	30
True label (-)	10	30

If this is a valid confusion matrix (just by looking at the numbers), enter the classifier's recall as the answer. If this is not a valid confusion matrix, enter 0 as the answer. Your answer should be in the interval [0, 1], endpoints inclusive. Enter your answer correct to two decimal places.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.49 to 0.51

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352623

**Question Shuffling Allowed :** Yes

**Question Number :** 387 **Question Id :** 640653360633 **Question Type :** MCQ Is Question

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider a modified loss function for linear regression that is of the following form for a training dataset that has  $n$  points:

$$L(\mathbf{w}) = \frac{1}{2} \sum_{i=1}^n r_i (\mathbf{w}^T \mathbf{x}_i - y_i)^2$$

Here,  $r_i$  is some constant in  $[0, 1]$  associated with each data-point in the training dataset. The dummy feature and the corresponding weight are already included in the vectors  $\mathbf{x}$  and  $\mathbf{w}$  respectively. What is the expression of the gradient of  $L(\mathbf{w})$  with respect to  $\mathbf{w}$ ?

**Options :**

6406531194526. ✓  $\sum_{i=1}^n r_i (\mathbf{w}^T \mathbf{x}_i - y_i) \mathbf{x}_i$

6406531194527. ✗  $\sum_{i=1}^n r_i (\mathbf{w}^T \mathbf{x}_i - y_i)$

6406531194528. ✗  $\sum_{i=1}^n (\mathbf{w}^T \mathbf{x}_i - y_i) \mathbf{x}_i$

6406531194529. ✗  $\sum_{i=1}^n r_i (\mathbf{w}^T \mathbf{x}_i - y_i)^2 \mathbf{x}_i$

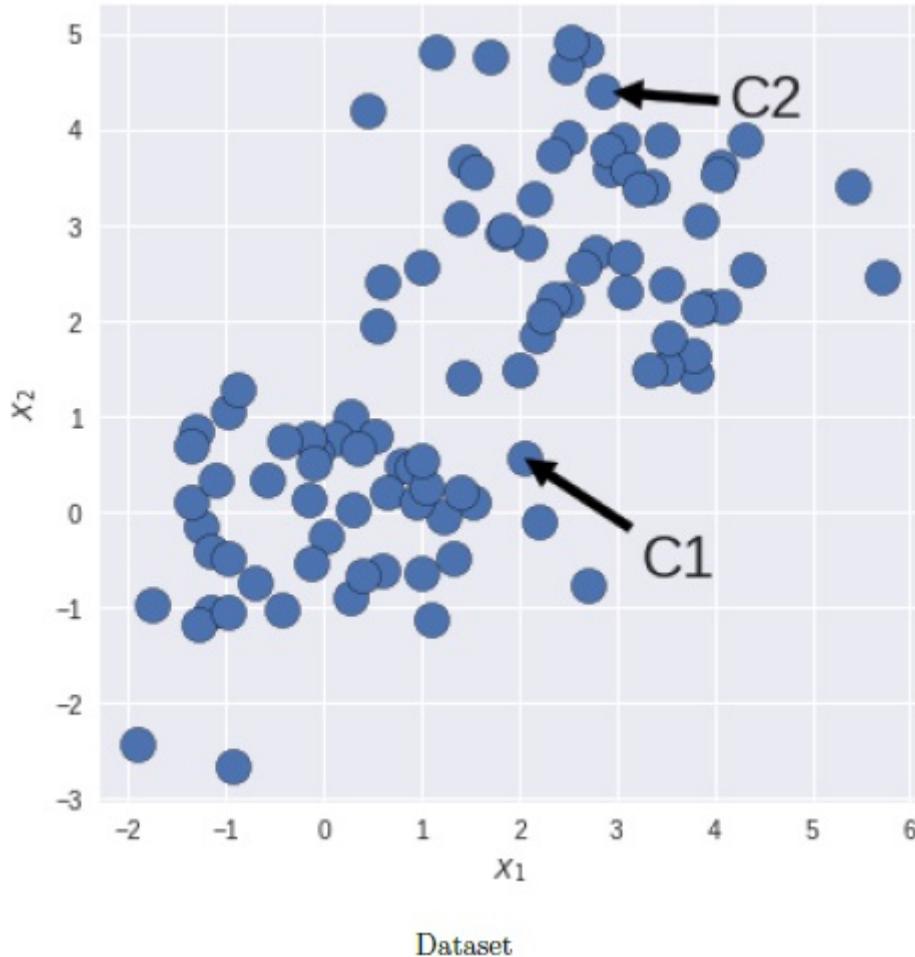
**Question Number : 388 Question Id : 640653360651 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider unlabeled data with two features  $X_1$  and  $X_2$  as shown in the figure.



$C_1$  and  $C_2$  are the coordinates of centroids obtained after certain iterations of  $K$ -means algorithm with  $K = 2$ . Which of the following options is correct about the silhouette score  $S$ ? Note: Euclidean distance is used to calculate the distances.

**Options :**

- 6406531194559. ❌  $S$  will be positive and close to 0.
- 6406531194560. ❌  $S$  will be positive and close to 1.
- 6406531194561. ❌  $S$  will be exact -1.
- 6406531194562. ✓  $S$  will be negative but need not be exact -1.

**Question Number : 389 Question Id : 640653360654 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

**Question Label : Multiple Choice Question**

Consider a neural network for a multi-class, image classification problem. When the network is trained on the images as they are, it does a good job on the test data. Call the dataset (train + test) for this setup  $D_1$  and the network  $N_1$ . Assume that we now turn all images upside down, in both the training and test dataset. Now, the network with the same architecture is trained from scratch on this modified dataset. Call the dataset (train + test) for this setup  $D_2$  and network  $N_2$ . Select the most appropriate option.

**Options :**

6406531194567. ❌ The network  $N_2$  will not be able to learn anything from  $D_2$ . Its test accuracy on  $D_2$  will be very low.

6406531194568. ✓ The network  $N_2$  will be able to learn useful patterns from  $D_2$ . In fact, the performance of network  $N_2$  on  $D_2$  will be similar to  $N_1$  on  $D_1$ .

6406531194569. ❌ The network  $N_2$  will be able to learn somewhat useful patterns from  $D_2$ . But the performance of  $N_1$  on  $D_1$  will be much better than  $N_2$  on  $D_2$ .

**Question Number : 390 Question Id : 640653360659 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

**Question Label : Multiple Choice Question**

Two classifiers are trained on a dataset for a binary classification problem. They are then tested on the same dataset. The  $F_1$  scores of both classifiers are the same.  $(p_1, r_1)$  and  $(p_2, r_2)$  are the precision-recall scores for the two classifiers. Consider the following statements:

Statement-1

If  $p_1 > p_2$ , then  $r_1 < r_2$

Statement-2

If  $p_1 = p_2$ , then  $r_1 = r_2$

Select the most appropriate option.

**Options :**

6406531194580. ❌ Statement-1 is correct, statement-2 is incorrect

6406531194581. ❌ Statement-1 is incorrect, statement-2 is correct

6406531194582. ✓ Both statements 1 & 2 are correct

6406531194583. ❌ Both statements 1 & 2 are incorrect

**Sub-Section Number :** 6

**Sub-Section Id :** 64065352624

**Question Shuffling Allowed :** Yes

**Question Number : 391 Question Id : 640653360627 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following code blocks will produce the same value for the variable 'Ans'? Assume the 'numpy' library is imported as 'np'.

**Options :**

A = np.diag(np.arange(6))  
B = np.arange(6)

6406531194507. ✓ Ans = A@B

A = np.arange(6).astype('int')

6406531194508. ✓ Ans = A\*\*2

A = np.diag(np.arange(5, -1, -1))  
B = np.ones(6)  
Ans = (5 - A@B).astype('int')

6406531194509. ✓ Ans = Ans\*Ans

A = np.array([1, 2, 4, 8, 16, 32])

6406531194510. ❌ Ans = np.log2(A).astype('int')

6406531194511. ❌ All the code blocks produce unique results.

6406531194512. ❌ All the code blocks produce same results.

**Question Number : 392 Question Id : 640653360628 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Rajesh trained a model on house price prediction problem. After training he came up with following model:

$$y = 4000 - 20 \cdot x_1 + 15 \cdot x_2 + 500 \cdot x_3 - 30 \cdot x_4$$

where,

$y$  is predicted house price,

$x_1$  is number of years the house was built before,

$x_2$  is the carpet area in square feet,

$x_3$  is the number of floors the apartment/house has,

$x_4$  represents distance of the property from railway station.

According to Rajesh's model, which of the following statements are correct?

**Options :**

6406531194513. ✘ Presence of the lift/elevator is the most important feature.

6406531194514. ✓ No. of floors in the building is the most important feature.

6406531194515. ✘ Area is the most important feature.

6406531194516. ✘ Age is the most important feature.

6406531194517. ✓ Distance from railway station is the second most important feature.

6406531194518. ✘ None of these.

**Question Number : 393 Question Id : 640653360631 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Consider that you have 100 non-linear data points randomly generated from a  $\cos(2\pi x)$  function  $0 \leq x \leq 3$ . Choose the correct statement(s) from the following.

**Options :**

6406531194521. ✓ The polynomial regression model of degree 6 adds a smooth fitting to this data.

6406531194522. ✓ The polynomial regression model of degree 98 overfits this data.

6406531194523. ✖ The polynomial regression model of degree 2 adds a smooth fitting to this data.

6406531194524. ✓ The polynomial regression model of degree 3 underfits this data.

**Sub-Section Number :** 7

**Sub-Section Id :** 64065352625

**Question Shuffling Allowed :** Yes

**Question Number : 394 Question Id : 640653360630 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

**Question Label : Short Answer Question**

What is the output of the following code?

```
import numpy as np

def aFunction(A, d):
    temp = np.ones(1)

    for i in range(1, d + 1):
        temp = np.concatenate((temp, A ** i))

    return temp

A = np.arange(4)
print(np.sum(aFunction(A, 2)))
```

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

21.0

**Question Number : 395 Question Id : 640653360632 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

**Question Label :** Short Answer Question

Consider the feature matrix  $\mathbf{X} = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 4 \end{bmatrix}$  and corresponding label vector

$\mathbf{y} = \begin{bmatrix} 2 \\ 4 \end{bmatrix}$ . Let regularization rate,  $\lambda = 0.1$ . Compute lasso regression loss using weight

$$\mathbf{w} = \begin{bmatrix} 1 \\ 0.01 \\ -0.5 \\ 0 \end{bmatrix}.$$

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

9.5 to 10.5

**Question Number :** 396 **Question Id :** 640653360634 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 3

Question Label : Short Answer Question

You are given a linearly separable dataset with feature matrix  $\mathbf{X}$ , for which a perceptron has been trained until it converges (perfectly separates the data). The weight vector corresponding to it is  $\mathbf{w}$ . This dataset has 60 points from the positive class and 40 from the negative class. What is the output of the following snippet of code?

Notes

- The labels for a perceptron lie in  $\{-1, 1\}$ .
- The NumPy arrays  $\mathbf{X}$  and  $\mathbf{w}$  are compatible for matrix multiplication, the dummy feature and the corresponding weight are already built into the arrays.
- None of the 100 points lie on the decision boundary.

```
import numpy as np
y_hat = np.where(X @ w > 0, 1, -1)
print(np.sum(y_hat))
```

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

20

**Question Number :** 397 **Question Id :** 640653360639 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 3

Question Label : Short Answer Question

A Gaussian Naive Bayes model is trained for a multi-class classification problem that has 12 features and 5 classes. Find the total number of parameters that have to be estimated for this model. Consider each parameter to be a scalar value. In other words, if we decide to store all the parameters in a Python list, with each element of the list being a float value corresponding to a single parameter, what is the size of this list? Ignore the priors in the calculation. Only focus on the parameters of the class conditional densities.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

120

**Question Number :** 398 **Question Id :** 640653360653 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 3

Question Label : Short Answer Question

Consider the following network architecture:

Layer	Number of Neurons
Input	15
Hidden layer-1	30
Hidden layer-2	20
Output layer	5

How many parameters (weights + biases) does this network have?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1205

**Question Number : 399 Question Id : 640653360658 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

A multi-class classification problem has 5 classes. The training dataset has  $n$  data-points, with an equal number of points from each of the 5 classes. Consider a dummy classifier that does prediction as follows: for each input data-point, it picks one of the 5 classes at random (uniformly) and outputs that as its prediction. What is the accuracy of the model on the training dataset as  $n$  becomes very large? Your answer should be between 0 and 1. Enter your answer correct to two decimal places.

**Hint:** Think about it in the probabilistic sense.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.19 to 0.21

**Sub-Section Number :** 8**Sub-Section Id :** 64065352626**Question Shuffling Allowed :** Yes**Question Number : 400 Question Id : 640653360638 Question Type : MCQ Is Question****Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 4****Question Label : Multiple Choice Question**

Consider a logistic regression model for a binary classification problem with

two features  $x_1$  and  $x_2$ . The feature vector is  $\begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$  and labels lie in  $\{0, 1\}$ . The threshold for inference is 0.5. The dummy feature and the weight corresponding to it can be ignored for this problem. Let  $x_1$  be the horizontal axis and  $x_2$  be the vertical axis. You are given two feature vectors:

$$\mathbf{x}_1 = \begin{bmatrix} \sqrt{3} \\ 1 \end{bmatrix}, \mathbf{x}_2 = \begin{bmatrix} -\sqrt{3} \\ 1 \end{bmatrix}$$

The weight vector makes an angle of  $\theta$  with the positive  $x_1$  axis (horizontal). Each  $\theta$  corresponds to a different classifier. For what range of values of  $\theta$  are both  $\mathbf{x}_1$  and  $\mathbf{x}_2$  predicted to belong to class-1?

**Hints:**

- To draw the weight vector  $\mathbf{w} = \begin{bmatrix} w_1 \\ w_2 \end{bmatrix}$ , plot the point  $(w_1, w_2)$  and draw an arrow starting at the origin to this point.
- $\tan(30^\circ) = \frac{1}{\sqrt{3}}$

**Options :**6406531194537. ✓  $60^\circ < \theta < 120^\circ$ 6406531194538. ✗  $0^\circ < \theta < 30^\circ$

6406531194539. ✘  $30^\circ < \theta < 180^\circ$

6406531194540. ✘  $0^\circ < \theta < 180^\circ$

6406531194541. ✘  $0^\circ < \theta < 360^\circ$

**Question Number : 401 Question Id : 640653360652 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider the following data points

(2,2)
(2,3)
(6,5)
(3.6,4)
(3.4, 4)

We perform k-means clustering on the above data, with  $k = 2$ , using Manhattan distance as the distance measure. At  $t$ th iteration, we have (2,2) as the centroid for cluster-1 and (6,5) as the centroid for cluster-2. After performing  $(t + 1)$ th iteration the point (3.4,4) will belong to

**Options :**

6406531194563. ✘ cluster-1

6406531194564. ✓ cluster-2

6406531194565. ✘ can not be determined

**Sub-Section Number :** 9

**Sub-Section Id :** 64065352627

**Question Shuffling Allowed :** Yes

**Question Number : 402 Question Id : 640653360655 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

If  $W_{ij}$  is the weight of the edge from neuron  $i$  in layer  $l - 1$  to neuron  $j$  in layer  $l$ , which of the following statements about the matrix  $\mathbf{W}$  are true? Neurons in a layer are processed (indexed) from top to bottom. So, the first neuron in a layer is the top-most neuron in that layer.

**Options :**

6406531194570. ✓ The first row of the matrix corresponds to all outgoing connections from the first neuron in layer  $l - 1$ .

6406531194571. ✗ The first row of the matrix corresponds to all incoming connections to the first neuron in layer  $l$ .

6406531194572. ✓ The last column of the matrix corresponds to all incoming connections to the last neuron in layer  $l$ .

6406531194573. ✗ The last column of the matrix corresponds to all the outgoing connections from the last neuron in layer  $l - 1$ .

**Sub-Section Number :** 10

**Sub-Section Id :** 64065352628

**Question Shuffling Allowed :** Yes

**Question Number : 403 Question Id : 640653360635 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

A perceptron model is trained on the following binary classification data-set.

$X_1$	$X_2$	Label ( $y$ )
0	0	-1
0	1	1
1	0	1
1	1	-1

At one of the iterations, weights are:  $w_0 = -0.7$ ,  $w_1 = 0.8$  and  $w_2 = 0.1$ . Assume that  $w'_0$ ,  $w'_1$  and  $w'_2$  are the updated weights after one epoch (one epoch is completed on going through all the data points). Find the value of  $w'_0 + w'_1 + w'_2$ . Consider the learning rate to be one. Don't change the order of samples while updating the weight vector. Take the original order of samples.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

-1.8

**Question Number : 404 Question Id : 640653360637 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Short Answer Question**

Inference using logistic regression happens as follows.  $T$  is called the threshold and is some real number in the interval  $(0, 1)$ .  $\hat{y}$  stands for the predicted label.

$$\hat{y} = \begin{cases} 1, & P(y = 1 | \mathbf{x}) \geq T \\ 0, & \text{otherwise} \end{cases}$$

Given this setup, the equation of the decision boundary is given below:

$$\mathbf{w}^T \mathbf{x} - u = 0$$

$\mathbf{w}$  has the same dimensions as  $\mathbf{x}$ . The dummy feature is included in  $\mathbf{x}$  and the corresponding weight is included in  $\mathbf{w}$ . If  $T = \frac{e^2}{1 + e^2}$ , what is the value of the unknown quantity  $u$ ? Here,  $e$  is the Euler's number that is associated with the natural logarithm and is the same one found on your calculator. Enter the closest integer as your answer.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

2

**Question Number :** 405 **Question Id :** 640653360641 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 4

Question Label : Short Answer Question

An SVM has been trained for a 2D problem. The feature vector is  $\mathbf{x} = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$ .

It has the following weight vector and bias:

$$\mathbf{w} = \begin{bmatrix} 2 \\ 1 \end{bmatrix}, b = -2$$

Recall that the labels in the SVM setup are +1 and -1. Consider a unit square whose vertices are at:

$$(0, 0), (1, 0), (0, 1), (1, 1)$$

The horizontal axis corresponds to  $x_1$  and the vertical axis corresponds to  $x_2$ . A point is picked at random (uniformly) from the region bounded by the square. What is the probability that this point is predicted as belonging to class +1 by the SVM? Enter your answer correct to two decimal places.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.24 to 0.26

**Question Number : 406 Question Id : 640653360642 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Short Answer Question**

Find the hinge loss for this soft-margin SVM classifier on the dataset that is given in the table. The weight vector and bias are as follows:

$$\mathbf{w} = \begin{bmatrix} 1 \\ -1 \end{bmatrix}, \quad b = 1$$

The coefficient  $C$  can be assumed to be 1.

$x_1$	$x_2$	$y$
1	4	-1
-1	2	-1
-2	0	-1
1	2	-1
1	3	1
1	0	1
2	1	1
2	3	1

Note that you just need to report the hinge loss. Do not compute the margin loss which involves only the term  $w$ . Also note that the hinge loss does not have a factor of 0.5 before it. Enter the closest integer as your answer.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

4

**Question Number : 407 Question Id : 640653360656 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Short Answer Question**

Consider two networks  $N_1$  and  $N_2$  for a binary classification task.  $N_1$  has two neurons at the output layer and uses the softmax activation function.  $N_2$  has one neuron at the output layer and uses sigmoid activation function. We don't need the information about the hidden layers for this problem.

For some test data-point  $x$ , the pre-activations at the output layer for  $N_1$  is given below. The first neuron corresponds to class-0 and the second corresponds to class-1:

$$z = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$$

It turns out that for this data-point, both networks predict the same probability of this point belonging to class-1. That is  $P(y = 1 | x)$  is the same for both networks. If this is the case, what should be the pre-activation value at the output layer of  $N_2$ , call it  $z$ , corresponding to this data-point? Enter the closest integer as your answer.

Notes

- The activation of  $N_2$  at the output-layer is interpreted as  $P(y = 1 | x)$ .
- The  $z$  for  $N_1$  is a vector and the  $z$  for  $N_2$  is a scalar.
- Be careful about the distinction between pre-activation and activation.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

2

**Sub-Section Number :** 11

**Sub-Section Id :** 64065352629

**Question Shuffling Allowed :** No

**Question Id :** 640653360643 **Question Type :** COMPREHENSION **Sub Question Shuffling Allowed :** No **Group Comprehension Questions :** No **Calculator :** None **Response Time :** N.A

**Think Time :** N.A **Minimum Instruction Time :** 0

**Question Numbers :** (408 to 409)

**Question Label :** Comprehension

Consider the following training data-set with three features:

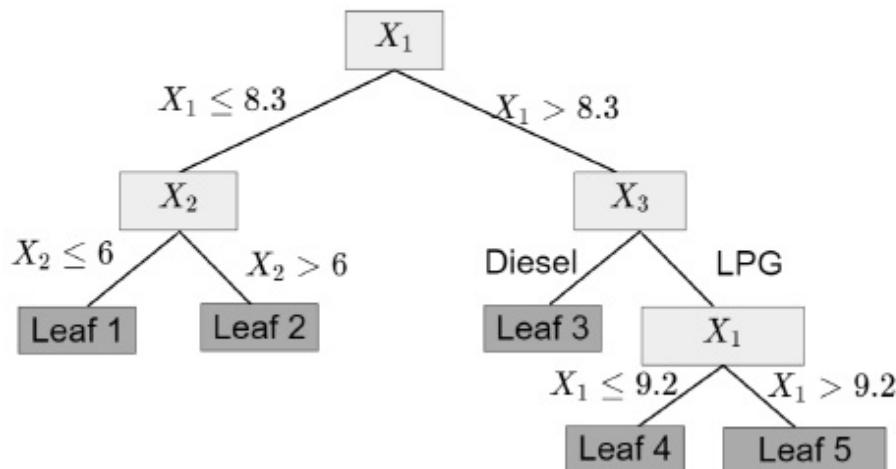
$X_1$  = Present price of the car (values are given in lac)

$X_2$  = Age (How many years the car has been driven)

$X_3$  = Fuel-type (diesel or LPG)

$X_1$	$X_2$	$X_3$	Selling price ( $y$ )
8.3	4	LPG	4.5
5.5	6	Diesel	2.0
16.3	7	LPG	7.0
8.4	4	Diesel	5.0
7.8	6	LPG	3.5
11.5	9	LPG	5.5
9.2	7	LPG	3.5
8.9	3	Diesel	5.0
22.4	8	Diesel	15.0
4.5	8	LPG	1.5

Its regression tree is given below. In the tree, each node is denoted by the feature along which it is split.



Regression tree

Based on the above data, answer the given subquestions.

### Sub questions

**Question Number : 408 Question Id : 640653360644 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 2**

Question Label : Short Answer Question

How many samples of the training data-set belong to Leaf 2?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

1

**Question Number : 409 Question Id : 640653360645 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Short Answer Question

If the present price of a car which is driven for 5 years is 9.5 lac. If the car has an LPG engine, what will be the prediction for the selling price of the car according to the given regression tree? Enter your answer in lac. If your answer is 5.6 lac, enter the answer 5.6.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

7.0

**Sub-Section Number :** 12

**Sub-Section Id :** 64065352630

**Question Shuffling Allowed :** No

**Question Id : 640653360647 Question Type : COMPREHENSION Sub Question Shuffling**

**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (410 to 411)****Question Label : Comprehension**

Consider that adaboost model is trained on the following binary classification data-set.

$X_1$	$X_2$	Label ( $y$ )
3.7	2	false
2.0	2	false
5	4	true
2.9	5	false
4.1	6	true

The data-set is split according to feature  $X_2$  to create the first stump.

Equal sample weights are assigned to each examples to create the first stump and Gini-index measure is used to split the data.

Based on the above data, answer the given subquestions.

**Sub questions****Question Number : 410 Question Id : 640653360648 Question Type : SA Calculator : None****Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 4****Question Label : Short Answer Question**

What will be the performance of the first stump? Enter your answer correct to two decimal places.

**Response Type : Numeric****Evaluation Required For SA : Yes****Show Word Count : Yes****Answers Type : Range****Text Areas : PlainText****Possible Answers :****0.67 to 0.72****Question Number : 411 Question Id : 640653360649 Question Type : SA Calculator : None****Response Time : N.A Think Time : N.A Minimum Instruction Time : 0****Correct Marks : 4**

**Question Label :** Short Answer Question

What sample weight will be assigned to the last example to create the next stump? Don't normalize the sample weights. Enter your answer correct to two decimal places.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Range

**Text Areas :** PlainText

**Possible Answers :**

0.08 to 0.12

## PDSA

**Section Id :** 64065322455

**Section Number :** 13

**Section type :** Online

**Mandatory or Optional :** Mandatory

**Number of Questions :** 31

**Number of Questions to be attempted :** 31

**Section Marks :** 100

**Display Number Panel :** Yes

**Group All Questions :** No

**Enable Mark as Answered Mark for Review and**

Yes

**Clear Response :**

**Maximum Instruction Time :** 0

**Sub-Section Number :** 1

**Sub-Section Id :** 64065352631

**Question Shuffling Allowed :** No

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: PROGRAMMING DATA STRUCTURES AND ALGORITHMS USING PYTHON"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531194585. ✓ Yes

6406531194586. ✗ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352632

**Question Shuffling Allowed :** Yes

**Question Number : 413 Question Id : 640653360662 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Here is a function to return the maximum value among three positive integers. There is a logical error in this function.

```
1 def max3bad(x,y,z):
2     maximum = 0
3     if x >= y:
4         if x >= z:
5             maximum = x
6     elif y >= z:
7         maximum = y
8     else:
9         maximum = z
10    return(maximum)
```

Select the input for which `max3bad` produces an incorrect output.

**Options :**

6406531194587. ❌

6406531194588. ❌

6406531194589. ❌

6406531194590. ✓

**Question Number : 414 Question Id : 640653360663 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

A list having  $2^k$  items has to be processed using either of two given algorithms. Algorithm A takes  $8n \log n$  time units and algorithm B takes  $0.02n^2$  time units to process a list of  $n$  items. What is the largest value of  $k$  for which algorithm B would be preferred ?

**Options :**

6406531194591. ❌ 11

6406531194592. ✓ 12

6406531194593. ❌ 13

6406531194594. ❌ Algorithm A would be preferred always irrespective of  $k$

**Question Number : 415 Question Id : 640653360664 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following iterative code:

```
1 def fun(n):
2     i,j = 1,1
3     while(j <= n):
4         i = i+2
5         j = j+i
6         print(j)
```

What would be the running time complexity of the above given function ?

**Options :**

6406531194595. ✘  $O(\log n)$

6406531194596. ✘  $O(n \log n)$

6406531194597. ✓  $O(\sqrt{n})$

6406531194598. ✘  $O(n^2)$

**Question Number : 416 Question Id : 640653360665 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

What is the time complexity of the following recurrence relation ?

$T(1) = 1$

For  $n > 1$ ,  $T(n) = 8T(n/2) + n$

**Options :**

6406531194599. ✘  $O(n^2)$

6406531194600. ✓  $O(n^3)$

6406531194601. ✘  $O(n^2 \log_2 n)$

6406531194602. ✖  $O(n^3 \log_2 n)$

**Question Number : 417 Question Id : 640653360666 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

```
1 def selectionsort(L):
2     n = len(L)
3     if n < 1:
4         return(L)
5     for i in range(n):
6         mpos = i
7         for j in range(i+1,n):
8             if L[j] < L[mpos]:
9                 mpos = j
10            (L[i],L[mpos]) = (L[mpos],L[i])
11    return(L)
```

Which of the following statement(s) is/are correct with regard to the given Selection Sort?

1. Selection sort is not stable and it sorts In-place
2. The complexity of Selection sort is  $O(n^2)$  in best, average and worst case.
3. In Selection sort, after  $m$  passes through the list, the first  $m$  elements in the list are the  $m$  smallest element of the list.

**Options :**

6406531194603. ✖ Only statement 1 is true

6406531194604. ✖ Statement 1 and Statement 2 are true

6406531194605. ✖ Statement 1 and Statement 3 are true

6406531194606. ✓ All statements are true

**Question Number : 418 Question Id : 640653360667 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Assuming that the median of  $n$  elements can be found in  $O(n)$  time. What would be the complexity of quick sort, if the median item is always selected as the pivot?

**Options :**

6406531194607. ✘  $O(\log n)$

6406531194608. ✘  $O(n \log \log n)$

6406531194609. ✓  $O(n \log n)$

6406531194610. ✘  $O(n)$

**Question Number : 419 Question Id : 640653360671 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Let  $G$  be a undirected connected graph. Let  $T_d$  be a depth first search tree of  $G$ . Let  $T_b$  be a breadth first search tree of  $G$ . Consider the following statements.

1. No edge of  $G$  is a cross edge with respect to  $T_d$
2. For every edge  $(u, v)$  of  $G$ , if  $u$  is at depth  $i$  and  $v$  is at depth  $j$  in  $T_b$ , Then  $|i - j| = 1$ .

Which of the above statements must necessarily be **true**?

**Options :**

6406531194617. ✓ 1 only

6406531194618. ✘ 2 only

6406531194619. ✘ Both 1 and 2

6406531194620. ✘ Neither 1 nor 2

**Question Number : 420 Question Id : 640653360672 Question Type : MCQ Is Question**

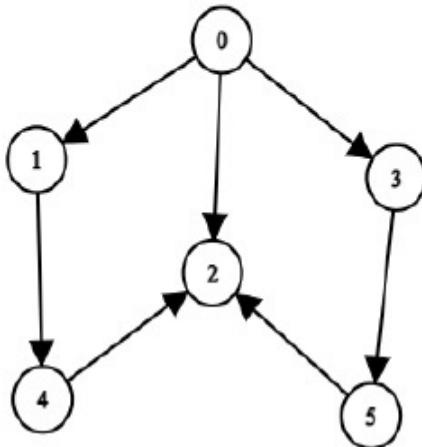
**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following directed graph. Run DFS on this graph from vertex 0 . Which of the following is a cross edge.

*Note: In the case of multiple neighbours, the algorithms first pick the node which has the largest labelled value.*



Options :

6406531194621. ✘ (0,1)

6406531194622. ✘ (0,3)

6406531194623. ✘ (5,2)

6406531194624. ✘ (0,2)

6406531194625. ✓ (4,2)

Question Number : 421 Question Id : 640653360675 Question Type : MCQ Is Question

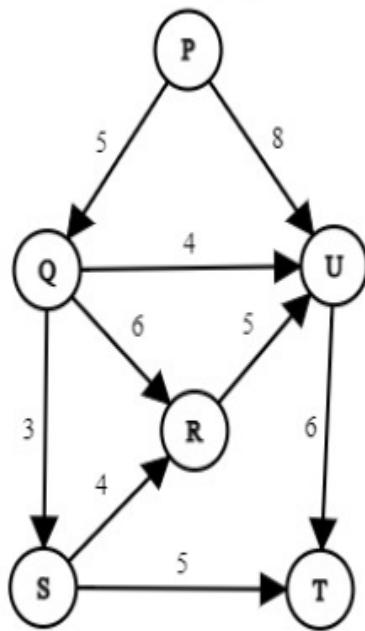
Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Consider the following directed weighted graph on which Dijkstra algorithm is run with vertex P as the source vertex.



What is the order of nodes in which the nodes are marked as visited by Dijkstra's algorithm ?

*Note: If two vertices have same distance, the algorithm picks the next vertex which comes first alphabetically*

**Options :**

6406531194628. ❌ P, Q, S, U, T, R

6406531194629. ✓ P, Q, S, U, R, T

6406531194630. ❌ P, Q, R, S, T, U

6406531194631. ❌ P, Q, S, T, U, R

**Question Number : 422 Question Id : 640653360676 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider a undirected connected graph G, where each edge contains the equal weight 1. Which one of the following is **true**?

**Options :**

6406531194632. ✘ Graph G has no minimum spanning tree

6406531194633. ✘ Graph G has unique MST of cost  $n-1$

6406531194634. ✓ Graph G has multiple MSTs, each of cost  $n-1$

6406531194635. ✘ Graph G has multiple MSTs of different cost

**Question Number : 423 Question Id : 640653360677 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

The maximum and minimum number of nodes in a binary search tree of height 7 are \_\_\_\_\_.

Consider that the height of the empty tree is 0.

**Options :**

6406531194636. ✘ 64 and 6, respectively

6406531194637. ✘ 128 and 7, respectively

6406531194638. ✘ 127 and 6, respectively

6406531194639. ✓ 127 and 7, respectively

**Question Number : 424 Question Id : 640653360678 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider a complete binary tree with  $n$  nodes, where the left and right subtrees of the root are max heaps. The upper bound to convert the tree to a max heap by an efficient algorithm is \_\_\_\_\_.

**Options :**

6406531194640. ✓  $O(\log n)$

6406531194641. ✗  $O(n)$

6406531194642. ✗  $O(n \log n)$

6406531194643. ✗  $O(n^2)$

**Question Number : 425 Question Id : 640653360679 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider a binary min-heap made up of  $\{1, 2, 3, 4, \dots, 1024\}$ . Assume that each number occurs exactly once in the heap. The depth of a node in the heap is equal to the number of edges to that node from the root node. Thus, the root is at depth 0. What is the maximum possible depth of the node number 7?

**Options :**

6406531194644. ✗ 8

6406531194645. ✗ 7

6406531194646. ✗ 2

6406531194647. ✓ 6

**Question Number : 426 Question Id : 640653360681 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the following statement(s) is/are **true** about Huffman code algorithm?

1. In an optimal Huffman tree, if leaf labelled **x** is at depth smaller than leaf labelled **y**, then

**frequency(x) >= frequency(y)**

2. Huffman code algorithm always generates prefix code.
3. Huffman code algorithm is based on a greedy approach.

**Options :**

6406531194652. ✘ 1 and 2
6406531194653. ✘ 2 and 3
6406531194654. ✘ 1 and 3
6406531194655. ✓ 1, 2 and 3

**Question Number : 427 Question Id : 640653360683 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

There are 5 sorted arrays of sizes 10, 20, 36, 45, and 12. If the `merge` algorithm is used to optimally combine all of these sorted arrays together into one sorted sequence, then what is the total number of comparisons needed by the `optimal merge` algorithm in the worst case?

*Note: the `merge` algorithm would merge the arrays pairwise, i.e. it would only merge two arrays into a single larger one.*

**Options :**

6406531194657. ✘ 186
6406531194658. ✘ 281
6406531194659. ✓ 264
6406531194660. ✘ 271

**Question Number : 428 Question Id : 640653360684 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

In a list `L`, two elements `L[i]` and `L[j]` form a inversion if `L[i] > L[j]` and `i < j`. Which of the following options represents the inversions in the list `L = [2,1,6,4,5,3]` ?

**Options :**

6406531194661. ✘ (2,1), (5,2), (6,5), (6,3), (4,1), (5,3)

6406531194662. ✘ (2,1), (6,4), (6,5), (6,2), (4,3), (5,2)

6406531194663. ✓ (2,1), (6,4), (6,5), (6,3), (4,3), (5,3)

6406531194664. ✘ (2,1), (6,4), (6,5), (6,3), (4,1), (5,2)

**Question Number : 429 Question Id : 640653360688 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Which of the following option represents the fail function (or prefix function) for pattern 'abababaa' in the Knuth-Morris-Pratt (KMP) algorithm?

**Options :**

6406531194668. ✘ [1,1,1,2,3,4,0,1]

6406531194669. ✓ [0,0,1,2,3,4,5,1]

6406531194670. ✘ [0,0,0,1,1,2,3,4]

6406531194671. ✘ [0,0,1,2,3,4,4,1]

**Question Number : 430 Question Id : 640653360690 Question Type : MCQ Is Question**

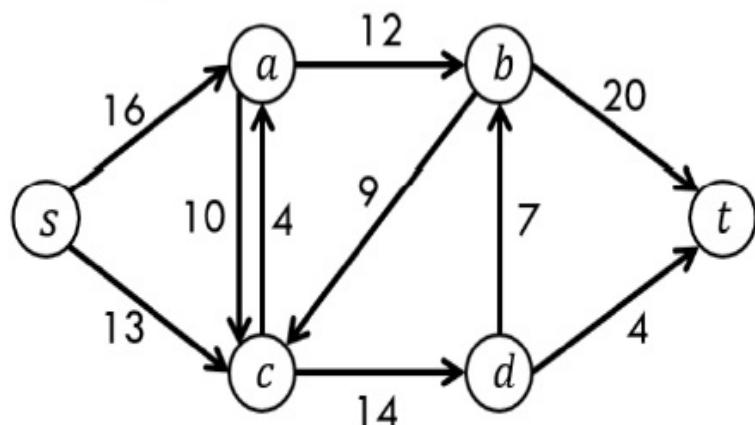
**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following network.



Consider the network given above with source  $s$  and sink  $t$ , with the numbers on the edges denoting maximum capacity across a particular edge. Which of the following edges form a **valid min cut** in the given network?

**Options :**

6406531194676. ✘ Edges {ab, cd, dt, db}

6406531194677. ✓ Edges {ab, db, dt}

6406531194678. ✘ Edges {ca, db, dt}

6406531194679. ✘ Edges {ab, cd, bc}

**Question Number : 431 Question Id : 640653360691 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 3**

Question Label : Multiple Choice Question

Consider the following statements and select the appropriate option regarding them

1. SAT is a NP complete problem.
2. Given a problem  $\alpha$  which is reduced in polynomial time from another problem  $\beta$ . If  $\beta$  is solvable in polynomial time then  $\alpha$  is also solvable within polynomial time.

**Options :**

6406531194680. ✓ Only statement 1 is correct

6406531194681. ✘ Only statement 2 is correct

6406531194682. ✘ Both the statements are correct

6406531194683. ✘ Both the statements are wrong

**Sub-Section Number :**

3

**Sub-Section Id :**

64065352633

**Question Shuffling Allowed :**

Yes

**Question Number : 432 Question Id : 640653360668 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Multiple Choice Question**

Consider the following implementation for Queue

```
1 class Queue:  
2     def __init__(self):  
3         self.queue = []  
4     def enqueue(self,v):  
5         self.queue.append(v)  
6     def isempty(self):  
7         return(self.queue == [])  
8     def dequeue(self):  
9         v = None  
10        if not self.isempty():  
11            v = self.queue[0]  
12            self.queue = self.queue[1:]  
13        return(v)
```

```
1 def fun(Q):  
2     if (not Q.isempty()):  
3         i = Q.dequeue()  
4         fun(Q)  
5         Q.enqueue(i)
```

Assuming that the initial state of the queue was [12,24,20,6,12,8,16] , what is `Q.queue[2]` after `fun(Q)` is executed?

**Options :**

6406531194611. ✘ 40

6406531194612. ✘ 6

6406531194613. ✓ 12

6406531194614. ✘ 16

**Question Number : 433 Question Id : 640653360689 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

First kind of cake requires 200g of flour and 25g of fat, and second kind of cake requires 100g of flour and 50g of fat. Formulate this problem as a linear programming problem to find the maximum number of cakes that can be made from 5 kg of flour and 1 kg of fat, assuming that there is no shortage of the other ingredients used in making the cakes.

The above problem is to be formulated as a linear programming problem. Let  $x$  and  $y$  be the number of cake of kind first and second, respectively. Objective function to maximize the number of cakes  $z = x + y$ .

Which of the following is **not a valid** constraint for the given problem?

**Options :**

6406531194672. ❌  $2x + y \leq 50$

6406531194673. ✓  $x + 2y \leq 50$

6406531194674. ❌  $x \geq 0, y \geq 0$

6406531194675. ❌  $x + 2y \leq 40$

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352634

**Question Shuffling Allowed :** Yes

**Question Number : 434 Question Id : 640653360680 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 3**

Question Label : Multiple Select Question

Which of the following statement(s) is/are **true** ?

**Options :**

While inserting a new element in a max heap of  $n$  elements, binary search is performed on the path from the new node to the root to find the correct position of the new node. Number of

6406531194648. ❌ comparisons performed in this process is  $O(\log^2 n)$

Given a binary search tree and a min-heap with the same constituent items, the min-heap is  
6406531194649. ❌ more efficient for printing the items in ascending order.

When we implement Prim's algorithm using min-heap the time complexity is improved to  
6406531194650. ✓  $O((m + n) \log n)$ .

When we implement Dijkstra's algorithm using min-heap the time complexity is improved to  
6406531194651. ✓  $O((m + n) \log n)$ .

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352635

**Question Shuffling Allowed :** Yes

**Question Number : 435 Question Id : 640653360669 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label :** Short Answer Question

A hash table of size 8 (index 0 to 7) uses open addressing with hash function  $h(k) = k \bmod 8$ ,  
and linear probing. The following elements are added into the hash table which was initially  
empty

22, 11, 85, 27, 34 and 50

The key value 50 is stored at which index of the hash table?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

7

**Question Number : 436 Question Id : 640653360670 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

Consider a **undirected graph**  $G$  with **65** edges with the least number of vertices possible. What will be the number of vertices in graph  $G$  ?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

12

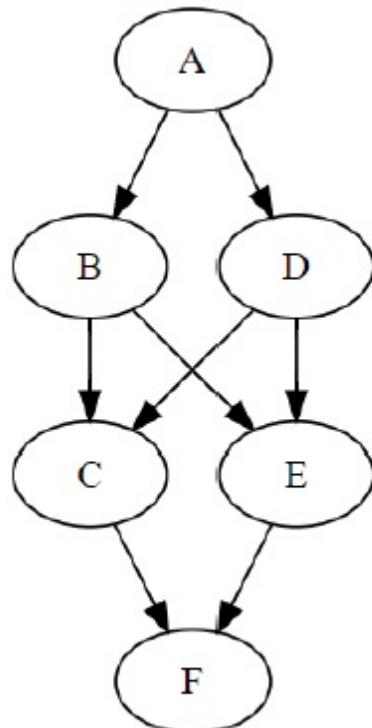
**Question Number : 437 Question Id : 640653360673 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Short Answer Question

Consider the following directed graph.



The number of different topological orderings of the vertices of the graph is \_\_\_\_\_

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

4

**Question Number :** 438 **Question Id :** 640653360674 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 4

Question Label : Short Answer Question

Consider the following adjacency matrix  $\text{AMat}$  of an undirected graph with 5 vertices.

$$\text{AMat} = \begin{pmatrix} 0 & 1 & 8 & 1 & 4 \\ 1 & 0 & 12 & 10 & 9 \\ 8 & 12 & 0 & 7 & 3 \\ 1 & 10 & 7 & 0 & 2 \\ 4 & 9 & 3 & 2 & 0 \end{pmatrix}$$

What is the cost of the minimum spanning tree for the given adjacency matrix of a graph?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

7

**Question Number :** 439 **Question Id :** 640653360682 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 4

Question Label : Short Answer Question

What will be the minimum number of nodes in an AVL tree of height 9? Consider that the height of the empty tree is 0.

**Response Type :** Numeric

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

**88**

**Question Number : 440 Question Id : 640653360685 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Short Answer Question**

Let  $A_1, A_2, A_3, A_4$  be 4 matrices with dimensions  $(10 \times 5), (5 \times 20), (20 \times 10), (10 \times 15)$  respectively. What is the minimum number of scalar multiplications required to find the product  $A_1 \times A_2 \times A_3 \times A_4$ ?

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

**2500**

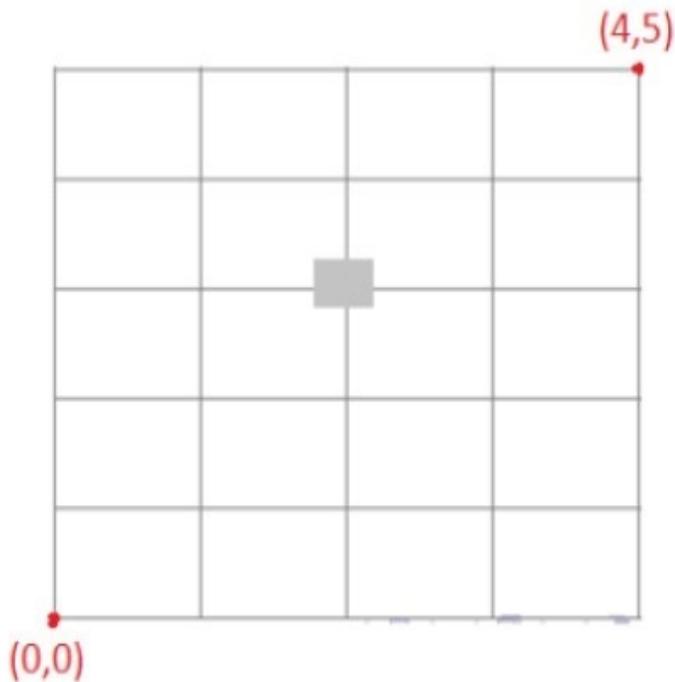
**Question Number : 441 Question Id : 640653360686 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Short Answer Question**

Consider the following grid.



How many unique paths are available from (0,0) to (4,5)? Condition is that you can only travel one step right or one step up at a time, and the gray box at intersection point (2,3) represents a blockage.

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

66

**Question Number :** 442 **Question Id :** 640653360687 **Question Type :** SA **Calculator :** None

**Response Time :** N.A **Think Time :** N.A **Minimum Instruction Time :** 0

**Correct Marks :** 4

**Question Label :** Short Answer Question

Consider the Rabin-Karp algorithm using modulo arithmetic to match the pattern in base 10. Taking modulo  $q = 11$ , how many **false positives** matches does the Rabin-Karp matcher encounter while searching pattern 26 in the text 3141592653589793 ?

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

3

## System Commands

<b>Section Id :</b>	64065322456
<b>Section Number :</b>	14
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	21
<b>Number of Questions to be attempted :</b>	21
<b>Section Marks :</b>	100
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352636
<b>Question Shuffling Allowed :</b>	No

**Question Number : 443 Question Id : 640653360692 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

**Question Label : Multiple Choice Question**

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?  
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

**Options :**

6406531194684. ✓ Yes

6406531194685. ✗ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352637

**Question Shuffling Allowed :** Yes

**Question Number : 444 Question Id : 640653360697 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Multiple Choice Question**

Consider that you have checked out a `version1` branch of a git repository on your local machine. You have modified a file named `getStudents.sh` and added a new file named `utilities.sh`. You have also run the `git add` command for the file `getStudents.sh`, but not on the newly added file `utilities.sh`.

What could be the correct output if you executed the command `git status` in this state locally on your repository.

**Options :**

```
$ git status
On branch version1
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   getStudents.sh
    new file:   utilities.sh
```

6406531194703. ✗

6406531194704. ✗

```
$ git status
On branch version1
Changes to be committed:
(use "git restore --staged <file>..." to unstage)
  new file: utilities.sh
```

Untracked files:

```
(use "git add <file>..." to include in what will be committed)
  modified: getStudents.sh
```

```
$ git status
On branch version1
Changes to be committed:
(use "git restore --staged <file>..." to unstage)
  new file: utilities.sh

Changes not staged for commit:
  (use "git add <file>..." to include in what will be committed)
6406531194705. ✘      modified: getStudents.sh
```

```
$ git status
On branch master
Changes to be committed:
(use "git restore --staged <file>..." to unstage)
  modified: getStudents.sh

Untracked files:
  (use "git add <file>..." to include in what will be committed)
6406531194706. ✓      new file: utilities.sh
```

**Question Number : 445 Question Id : 640653360698 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

**Question Label : Multiple Choice Question**

Which of the following options can be used to count the number of empty lines in the file `input.txt`?

**Options :**

6406531194707. ✘ `sed '^.*$' input.txt`

6406531194708. ❌ sed '^[ ]\*\$' input.txt

6406531194709. ❌ sed '^[[ ]]\*\$' input.txt

6406531194710. ✓ 'sed '^\$' input.txt

**Question Number : 446 Question Id : 640653360706 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Select the command to find all files ( but not directories) within the current directory that are modified in the last 3 days and delete them.

**Options :**

6406531194743. ✓ find . -type f -mtime -3 -delete

6406531194744. ❌ find / -type f -mtime -3 -delete

6406531194745. ❌ find .. -type f -atime -3 -delete

6406531194746. ❌ find . -type d -mtime -3 -delete

**Question Number : 447 Question Id : 640653360711 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

What is the command to exit without saving a file in vim and Emacs respectively?

**Options :**

6406531194763. ✓ Vim: :q! Emacs: Ctrl-x Ctrl-c

6406531194764. ✗ Vim: :wq Emacs: Ctrl-x Ctrl-c

6406531194765. ✗ Vim: :q! Emacs: Ctrl-z

6406531194766. ✗ Vim: :wq Emacs: Ctrl-k Ctrl-z

**Question Number : 448 Question Id : 640653360712 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Choice Question

Consider a file `emp_details.txt` as:

```
$ cat emp_details.txt
A1998001,Ram Kumar,10,Male
B2000002,Sanjay Narayan,7,Male
B2000003,Srishti Rai,10,Female
E1997001,Manoj Pillai,12,Male
G1998001,Preeti Suresh,9,Female
G1999001,Leela L G,16,Female
```

What is the output of the command displayed below?

```
$ awk 'BEGIN{OFS=":";} /Male/ {if (NR>=3 && NR<=5) print NR,$1}' emp_details.txt
```

**Options :**

6406531194767. ✗ 4:E1997001

3:B2000003  
4:E1997001

6406531194768. ✗ 5:G1998001

6406531194769. ✗ 4 E1997001

3:B2000003,Srishti

4:E1997001,Manoj

6406531194770. ✘ 5:G1998001,Preeti

6406531194771. ✓ 4:E1997001,Manoj

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352638

**Question Shuffling Allowed :** Yes

**Question Number : 449 Question Id : 640653360709 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 4**

Question Label : Multiple Select Question

Consider the below command and the output.

```
$ ls -l
-rwxr--r-- 1 gu1 gu2 4096 October 21 06:03 config.sh
-r-xr--r-- 1 gu1 gu2 4096 October 21 06:03 start.sh
```

Which of the following commands will **not** overwrite the complete file.

**Options :**

6406531194754. ✓ touch config.sh

6406531194755. ✘ cat start.sh >config.sh

6406531194756. ✓ cat config.sh >start.sh

6406531194757. ✓ echo start.sh >>config.sh

6406531194758. ✓ echo config.sh >>start.sh

**Sub-Section Number :**

4

**Sub-Section Id :**

64065352639

**Question Shuffling Allowed :**

Yes

**Question Number : 450 Question Id : 640653360693 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

```
awk '  
NR == FNR {  
    arr[$0]++  
}  
NR != FNR && !arr[$0] {  
    print $0  
}  
' file1 file2
```

What does the above awk command do?

Note: `NR` and `FNR` is the number of current record being processed overall(including all the input files) and in the current file respectively.

**Options :**

6406531194686. ✅ Prints the lines in file2 that are not present in file1

6406531194687. ❌ Prints the lines in file1 that are not present in file2

6406531194688. ❌ Prints the lines in file1

6406531194689. ❌ Prints the lines in file2

**Question Number : 451 Question Id : 640653360694 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Consider a file `myfile` with the below contents,

```
welcome
(you)
\(all)
\(to\
\(the\
world
```

and the below command.

```
sed 's/(...)/{...}/' myfile
```

Select the correct output of the above sed command.

Note: Consider that the system on which this command is run uses the Basic Regular Expression engine(BRE).

### Options :

```
welcome
(you)
\(all)
\(to\
\(the\)
```

6406531194690. ❌ world

```
welcome
{...}
\{...
\{...
\(the\)
```

6406531194691. ✓ world

```
welcome
{...}
\(all)
\(to\
\(the\)
```

6406531194692. ❌ world

6406531194693. ❌

```
{....}{....}e  
{....}  
\{....}  
\{....}  
\{....}{....}  
{...}ld
```

**Question Number : 452 Question Id : 640653360695 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

**Question Label : Multiple Choice Question**

Consider a file named `myfile`. We want to merge every two consecutive lines starting from line 1 with a delimiter as `:` between the lines. Suppose the contents of `myfile` are given below.

```
name  
Divya  
location  
New Delhi  
occupation  
Teacher  
education-status  
Master of Education
```

Select the command that will merge the lines as described above, and prints to the terminal. The expected output on running the command for the above input should be.

```
name:Divya  
location:New Delhi  
occupation:Teacher  
education-status:Master of Education
```

**Options :**

```
while read line; do  
    echo "$line:"
```

6406531194694. ✘ done < myfile

6406531194695. ✘

```
while read line; do
    # with -n this will not add a new line character at the end
    echo -n "$line:"
done < myfile
```

```
while true; do
    read keyline
    read valueline
    [[ $keyline == "" || $valueline == "" ]] && break
    echo "$keyline:$valueline"
```

6406531194696. ✓ done < myfile

```
while true; do
    read keyline
    read valueline
    echo "$keyline:$valueline"
```

6406531194697. ✗ done < myfile

**Question Number : 453 Question Id : 640653360703 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Choice Question

Described below are some options of the command `tar`, that can be useful for the below task.

Usage: `tar [OPTION...] [FILE]...`

GNU 'tar' saves many files together into a single tape or disk archive, and can restore individual files from the archive.

<code>-c, --create</code>	create a new archive
<code>-x, --extract, --get</code>	extract files from an archive
<code>-f, --file=ARCHIVE</code>	use archive file or device ARCHIVE

Compression options:

<code>-a, --auto-compress</code>	use archive suffix to determine the compression program
<code>-z, --gzip, --gunzip, --ungzip</code>	filter the archive through gzip

Also, consider the state of the current working directory below.

```
$ ls -l
total 32
-rw-r--r-- 1 runner runner    0 Jun 23 08:00 '{'
drwxr-xr-x 1 runner runner   22 Jun 21 13:48 current
-rw-r--r-- 1 runner runner 10240 Jul 26 09:02 file1
-rw-r--r-- 1 runner runner    1 Jul 26 09:02 file2
-rw-r--r-- 1 runner runner    1 Jul 26 09:02 file3
-rw-r--r-- 1 runner runner   43 Jul 26 07:19 input.txt
-rw-r--r-- 1 runner runner   90 Jul 26 08:10 main.sh
drwxr-xr-x 1 runner runner   60 Jul 26 07:37 prices
```

Select the command that will **compress** only the files `file1`, `file2` and `file3` to the file `ar.gz`.

**Options :**

6406531194726. ✘ `tar -xf ar.gz file1 file2 file3`

6406531194727. ✘ `tar -acf ar.gz *`

6406531194728. ✘ `tar -zxf ar.gz file1 file2 file3`

6406531194729. ✓ `tar -zcf ar.gz file*`

**Question Number : 454 Question Id : 640653360710 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 5**

**Question Label : Multiple Choice Question**

Which of the following command will run the script /user/home/daily/sunday/run.sh on 1st day of every month at 10:00 AM.

**Hint:** Below is the description of the sequence in the cron job command. It tells at what date/time periodically the job needs to be executed.

```
* * * * * <Command(s) with argument>
| | | | |
| | | | | Command or Script to Execute
| | | |
| | | |
| | | |
| | | |
| | | Day of the Week(0-6)
| | |
| | |
| | | Month of the Year(1-12)
| | |
| | | Day of the Month(1-31)
| | |
| Hour(0-23)
|
Min(0-59)
```

**Options :**

6406531194759. ❌ 0 22 1 \* \* /user/home/daily/sunday/run.sh

6406531194760. ✓ 0 10 1 \* \* /user/home/daily/sunday/run.sh

6406531194761. ❌ 0 22 \* 1 0 /user/home/daily/sunday/run.sh

6406531194762. ❌ 0 10 \* 1 0 /user/home/daily/sunday/run.sh

**Sub-Section Number :** 5

**Sub-Section Id :** 64065352640

**Question Shuffling Allowed :** Yes

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Select Question

Consider a file myfile located at /home/linda/myfile . The following commands are executed sequentially.

```
ln /home/linda/myfile /home/meena/myfile  
ln /home/meena/myfile /home/abdul/myfile  
ln /home/abdul/myfile /home/arun/myfile  
ln /home/arun/myfile /home/sanjay/myfile
```

Assuming all the directories in /home have read and execute permission for all the users. Select the command running which individually will make the link /home/sanjay/myfile a broken link.

**Options :**

6406531194698. ✘ rm /home/linda/myfile

6406531194699. ✘ rm /home/meena/myfile

6406531194700. ✘ mv /home/abdul/myfile /home/abdul/myfile\_new

6406531194701. ✘ echo "LAST LINE" >>/home/arun/myfile

6406531194702. ✓ None of these.

**Question Number : 456 Question Id : 640653360700 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Multiple Select Question

Select all the correct statements with respect to RAID.

Hint:

**RAID 1** consists of an exact copy (or mirror) of a set of data on two or more disks

**RAID 4** consists of block-level striping with a dedicated parity disk.

**RAID 6** uses block striping with two parity blocks distributed across all member disks

**Options :**

6406531194715. ✓ RAID 1 can handle one disk failure without losing the data.

6406531194716. ✓ RAID 4 can handle one disk failure without losing the data.

6406531194717. ✓ RAID 6 can be deployed to achieve higher read speeds.

6406531194718. ✗ RAID 1 can be deployed to achieve higher write speeds.

**Question Number : 457 Question Id : 640653360702 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 5**

Question Label : Multiple Select Question

Select all the files that are either a soft link or a hard link. If linked these files are linked only with files in the current working directory.

```
$ ls -li
total 0
18748538 -rw-rw-r-- 3 user user 0 Jul 25 17:50 a
18748523 -rw-rw-r-- 1 user user 0 Jul 25 17:50 b
18748522 -rw-rw-r-- 5 user user 0 Jul 25 17:50 c
18748774 lrwxrwxrwx 1 user user 1 Jul 25 17:51 d -> c
18748823 -rw-rw-r-- 1 user user 0 Jul 25 17:51 e
18748823 -rw-rw-r-- 1 user user 0 Jul 25 17:51 f
```

**Options :**

6406531194720. ✗ a

6406531194721. ✓ b

6406531194722. ✗ c

6406531194723. ✓ d

6406531194724. ✓ e

6406531194725. ✓ f

**Sub-Section Number :**

6

**Sub-Section Id :**

64065352641

**Question Shuffling Allowed :**

Yes

**Question Number : 458 Question Id : 640653360701 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Short Answer Question

The below examples show how the brace expansion work.

```
$ echo {a,b}{a,b}
aa ab ba bb
$ echo {a,b}{a,a} | sed 's/ /\n/g'
aa
aa
ba
ba
```

What will be the output of the below bash command? Enter only a number.

```
echo {b,b}{a,b,c,d} | sed 's/ /\n/g' | sort |uniq | wc -l
```

Hint: `sort` command sorts the values, `uniq` command outputs only distinct consecutive values.

**Response Type : Numeric**

**Evaluation Required For SA : Yes**

**Show Word Count : Yes**

**Answers Type : Equal**

**Text Areas : PlainText**

**Possible Answers :**

4

**Question Number : 459 Question Id : 640653360707 Question Type : SA Calculator : None**

**Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 5**

Question Label : Short Answer Question

How many sleep processes are active at the end of execution of for loop?

Note: kill % will kill the last job

```
for i in {1..11}; do
    sleep 100 &
    (( $i % 2 )) && kill %
done
```

**Response Type :** Numeric

**Evaluation Required For SA :** Yes

**Show Word Count :** Yes

**Answers Type :** Equal

**Text Areas :** PlainText

**Possible Answers :**

6

**Sub-Section Number :** 7

**Sub-Section Id :** 64065352642

**Question Shuffling Allowed :** Yes

**Question Number :** 460 **Question Id :** 640653360704 **Question Type :** MCQ **Is Question**

**Mandatory :** No **Calculator :** None **Response Time :** N.A **Think Time :** N.A **Minimum Instruction**

**Time :** 0

**Correct Marks :** 6

**Question Label :** Multiple Choice Question

The file input.txt has a list of dates in MM-DD-YYYY format. Which of the following commands can be used to convert it to YYYY:MM:DD format?

**Options :**

6406531194730. ❌ sed 's/\([0-9]{2}\)\([0-9]{2}\)\([0-9]{4}\)/\3:\1:\2' input.txt

6406531194731. ❌ sed 's/\([0-9]{2}\)-\([0-9]{2}\)-\([0-9]{4}\)/\2:\3:\1/' input.txt

6406531194732. ✓ sed 's/\([0-9]{2}\)-\([0-9]{2}\)-\([0-9]{4}\)/\3:\1:\2/' input.txt

6406531194733. ❌ sed 's/\([0-9]{2}\)\([0-9]{2}\)\([0-9]{4}\)/\2:\3:\1/' input.txt

**Sub-Section Number :** 8

**Sub-Section Id :** 64065352643

**Question Shuffling Allowed :** Yes

**Question Number : 461 Question Id : 640653360699 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 6**

**Question Label : Multiple Select Question**

Select the command that can be used to extract the hardware address from the output of the command `ip addr`.

```
$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
8637: eth0@if8638: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc tbf state UP group default qlen 1000
    link/ether 02:42:ac:12:00:53 brd ff:ff:ff:ff:ff:ff link-netnsid 0
    inet 172.18.0.83/16 brd 172.18.255.255 scope global eth0
        valid_lft forever preferred_lft forever
```

Consider the above command output, which of the following bash commands will give the output as below?

02:42:ac:12:00:53

Description of the option of `grep` command from its man page.

`-o, --only-matching`  
Print only the matched (non-empty) parts of a matching line, with each such part on a separate output line.

Description of the option of `sed` command from its man page.

`-n, --quiet, --silent`  
suppress automatic printing of pattern space

Note: There are no tabs in the output of the command `ip addr` and the command `sed 's/^ *//'` will delete all the spaces at the start of every line.

## Options :

6406531194711. ❌ `ip addr | grep -o '.....'`

6406531194712. ✓ `ip addr | sed -n '/ether/ p' | grep -o '.....' | head -1`

6406531194713. ✓ `ip addr | sed 's/^ *//' | grep 'ether' | cut -d' ' -f2`

6406531194714. ❌ `ip addr | sed 's/^ *//' | cut -d' ' -f2 | grep 'ether'`

**Question Number : 462 Question Id : 640653360708 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 6**

Question Label : Multiple Select Question

Consider the below commands that are already run in the current working directory.

```
$ ls -l
-rw-r--r-- 1 ind ind 325 Jul 22 15:39 script1.sh
-rwxr--r-- 1 ind ind 633 Jul 22 01:15 script2.sh
-rw-r--r-- 1 ind ind 33 Jul 22 01:15 script3.sh
$
$echo $PATH
:/usr/local/sbin:/usr/local/bin:/usr/sbin:/home/commands:/usr/bin:/sbin:/bin
$
$ chmod 777 script3.sh; mv script3.sh /home/commands/
$ chmod 777 script1.sh; cp script1.sh /home/bin/
```

Now, which of the following commands will run successfully on the terminal under the current working directory and return with exit code 0.

**Options :**

6406531194748. ✓ script3.sh

6406531194749. ✗ script1.sh

6406531194750. ✗ ./script1.sh

6406531194751. ✓ ./script2.sh

6406531194752. ✗ bash script3.sh

6406531194753. ✓ bash script1.sh

**Sub-Section Number :**

9

**Sub-Section Id :**

64065352644

**Question Shuffling Allowed :**

Yes

**Question Number : 463 Question Id : 640653360705 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 8**

**Question Label : Multiple Select Question**

Consider some pattern matching criteria as:

- Should not contain anything except digits on the line.
- Should match AA, aa, Aa or aA, but not AAA, Aaa, AaaA etc.
- Should match any word of two characters of which one is a digit and no restriction on the other character.
- The line should not start with the digit 0 and should end with the character dot( . )

Select the regular expressions from below which will match according to at least one criteria above correctly. The regular expressions below are written to be run with the egrep command that uses the Extended regular expression (ERE) engine.

**Options :**

6406531194734. ❌ aa|Aa|aA|AA

6406531194735. ❌ \b.[0-9].\b

6406531194736. ✓ ^[^0].\*\\$.

6406531194737. ✓ \b[Aa][Aa]\b

6406531194738. ❌ !0.\\$

6406531194739. ❌ ^[0-9]+

6406531194740. ✓ ^[0-9][0-9]\*\\$

6406531194741. ❌ ^!0.\*\\$.

**TDS**

<b>Section Id :</b>	64065322457
<b>Section Number :</b>	15
<b>Section type :</b>	Online
<b>Mandatory or Optional :</b>	Mandatory
<b>Number of Questions :</b>	46
<b>Number of Questions to be attempted :</b>	46
<b>Section Marks :</b>	46
<b>Display Number Panel :</b>	Yes
<b>Group All Questions :</b>	No
<b>Enable Mark as Answered Mark for Review and Clear Response :</b>	Yes
<b>Maximum Instruction Time :</b>	0
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	64065352645
<b>Question Shuffling Allowed :</b>	No

**Question Number : 464 Question Id : 640653360713 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 0**

Question Label : Multiple Choice Question

**THIS IS QUESTION PAPER FOR THE SUBJECT "DIPLOMA LEVEL: TOOLS IN DATA SCIENCE"**

**ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?**

**CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.**

**(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)**

**Options :**

6406531194772. ✓ Yes

6406531194773. ✗ No

**Sub-Section Number :** 2

**Sub-Section Id :** 64065352646

**Question Shuffling Allowed :** Yes

**Question Number : 465 Question Id : 640653360714 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The analysis metric slope can be observed through which of the following ways?

**Options :**

6406531194774. ✗ Trend Line in Line Chart

6406531194775. ✗ SLOPE function

6406531194776. ✓ Both Trend Line in Line Chart and SLOPE function

6406531194777. ✗ None of these

**Question Number : 466 Question Id : 640653360715 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Quill provides the option to turn on/off, for displaying the individual comments from the narrative generation process?

**Options :**

6406531194778. ✓ TRUE

6406531194779. ✗ FALSE

**Question Number : 467 Question Id : 640653360716 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

We are analyzing how much the use of fertilizers affects the agricultural yield of the farmers.

Which Excel function would you use as a starting point in this analysis?

**Options :**

6406531194780. ❌ STDEV.P()

6406531194781. ❌ STDEV.S()

6406531194782. ✓ SLOPE()

6406531194783. ❌ EXACT()

**Question Number : 468 Question Id : 640653360717 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Subjectivity score in TextBlob ranges from \_\_\_\_\_.

**Options :**

6406531194784. ✓ 0 to 1

6406531194785. ❌ -1 to +1

6406531194786. ❌ -inf to +inf

6406531194787. ❌ 0 to inf

6406531194788. ❌ 0 to 10

**Question Number : 469 Question Id : 640653360718 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Flourish cannot be used to create animated bar charts.

**Options :**

6406531194789. ✘ TRUE

6406531194790. ✓ FALSE

**Question Number : 470 Question Id : 640653360719 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which piece of code below will extract details of all Bollywood movies that were released in Jan – March 2009 and later prints out only those rows where the respective movie was categorized only as a Drama?

**Options :**

```
import requests
import pandas as pd
from bs4 import BeautifulSoup
website_url=requests.get('https://web.archive.org/web/20220429
040949/https://en.wikipedia.org/wiki/List_of_Hindi_films_of_2009').t
ext
soup = BeautifulSoup(website_url,'html.parser')
required_table = soup.find_all('table')[3]
df = pd.read_html(str(required_table))
df=pd.DataFrame(df[0])
df[df['Genre'].isin(['Drama'])]
```

6406531194791. ✓

```
import requests
import pandas as pd
from bs4 import BeautifulSoup
website_url=requests.get('https://web.archive.org/web/20220429
040949/https://en.wikipedia.org/wiki/List_of_Hindi_films_of_2009').t
ext
soup = BeautifulSoup(website_url,'html.parser')
required_table = soup.find_all('table', "January-March")
df = pd.read_html(str(required_table))
df=pd.DataFrame(df[0])
df[df['Genre'].isin(['Drama'])]
```

6406531194792. ✘

6406531194793. ✘

```
import requests
import pandas as pd
from bs4 import BeautifulSoup
website_url=requests.get('https://web.archive.org/web/20220429040949/https://en.wikipedia.org/wiki/List_of_Hindi_films_of_2009').text
soup = BeautifulSoup(website_url,'html.parser')
required_table = soup.find_all('table', id = "January-March")
df = pd.read_html(str(required_table))
df=pd.DataFrame(df[0])
df[df['Genre'].isin(['Drama'])]
```

```
import requests
import pandas as pd
from bs4 import BeautifulSoup
website_url=requests.get('https://web.archive.org/web/20220429040949/https://en.wikipedia.org/wiki/List_of_Hindi_films_of_2009').text
soup = BeautifulSoup(website_url,'html.parser')
required_table = soup.find_all('table')[5]
df = pd.read_html(str(required_table))
df=pd.DataFrame(df[0])
df[df['Genre'].isin(['Drama'])]
```

6406531194794. ✘

**Question Number : 471 Question Id : 640653360721 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

A very large Matrix **A** has a lot of zero entries in it. Which function from the *scipy* library is useful in efficient storage of such a matrix **A**?

**Options :**

6406531194799. ✓ `csr_matrix`

6406531194800. ✘ `interpolate`

6406531194801. ✘ `compressed_mat`

6406531194802. ✘ `zip_mat`

**Question Number : 472 Question Id : 640653360722 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Kumu is a tool that allows you to (select the most appropriate answer):

**Options :**

6406531194803. ✓ Visualize complex network data

6406531194804. ✗ create stunning dashboards for large projects

6406531194805. ✗ merge Comicgen characters into a comic

6406531194806. ✗ Narrate data stories

**Question Number : 473 Question Id : 640653360723 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following Python libraries has functions and tools that are useful in the analysis of large graphs?

**Options :**

6406531194807. ✓ scikit-network

6406531194808. ✗ pandas-network

6406531194809. ✗ numpy-network

6406531194810. ✗ pd-network

**Question Number : 474 Question Id : 640653360724 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following Python libraries has functions extensively written to perform numerical operations?

**Options :**

6406531194811. ✘ csr\_matrix

6406531194812. ✓ numpy

6406531194813. ✘ seaborn

6406531194814. ✘ itertools

**Question Number : 475 Question Id : 640653360728 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

You developed a sudden interest in English Premier League. Post the TDS course, you wanted to perform an analysis on all teams which played EPL from the year 1992. You performed PDF scraping using ‘tabula’ and appended every year standings of teams one below the other and saved as a single csv file. For looking at aggregating at various levels (viz Year wise, Team wise) the following can be used in Excel:

**Options :**

6406531194823. ✘ Pilot Table

6406531194824. ✓ Pivot Table

6406531194825. ✘ Pivol Table

6406531194826. ✘ None of these

**Question Number : 476 Question Id : 640653360729 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Assume you have data with a column “Direction” which takes the values “Left”, “Right”. If you had used one hot encoding, the new columns added would be:

**Options :**

6406531194827. ✓ Direction\_Left, Direction\_Right

6406531194828. ✘ Left\_Direction, Right\_Direction

6406531194829. ✅ Left-Direction, Right-Direction

6406531194830. ✅ Direction-Left, Right-Direction

**Question Number : 477 Question Id : 640653360730 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

One of quick ways to generate a descriptive stats file for variables along with correlation is to use

**Options :**

6406531194831. ✓ pandas\_profiling

6406531194832. ✅ profiling\_pandas

6406531194833. ✅ describe\_dataset

6406531194834. ✅ Dataframe\_profile

**Question Number : 478 Question Id : 640653360731 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

You decide to use keras to classify images into one of the following categories: cat, dog, bull.

Which of the following loss functions from *Keras* would you pick for the task?

**Options :**

6406531194835. ✅ binary\_crossentropy

6406531194836. ✓ categorical\_crossentropy

6406531194837. ✅ mean\_squared\_error

6406531194838. ✅ mean\_absolute\_error

**Question Number : 479 Question Id : 640653360732 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Logical calculations in tableau helps to determine if a certain condition is true or false. Is the following expression valid?

```
IF [Profit] > 0 THEN 'Profitable' ELSEIF [Profit] = 0 THEN  
'Breakeven' ELSE 'Loss' END
```

**Options :**

6406531194839. ✓ TRUE

6406531194840. ✗ FALSE

**Question Number : 480 Question Id : 640653360733 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Identify which of the following statements is/are TRUE

1. A story contains a single view along with shelves, cards, legends, and the Data and Analytics panes in its side bar.
2. A worksheet contains a sequence of stories that work together to convey information
3. A dashboard is a collection of views from multiple worksheets

**Options :**

6406531194841. ✗ 1 Only

6406531194842. ✓ 3 Only

6406531194843. ✗ 2 & 3 Only

6406531194844. ✗ 1 & 2 Only

**Question Number : 481 Question Id : 640653360734 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The dataset consists of geographic, demographic information about countries and their respective GDPs. You would like to visualize this data and study the relationship between the location of countries and their GDPs. You decide to use Tableau to visualize the dataset. But you would also like to generate a summary of the data. Choose the most suitable answer among the given options.

**Options :**

6406531194845. ✓ The summary can be generated using Quill and this is possible because Quill can be used as an extension in Tableau.

6406531194846. ✗ Tableau can be used for visualization. But Quill is incompatible with Tableau.

6406531194847. ✗ Quill does not support generation of summary. Therefore using other visualization tools such as Tableau would work.

6406531194848. ✗ None of the options are appropriate for the generation of summary for the given question.

**Question Number : 482 Question Id : 640653360735 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

What are the two outputs provided by the Excel Azure Machine Learning plugin?

**Options :**

6406531194849. ✗ Percentage, Labels

6406531194850. ✗ Sentiment, Percentage

6406531194851. ✓ Sentiment, Score

6406531194852. ✗ Score, Labels

**Question Number : 483 Question Id : 640653360736 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Provided below is an incomplete code snippet that enables you to compute distance between two locations. Choose the most appropriate option that can be used in place of <missing line> to compute the distance. Assume the coordinates of location one is stored in the variable "loc1" and the coordinates of location 2 is stored in the variable "loc2".

**Code Snippet:**

```
distances_km = []

for row in df.itertuples(index=False):
    distances_km.append(
        <missing line>
    )

df['Distance'] = distances_km
df.head(10)
```

**Options :**

- 6406531194853. ❌ geopy.distance(loc1, loc2).km
- 6406531194854. ❌ geopy.distance(loc1, loc2).km.km
- 6406531194855. ✓ geopy.distance.distance(loc1, loc2).km
- 6406531194856. ❌ geopy.distance.distance.distance(loc1\_coord, loc2\_coord).km

**Question Number : 484 Question Id : 640653360737 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Provided below is a snippet of the code block of HTML tags from a website providing weather forecast. Your goal is to scrape the high and low values for the 10-day temperature forecast.

```

<div class="wr-day-temperaturehigh">
    <span class="wr-day-temperature__high-label wr-hide-visually">High</span>
        <span class="wr-day-temperature__high-value">
            <span class="wr-value--temperature ">
                <span class="wr-value--temperature--c">31°</span>
                <span class="wr-hide"> </span>
                <span class="wr-value--temperature--f">87°</span>
            </span>
        </span>
    </div>
<div class="wr-day-temperaturelow">
    <span class="wr-day-temperature__low-label wr-hide-visually">Low</span>
        <span class="wr-day-temperature__low-value">
            <span class="wr-value--temperature ">
                <span class="wr-value--temperature--c">21°</span>
                <span class="wr-hide"> </span>
                <span class="wr-value--temperature--f">71°</span>
            </span>
        </span>
    </div>

```

Also provided below, is the python code to extract values from the tags. But the tags represented as <A> and <B> are missing. Choose the most appropriate tag that will get you the high and low values for the 14-day temperature forecast..

```

#Daily High Values
daily_high_values = soup.find_all('span', attrs={'class': '<A>'})

#Daily Low Values
daily_low_values = soup.find_all('span', attrs={'class': '<B>'})

```

### Options :

6406531194857. ❌ <A> = wr-value--temperature--f  
 <A> = wr-value--temperature--c

6406531194858. ❌ <B> = wr-day--temperature--c  
 <B> = wr-day--temperature--f

6406531194859. ✓ <A> = wr-day-temperaturehigh  
 <A> = wr-day-temperaturelow

6406531194860. ❌ <A> = low-label wr-hide-visually  
 <B> = high-label wr-hide-visually

**Question Number : 485 Question Id : 640653360738 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

The final output from the BBC Weather Location Service API is in CSV format:

**Options :**

6406531194861. ✘ TRUE

6406531194862. ✓ FALSE

**Question Number : 486 Question Id : 640653360739 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which among the following properties are returned by the sentiment function of the TextBlob library?

**Options :**

6406531194863. ✘ Score, Polarity

6406531194864. ✘ Polarity, Negativity

6406531194865. ✘ Median, Subjectivity

6406531194866. ✓ Polarity, Subjectivity

**Question Number : 487 Question Id : 640653360740 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Subjectivity score ranges between -1 to +1.

**Options :**

6406531194867. ✘ TRUE

6406531194868. ✓ FALSE

**Question Number : 488 Question Id : 640653360741 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

A subjectivity score of 0.4 means that the text statement:

**Options :**

6406531194869. ✘ has a positive sentiment

6406531194870. ✘ has a negative sentiment

6406531194871. ✘ is more of an opinion statement

6406531194872. ✓ is more of a factual statement

**Question Number : 489 Question Id : 640653360742 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

A *polarity* score of 0.1 means that the text statement:

**Options :**

6406531194873. ✓ has a positive sentiment

6406531194874. ✘ has a negative sentiment

6406531194875. ✘ is more of an opinion statement

6406531194876. ✘ is more of a factual statement

**Question Number : 490 Question Id : 640653360743 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

## Correct Marks : 1

Question Label : Multiple Choice Question

Provided below is a snapshot of the dataset which consists of movie reviews and respective labels.

	A	B
1	sentiment	review
2	positive	One of the other reviewers has mentioned
3	positive	A wonderful little production.   
4	positive	I thought this was a wonderful way to spe
5	negative	Basically there's a family where a little bo
6	positive	Petter Mattei's "Love in the Time of Money"
7	positive	Probably my all-time favorite movie, a st
8	negative	This show was an amazing, fresh & innova
9	negative	Encouraged by the positive comments abo
10	positive	If you like original gut wrenching laughter
11	negative	Phil the Alien is one of those quirky films

To compute the sentiment scores the Azure Machine Learning add-in requires input and output values. In the figure provided below the input and output cells need to be populated with appropriate values to obtain sentiment scores.

2. PREDICT

Input: input1

Type range or click button to select 

My data has headers

[Use sample data](#) 

Output: output1

Enter output cell (e.g. A20)

Include headers

Choose the most appropriate option that enables you to predict sentiment scores using the Excel Azure Machine Learning add-in.

**Options :**

Input: Sheet1!A1:A11

6406531194877. ✘

Output: Sheet1!C1

Input: Sheet1!B1:B11

6406531194878. ✓

Output: Sheet1!C1

**Question Number : 491 Question Id : 640653360744 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

We are interested in analyzing the effect of money spent on TV advertising on the sales volume of a product. Which Excel function would you use as a starting point in this analysis?

**Options :**

6406531194879. ✘ STDEV.P()

6406531194880. ✘ STDEV.S()

6406531194881. ✓ SLOPE()

6406531194882. ✘ EXACT()

**Question Number : 492 Question Id : 640653360745 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

We have predictions ( $y_{\text{hat}}$ ) on a train dataset of 100 records. Let  $y$  be the true value. We are interested in calculating  $\text{median}(|y_1 - y_{\text{hat}}_1|, |y_2 - y_{\text{hat}}_2|, \dots, |y_{100} - y_{\text{hat}}_{100}|)$ . Which of the following functions will help you in achieving this easily?

**Options :**

6406531194883. ✘ from sklearn.metrics import mean\_absolute\_error

6406531194884. ✓ from sklearn.metrics import median\_absolute\_error

6406531194885. ✘ from sklearn.metrics import median\_absolute\_percentage\_error

6406531194886. ✘ from sklearn.metrics import average\_absolute\_percentage\_error

**Question Number : 493 Question Id : 640653360746 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

You are working on a piece of code that classifies different vehicles into its respective class (car, LCV, truck, earth movers). Which of the following loss functions from *Keras* would you pick for the task?

**Options :**

6406531194887. ✘ binary\_crossentropy

6406531194888. ✓ categorical\_crossentropy

6406531194889. ✘ mean\_squared\_error

6406531194890. ✘ Mean\_absolute\_error

**Question Number : 494 Question Id : 640653360747 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Tableau automatically divides the data fields into two categories. What are they?

**Options :**

6406531194891. ✘ Measures and categories

6406531194892. ✓ Dimensions and Measures

6406531194893. ✘ Columns and rows

6406531194894. ✘ Matrices and columns

**Question Number : 495 Question Id : 640653360748 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which Extension in Tableau transforms visualizations into narratives?

**Options :**

6406531194895. ✘ Narrator

6406531194896. ✘ Navigator

6406531194897. ✓ Quill

6406531194898. ✘ Quora

**Question Number : 496 Question Id : 640653360749 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

If you want to create comical characters while building business stories, which tool would be helpful.?

**Options :**

6406531194899. ✘ Cartoongen

6406531194900. ✘ Image size

6406531194901. ✓ Comicgen

6406531194902. ✘ Gentoon

**Question Number : 497 Question Id : 640653360750 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following is used to build and host web applications?

**Options :**

6406531194903. ✓ Streamlit for building web applications, Heroku for hosting web applications

6406531194904. ❌ Heroku for building web applications, Streamlit for hosting web applications  
6406531194905. ❌ Streamlit for building web applications, Streamlit for hosting web applications  
6406531194906. ❌ Heroku for building web applications, Heroku for hosting web applications

**Question Number : 498 Question Id : 640653360751 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which among the following excel charts is the most suitable for detecting outliers in the data?

**Options :**

6406531194907. ❌ Bar chart  
6406531194908. ❌ Line chart  
6406531194909. ✓ Box and Whisker chart  
6406531194910. ❌ Histogram

**Question Number : 499 Question Id : 640653360752 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following libraries is used to construct API urls?

**Options :**

6406531194911. ✓ Urllib  
6406531194912. ❌ BeautifulSoup  
6406531194913. ❌ Requests  
6406531194914. ❌ Pandas

**Question Number : 500 Question Id : 640653360753 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Which of the following tabs is used to identify API calls in the Inspect element in any browser?

**Options :**

6406531194915.  Network

6406531194916.  Elements

6406531194917.  Console

6406531194918.  Sources

**Question Number : 501 Question Id : 640653360754 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Google Studio is a tool that allows you to

**Options :**

6406531194919.  merge Comicgen characters into a comic

6406531194920.  visualize complex network data

6406531194921.  create dashboards for small scale projects

6406531194922.  Edit photographs and videos

**Question Number : 502 Question Id : 640653360756 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

csr\_matrix from the scipy library:

**Options :**

6406531194927.  always helps reduce matrix space

6406531194928. ✓ helps reduce matrix space when there are a lot of zero entries in the matrix

6406531194929. ✗ helps reduce matrix space when there are a lot of negative entries in the matrix

6406531194930. ✗ makes matrix multiplication more meaningful and powerful

**Question Number : 503 Question Id : 640653360757 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

classification\_report function from the sklearn.metrics module

**Options :**

6406531194931. ✗ builds a decision tree classifier and prints the accuracy of the classifier

6406531194932. ✗ reports the root mean square error of the model

6406531194933. ✗ runs different classification models and compares the results

6406531194934. ✓ builds a text report displaying the main classification metrics

**Question Number : 504 Question Id : 640653360758 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

pycaret is a

**Options :**

6406531194935. ✗ Visualization tool

6406531194936. ✗ Dashboard helper

6406531194937. ✓ low-code machine learning library

6406531194938. ✗ Data cleaning solution

**Question Number : 505 Question Id : 640653360759 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

We are interested in fitting an ARIMA model to our time series data. Specifically, we are interested in a moving average model of 0, setting a lag value of 4 for autoregression, and a difference order of 1. Which of the following gives you such a model?

**Options :**

6406531194939. ❌ ARIMA(..., trend = (4,1,0))

6406531194940. ✓ ARIMA(..., order = (4,1,0))

6406531194941. ❌ ARIMA(..., order = (0,4,1))

6406531194942. ❌ ARIMA(..., trend = (0,4,1))

**Question Number : 506 Question Id : 640653360760 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

**Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

Scikit-learn has a DecisionTreeClassifier module that is useful in building decision tree classifiers. Suppose, our dataset is imbalanced in class. Which feature in the DecisionTreeClassifier() will help us tackle this problem?

**Options :**

6406531194943. ❌ random\_state

6406531194944. ❌ min\_sample\_split

6406531194945. ❌ class\_balance

6406531194946. ✓ class\_weight

**Sub-Section Number :** 3

**Sub-Section Id :** 64065352647

**Question Shuffling Allowed :** Yes

**Question Number : 507 Question Id : 640653360720 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

*Comicgen* is a useful tool in narrating data stories using comics. Which of the following are capabilities of comicgen?

**Options :**

6406531194795. ✓ Comicgen can create comic characters

6406531194796. ✓ Comicgen provides options to custom create different comic characters and their emotions and pose

6406531194797. ✓ Comicgen can be easily integrated into Google sheets or Excel to narrate your data stories

6406531194798. ✖ You can type in your data story into comicgen to get your comic in return

**Question Number : 508 Question Id : 640653360755 Question Type : MSQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Select Question

scikit-network package contains functions for (pick all correct sentences):

**Options :**

6406531194923. ✖ analysis of faults in a computer network

6406531194924. ✓ social network analysis

6406531194925. ✓ analysis of large graphs

6406531194926. ✖ enhancing one's social network

**Sub-Section Number :** 4

**Sub-Section Id :** 64065352648

**Question Shuffling Allowed :** No

**Question Id : 640653360725 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**Think Time : N.A Minimum Instruction Time : 0**

**Question Numbers : (509 to 510)**

Question Label : Comprehension

Answer the given subquestions

**Sub questions**

**Question Number : 509 Question Id : 640653360726 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

You decided to perform analysis of the IPL teams year on year. You downloaded the teams standings table which got downloaded as a PDF. You wish to convert to a csv file for further analysis in Excel. The following method in 'tabula' can be used for the same:

**Options :**

6406531194815. ✓ convert\_into

6406531194816. ✗ convert\_file

6406531194817. ✗ convert\_all

6406531194818. ✗ convert\_csv

**Question Number : 510 Question Id : 640653360727 Question Type : MCQ Is Question**

**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1**

Question Label : Multiple Choice Question

From the converted csv file in previous question, you realize that the team 'Delhi Daredevil' has changed its name to 'Delhi Capital'. Using excel, you wish to replace the old name with a new name. It can be done in Excel using

**Options :**

6406531194819. ✓ Find and Replace

6406531194820. ✗ Finding and Replacing

6406531194821. ✎ Replace and Find

6406531194822. ✎ Search and Replace