

Sankararnarayanan K
c/o DreamsPlus Consulting Pvt Ltd
New No 75, Burkit Road
T. Nagar, CHENNAI
Tamilnadu
600017
INDIA

Arthur van Schendelstraat 650
3511 MJ UTRECHT
P.O. Box 19147
3501 DC Utrecht
Netherlands

T +31 30 234 48 11
E support@exin.com
W www.exin.com

26/09/2018 14:12

Dear Sankararnarayanan K,

This is the exam package for the EXIN exam session: [1468229](#), for: [DreamsPlus Consulting Pvt Ltd](#), with supervisor: [Sankararnarayanan K](#), on: [26/09/2018 - 15:00](#).

Contents

Depending on the type of exam, this package contains the following documents:

- **Attendance List:** The package always contains one "Attendance List", consists of 2 or more pages. This is the list where the supervisor registers which candidates attended the session. This is also the list where the supervisor registers any mistakes in the candidate information after checking candidates' identification (for example: passport). Any incidents that occur during the session must also be reported on this list. When all information is complete, the list must be signed by the supervisor.
- **Personal Exam Documents:** The package always contains one personalized "Personal Exam Document" for each candidate. These documents must be handed out to the corresponding candidates by the supervisor before the exam starts.
With paper based sessions (both Paperbased Paper and Paperbased PDF), the document is for the candidate to take home after the exam. With the document, candidates must enter and confirm their personal details online within 3 days after the exam session.
With a web based session the document contains the information needed to start the exam. In case of a web based session, all candidates must confirm their personal details before they can start the exam. The candidates should use the login information on the personal exam document to enter MyLogin and confirm their personal details. After the confirmation, the link and the login codes for the exam (in Question Mark) are unlocked. He/she can then use this link to go to Question Mark and start the exam.
- **Answer Forms:** When the exam session is not web based, the exam package will also contain a personalized answer form for each candidate. When the exam is multiple choice, each candidate must receive their own personalized "Answer Form". When the exam is an essay exam, candidates receive one personalized "Essay Answer Form Frontpage", and at least one blank "Essay Answer Form". When you have an essay exam, please make sure you create enough copies of the blank "Essay Answer Form".
- **Exam:** When the exam session is not web based, the exam package will also contain one personalized Exam for each candidate.
- **Letter for the Supervisor: The Supervisor Page:** With Webbased exam sessions, the package also contains a letter addressed to the supervisor with instructions on how to access the Supervisor Page during the exam session.

Return Procedure

Depending on the type and the deliver method of the exam, different documents must be returned to EXIN.

- **Paper Based Paper**

For Paper Based Paper exam sessions, the Attendance List, as well as **all used** and **all unused** exams and answer forms provided by EXIN, must be returned to EXIN within one day of the examination. You can do this in 2 ways:

- You can send the documents using a registered courier services (e.g. TNT, FedEx, DHL, UPS) to your nearest EXIN back office: Either EXIN Holding B.V. (Utrecht, the Netherlands), EXIN ASIA (Kuala Lumpur, Malaysia), or EXIN USA (Boston, USA).
- An accredited Order Person can also request our Self Scanning service in the MyLogin System by signing the “Self-Scanning and Shredding Declaration”. This service lets you scan the documents and send them to EXIN via email instead of using a courier service.

- **Paper Based PDF**

For Paper Based PDF exam sessions, the Attendance List, and only the **used** exams and answer forms provided by EXIN, must be returned to EXIN within one day of the examination. You can do this in the same ways as Paper Based Paper examinations described above.

- **Web Based**

With a Web Based exam session, the Attendance List must be returned to EXIN within one day of the examination. You can do this in 3 ways:

- For Web Based sessions, the supervisor has access to a Supervisor Page in our system, where he/she can fill in the attendance list using a digital form. When using this service, the attendance list does not have to be sent via courier service.
- You can also send the paper Attendance List to the nearest EXIN back office by registered courier service.
- Lastly, you can scan the paper list and send the scan to the email address attendancelist@exin.com. If you send the attendance list with this service, you must make sure you use a quality printer when printing the attendance list, and that the scans meet the below requirements:

Requirements when sending the attendance list by email

- At least **200 dpi** when scanning
- **Black and White** – NO colors or grayscale when scanning
- Do not reduce or enlarge the documents when scanning and printing
- Make sure the Attendance List is printed and scanned straight

Return Addresses

When sending the exam documents via courier service (e.g. TNT, FedEx, DHL, UPS), please send them to your nearest EXIN back office within one day after the examination:

EXIN Holding B.V.

Arthur van Schendelstraat 650
3511 MJ UTRECHT
P.O. Box 19147
3501 DC Utrecht
Netherlands

If you are using our Self Scanning service, please return the scanned exam documents to your local back office:

EXIN Holding B.V.

attendancelist@exin.com

EXIN Asia Sdn. Bhd.

ordersupportKL@exin.com

If you have any questions concerning the correct handling of these exam documents, please contact your regional sales office.

Kind regards,

Candidate Support, Logistics and Examination

Attendance List (To be filled in by the supervisor only)

Exam details

Supervisor: Sankararnarayanan K
Customer: DreamsPlus Consulting Pvt Ltd
Location: DreamsPlus Consulting Pvt Ltd.
Exam: DEVOPSM - EXIN DevOps Master - English

Session ID: 1468229
Customer ID: 103618
Exam Date: 26/09/2018 - 15:00

0102686105456



1425020



Incidents Box

If an incident occurred during the exam session, please write it down within this box. Please leave the box empty if no incidents occurred. Please write in English only.

Exam Validation

If you followed the guidelines described in the EXIN Supervisor Guide, and if the session went according to the EXIN rules and regulations, please write down your signature within the box to the right. Before you sign, please make sure that all information on the attendance list is complete and correct, and that the candidate names on the attendance list match the names on their legal documentation (e.g. passport). If you do not sign the attendance list, the exam session is not valid, and the exam results cannot be delivered.

Name

Signature of the supervisor

Date

Attendance Check

Mark the box if the candidate attended. Always match the participants name with his/her ID with current photo. Leave the box empty if the candidate did not attend.

Name & Email Check

If name/email is incorrect, please write down the correct name/email in the correction box to the right.

Correction Box: Name & Email

Only write in the correction box if the name/email of the candidate is incorrect. Leave the box empty if the name and email are correct. Please write in English only.

- | | |
|--|----------------------|
| <input type="checkbox"/> Lokesh Karunakaran
itslokeshk@gmail.com
INDIA (IN)
120 minutes
(3312.1R) DEVOPSM - EXIN DevOps Master - | <input type="text"/> |
| <input type="checkbox"/> SREEKUMAR SIVASANKARAN
sreeku1@gmail.com
INDIA (IN)
120 minutes
(3312.1R) DEVOPSM - EXIN DevOps Master - | <input type="text"/> |

Attendance List (To be filled in by the supervisor only)

Exam details

Supervisor: Sankararnarayanan K
Customer: DreamsPlus Consulting Pvt Ltd
Location: DreamsPlus Consulting Pvt Ltd.
Exam: DEVOPSM - EXIN DevOps Master - English

Session ID: 1468229
Customer ID: 103618
Exam Date: 26/09/2018 - 15:00

0105705764845



1425020



Attendance Check

Mark the box if the candidate attended. Always match the participant's name with his/her ID with in the correction box to the right. Leave the box empty if the candidate did not attend.

Name & Email Check

If name/email is incorrect, please write down the correct name/email in the correction box to the right.

Correction Box: Name & Email

Only write in the correction box if the name/email of the candidate is incorrect. Leave the box empty if the name and email are correct. Please write in English only.

☐

Vijay Anand
Vijayanand.avm@gmail.com
INDIA (IN)
120 minutes
(3312.1R) DEVOPSM - EXIN DevOps Master -

Letter for the Supervisor: The Supervisor Page

Dear Sankararnarayanan K,

With this letter, EXIN would like to inform you of the Supervisor Page that is available to you in our system for this session. With the supervisor Page, EXIN wants to make it easier for you to supervise the exam session, and to register all the required information. It serves as a replacement of the paper Attendance List and has major advantages:

- It is easier to fill in all the required information. And it is harder to do something wrong: the system will tell you when you have forgotten something.
- EXIN will receive the required information faster. This means your candidates will receive their results that much quicker.

Contents of the Supervisor Page

With the Supervisor Page you will have access to:

- 1) **The Digital Attendance List:** With this digital form you will no longer have to send the paper attendance list back to EXIN. You can fill in all the required information online and send the information to EXIN digitally.
- 2) **Emergency Procedures:** With these emergency options you can deal with several emergency scenario's during the exam session; such as a failure of the Question Mark examination program, or a malfunction of your computers. You can:
 - a. Reset the exam session in Question Mark, allowing candidates who experienced issues to restart the exam.
 - b. Download the emergency pdf package to make the exam on paper.
- 3) **Instruction Documents:** You will have access to the latest version of the EXIN Supervisor Guide and a Quick Reference Guide for the Supervisor Page.

How to enter the Supervisor Page?

Go to our system website enter the login details below:

Website: <https://mylogin.exin.nl>
Username: DAL309191
Password: E8CFC0

Or, if you are reading this document as a PDF file on a computer with internet, click on the link below to login directly:

<https://mylogin.exin.nl/polarserver.asp?Screen=Frameset&NewSession=1&DAL=B4DC2220-007A-47CC-90FC-91AFCFCF2140&DAXpassCode=E8CFC0>

Can I still use the paper Attendance List?

Yes. Using the Supervisor Page is an option. You don't have to use it if you prefer the paper Attendance List. You can still use the paper version and send it back to EXIN like before. You can also use the paper version as a draft during the exam session and fill in the Digital Attendance List after the session is complete.

I still have questions about the Supervisor Page.

You can read instructions on the Supervisor Page to learn how to use it, or ask your EXIN contact person. Our support employees are also capable of explaining the page to you and help you further if you have questions.

We hope you like the Supervisor Page.

Kind regards,

Candidate Support, Logistics and Examination

ANSWER FORM

Personal Data

If your personal data is incorrect, please contact the supervisor.

Name: Lokesh Karunakaran

Email: itslokeshk@gmail.com

Registration Number: 6221286

0106672205927



Exam Info

Exam: DEVOPSM - 3312.1R

Exam date: 26/09/2018 - 15:00

Session ID: 1468229

1425021



Instructions

CAUTION: If you do not fill in the answer form according to the instructions below your full exam could be declared invalid.

1. **Only** use a black or blue pen.
2. Do **not** write within the answer section. Do **not** fold, stain or erase.
3. Answer the questions **only** by marking the box or boxes of your choice using "X":

1 ☒ a ☐ b ☐ c ☐ d

4. Change your choice by totally filling in the box of the choice you want to change, and by marking the box of your replacing choice:

1 ☒ a ☐ b ☒ c ☐ d

5. Change back to your first choice by totally filling in the box of your second choice and write down the correct choice left to the answer boxes:

A 1 ☒ a ☐ b ☒ c ☐ d

6. Do **not** mark the boxes in the following ways; your answer might be ignored:

☒ ☒ ☒ ☒ ☒ ☒

1	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ANSWER FORM

Personal Data

If your personal data is incorrect, please contact the supervisor.

Name: SREEKUMAR SIVASANKARAN

Email: sreeku1@gmail.com

Registration Number: 6221432

0107049762579



Exam Info

Exam: DEVOPSM - 3312.1R

Exam date: 26/09/2018 - 15:00

Session ID: 1468229

1425022



Instructions

CAUTION: If you do not fill in the answer form according to the instructions below your full exam could be declared invalid.

1. **Only** use a black or blue pen.
2. Do **not** write within the answer section. Do **not** fold, stain or erase.
3. Answer the questions **only** by marking the box or boxes of your choice using "X":

1 ☒ a ☐ b ☐ c ☐ d

4. Change your choice by totally filling in the box of the choice you want to change, and by marking the box of your replacing choice:

1 ☒ a ☐ b ☒ c ☐ d

5. Change back to your first choice by totally filling in the box of your second choice and write down the correct choice left to the answer boxes:

A 1 ☒ a ☐ b ☒ c ☐ d

6. Do **not** mark the boxes in the following ways; your answer might be ignored:

☒ ☒ ☒ ☒ ☒ ☒

1	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50	a	b	c	d
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ANSWER FORM

Personal Data

If your personal data is incorrect, please contact the supervisor.

Name: Vijay Anand

Email: Vijayanand.avm@gmail.com

Registration Number: 6221433

0103825911218



Exam Info

Exam: DEVOPSM - 3312.1R

Exam date: 26/09/2018 - 15:00

Session ID: 1468229

1425023



Instructions

CAUTION: If you do not fill in the answer form according to the instructions below your full exam could be declared invalid.

1. **Only** use a black or blue pen.
2. Do **not** write within the answer section. Do **not** fold, stain or erase.
3. Answer the questions **only** by marking the box or boxes of your choice using "X":

1 ☒ a ☐ b ☐ c ☐ d

4. Change your choice by totally filling in the box of the choice you want to change, and by marking the box of your replacing choice:

1 ☒ a ☐ b ☒ c ☐ d

5. Change back to your first choice by totally filling in the box of your second choice and write down the correct choice left to the answer boxes:

A 1 ☒ a ☐ b ☒ c ☐ d

6. Do **not** mark the boxes in the following ways; your answer might be ignored:

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1	a	b	c	d
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Session ID: 1468229

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Exam date: 26/09/2018 - 15:00
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Lokesh Karunakaran
6221286
1468229

26/09/2018
3312.1R

EXIN DevOps
EXIN DevOps Master (English)

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**At the end of the exam all documents should be handed in.
It is not allowed to take home exam materials.**

Introduction

This is the exam EXIN DevOps Master (DEVOPSM.EN). The EXIN exam rules and regulations apply to this exam.

This exam consists of 50 multiple-choice questions.

Each multiple-choice question has a number of possible answers, of which only one is the correct answer.

The maximum number of points that can be obtained for this exam is 50. Each correct answer is worth one point. If you obtain 33 points or more you will pass.

The time allowed for this exam is 120 minutes.

Good luck!

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Exam

1 / 50

The Development team prepares to build a Deployment Pipeline. The CIO assigns her most reliable employee Michael, who is a Scrum Master, to the project.

Michael has confidence in the good intentions and spontaneity of the Development team, but would like them to become more disciplined. In addition, there should be a higher release frequency and an associated increase in customer value per release.

What is **not** part of the Deployment Pipeline?

- A) A pass through an acceptance stage of the objects for release.
- B) A repository with output from the process and work before release.
- C) A strictly managed Version Control system for the source code.
- D) A user review of the final output from the Deployment Pipeline.

2 / 50

You work on a DevOps team. As a team, you hold small competitions: who introduced the most bugs, who stopped the last build, who closed the fewest tickets, who was least productive this week.

Although the competition is meant to motivate and encourage the team, these competitions sometimes make you feel uncomfortable. You recognize that if you are uncomfortable, that there is something going on that is **not** DevOps; a so-called DevOps anti-pattern.

Which DevOps anti-pattern is this and how should you solve it?

- A) **Blame Culture.** You can solve this by actively protesting the games, letting the team members know that these type of competitive games make you feel very uncomfortable. Then you should start to focus on collaborating and learning together.
- B) **Human Error.** You can solve this by training individuals. The games should be allowed to go on. If you feel uncomfortable, you should be reassured that they are all in good fun and you are a valued team member.
- C) **Root Cause Analysis.** You should talk to the 'winner' of these competitions to find out why they made the mistakes. In addition, you can ask the team to come up with more competitions, once you solve the current problems.
- D) **Silos.** These are all Development or Operations competitions. This means that the teams are not integrated. Instead, come up with competitions that both Dev and Ops can join in on. That makes it fairer and helps break down silos.

3 / 50

Which bodies of knowledge **best** reflect DevOps principles?

- A)**
 - Agile
 - Continuous Integration
 - Continuous Delivery
 - Cloud

- B)**
 - Continuous Integration
 - Continuous Delivery
 - ITIL

- C)**
 - Agile
 - Continuous Delivery
 - IT Service Management
 - Lean/TPS

- D)**
 - PMBoK
 - Architecture
 - Continuous Delivery
 - ITIL

4 / 50

Continuous Integration is essential for Effective DevOps. It is as important as using a Version Control system for Development. It enables you to deliver software faster, with fewer bugs and lower costs.

How does Continuous Integration do this?

- A)** By following Ji-Koutei-Kanketsu (JKK) and automation, which encourages collaboration between all DevOps team members
- B)** By integrating the views of the Development team members with the needs from the Operations team on a daily basis
- C)** By streamlining the Deployment Pipeline that keeps codes in working condition all the time and helps detect issues sooner

5 / 50

There is a new member in your team: Lisa. You hired her for her commitment, passion and critical thinking, because you think she will help the team to reflect on opportunities for improvement and to renew the drive to achieve new levels of performance.

After the first two meetings of her with the team, you start to receive complaints from the other team members about her behavior, such as: she interrupts the seniors, questioning their proposals; she is rude and self-absorbed; she does not seem to understand how much effort it has taken the team to get where they are now.

You know she is trying to help and feels pressure to show the team she can be a valuable member. Most of the complaints are coming from senior men and you know this might be influencing this conflict, considering their different working culture and attitudes.

What is the **best** thing you can do in order to help generate trust and empathy between Lisa and the team?

- A) Coach Lisa to develop her listening skills, avoid interrupting others and reflect on her ideas.
- B) Coach Lisa to respect senior people and avoid questioning their proposals or ways.
- C) Congratulate Lisa on being straightforward and honest and encourage her to continue to challenge the team.
- D) Have a team meeting to discuss the complaints openly, because a good team should have no secrets.

6 / 50

DevOps takes very important concepts from Agile, derived from the Toyota Production System.

Why is Work-in-Progress (WiP) important for a DevOps adoption?

- A) It allows your team to work in a sustainable pace with predictable velocity.
- B) It helps the team to focus on adding features with the most business value possible.
- C) It increases the shared responsibility of work between the different team members.
- D) It reduces bottlenecks and ensures that needed features actually get finished.

7 / 50

Consider these two statements for **build-time** dependencies:

1. Build-time dependencies must be present when the application executes, performing its usual function.
2. Build-time dependencies must be present when the application is compiled and linked.

And these two statements for **run-time** dependencies:

- A. Run-time dependencies must be present when the application executes, performing its usual function.
- B. Run-time dependencies must be present when the application is compiled and linked.

Which two choices are **correct**?

- A) 1 and A
- B) 1 and B
- C) 2 and A
- D) 2 and B

8 / 50

Scrum is a recommended practice for DevOps implementations. An iteration in Scrum should be time-boxed.

Which word is used for each iteration in Scrum and how long should it be within DevOps?

- A) Release. It should be as short as possible for the business needs.
- B) Release. The recommended length in the Scrum Guide is 3 weeks.
- C) Sprint. It should be as short as possible for the business needs.
- D) Sprint. The recommended length in the Scrum Guide is 3 weeks.

9 / 50

What is the **best** description of what the collaboration pillar for Effective DevOps addresses?

- A) The process of building these cross-team relationships and keeping collaborative mind sharing among people
- B) The process of building toward a specific outcome through supporting interactions and input from multiple people
- C) The process of fostering collaboration, empathy and learning between different groups of people
- D) The process of sharing information to support the business better between Development and Operations

10 / 50

The Sales department of MC Corporation has asked if the service you are developing could include the commitment of increasing the number of unique visitors to the website and improving the click-through rate.

With a claim like this, the relative market position of MC Corporation becomes stronger, compared to their competitors. In order to realize the needs of the Sales department, you need a focus that is different from conventional methods.

What should be the **main** focus in the planning, requirements and design phases to address this commitment better?

- A) A review of the activities in planning and design phases, to ensure you can construct a pull system.
- B) The architecture design for the (micro)service, because DevOps cannot work without good architecture.
- C) The Cloud infrastructure, because all services in DevOps will be implemented in the Cloud.
- D) The Service Level Requirements (SLR) and the Service Level Agreement (SLA), because these are always most important.

11 / 50

Company X-AppGo has challenges in keeping their Development and Operations teams of 10 team members, in a healthy state. Team members do not have a clear understanding of each other's strengths and weaknesses. Certain tasks are specifically assigned to individuals. This often results in bottlenecks. Sometimes, stressed team members will snap at their co-workers.

Which key team scaling and growth strategy should X-AppGo focus on to address this specific issue?

- A) Establishing a centralized team
- B) Fostering collaboration
- C) Keeping teams small and flexible
- D) Managing conflict

12 / 50

Consider the following User Story: *As a Sales Manager, I want to review my team's forecast each week by seller and product.*

In order for this Story to comply with the INVEST principles, which question is the **most** relevant to ask the user?

- A) How do you want to do this?
- B) What is your goal with this?
- C) What is your priority with this?
- D) When do you need this?

13 / 50

You want to achieve the following:

- Reduction of long-term costs
- Quicker identification of defects
- Better collaboration between testers, developers and customers

Which test approach **best** helps you do this?

- A)** Automated acceptance testing, because this shortens the feedback loop leading to these effects.
- B)** Automated unit testing, because this saves time, creating time for testers to collaborate more.
- C)** Manual acceptance testing for every release, because this ensures that you find all defects together.
- D)** Unit and component testing, because testers can easily point out each other's mistakes.

14 / 50

You work in a DevOps team pursuing to implement automated deployment.

Which Platform in the Cloud characteristic **best** enables automated deployment?

- A)** Dynamic capacity and availability
- B)** Flexibility of provisioning
- C)** Scalability and availability
- D)** Standardized stack

15 / 50

Many organizations fully depend on IT services and software products to keep the organization running.

Why does DevOps fit the current software development process so well?

- A)** DevOps focuses on Just-in-Time, so that new features that are build are never late for a release.
- B)** DevOps helps to reduce cycle time through the use of frequent releases, delivering high-quality software and services.
- C)** DevOps increases the total number of features released to keep up with the increased customer demand.
- D)** DevOps reduces the number of supervisors needed, cutting expensive managers from Development teams.

16 / 50

A small startup is getting well established. In the last two years they saw their client base increasing with 20% every quarter.

They would like to implement DevOps but do not have the budget to hire any extra expertise or new people.

Is it possible to adopt DevOps without hiring a new group of superstar developers?

- A) Yes, as long as the organization creates clear roles and responsibilities to support the DevOps culture. Doing this will allow the teams to learn on the job.
- B) Yes, if they create a shared understanding of goals, provide and encourage learning opportunities for the teams, and create a blame free environment.
- C) No, it will cost too much to disrupt the organizational culture. It is better to wait until it has more revenue before moving to a DevOps culture.
- D) No, you need a specialized skill set to adopt DevOps. The current team does not have the necessary skills to handle this type of organizational change.

17 / 50

You have been hired to lead the new IT department of a mid-sized business. The former IT department was only responsible for Software Development. The IT Operations function was under the direction of the COO that opted to outsource most of Operations to a well-known top outsourcer several years ago.

The IT staff, both internal and outsourced, are all professional and committed to the quality of their deliverables. However, the results are far from business needs and expectations. In addition, when things go wrong, which happens often, they all point fingers and distrust each other. When downtime occurs, everyone blames the outsourcing party.

Management wants to put a stop to this, by creating a new IT department that takes full responsibility for their actions, updates the technology and really supports the business needs. They want to introduce DevOps. A growth mindset is needed, which requires a cultural shift.

Which strategy helps **best** to instill the DevOps mindset?

- A) Develop your niche, enhance the team style, and fire people that cannot stop blaming others
- B) Develop your niche, recognize your strengths, progress and plan to end the outsourcing
- C) Develop your working style, enhance the team style, and coach the team towards a blameless culture
- D) Develop your working style, learn the fundamentals, and put under-performers under review and coaching

18 / 50

Company X-AppGo has been having challenges with their roll-back processes. This often results in critical data losses within their production application databases, when executing roll-back scripts.

When is it **not** possible to run roll-back scripts without losing critical data?

- A) The roll-back script deletes data that only the new version uses.
- B) The roll-back script deletes new transactions that cannot be lost.
- C) The roll-back script involves moving a column between tables.

19 / 50

Company X-AppGo is interested in identifying what is the **best** starting strategy to make their application more interchangeable and reusable.

X-AppGo wants the strategy to change to:

- divide development into smaller and more valuable chunks
- design and maintain software with clear delineation of responsibilities
- limit the impact of changes
- make it easier to understand and change the code base.
- provide freedom for optimizing the build and deployment process

Which strategy will **best** support these goals?

- A) Hide new functionality from the customer until it is completely finished
- B) Make changes incrementally as a series of individual small releasable changes
- C) Use branch by abstraction to make large-scale changes to the code base
- D) Use components to decouple parts of applications that change at different rates

20 / 50

For a new product, your team needs to develop a Deployment Pipeline. As part of Continuous Integration, you need to define the Commit stage of the pipeline. You discuss this stage with your team members.

The Process Master says: "The Commit stage is the entry point of the Deployment Pipeline. Therefore, it is important to do Version Control during the Commit stage."

Is this true?

- A) Yes. Doing Version Control during the Commit stage prevents breaking builds.
- B) Yes. The Commit stage is the only place where Version Control can happen.
- C) No. There is a later testing phase in which Version Control can be done.
- D) No. Version Control should be done long before you enter the Commit stage.

21 / 50

An IT service has been up and working for years, its usage has reached an all-time low. You did some research on who might be using it and it turns out that only new employees are starting it up to see what it is. In addition, you have noticed some operational problems that are still logged in the Product Backlog as TO DO, but no effort is being put into them.

Who decides if this service's life should end?

- A) The entire DevOps team, because these decisions cannot be made by a single person.
- B) The Process Master, because she decides whether items on the backlog need to be done or not.
- C) The Reliability Engineer, because she gathers all customer and quality issues.
- D) The Service Master, because she can determine under which conditions the service should end.

22 / 50

A CTO needs to organize the DevOps team. The Operations team has some problems with:

- investigating compliance
- checking if all process statuses are 'green'
- monitoring the Operations process

Which DevOps role should do this work?

- A)** Process Master
- B)** Release Coordinator (Gatekeeper)
- C)** Reliability Engineer
- D)** Service Master

23 / 50

What are specific characteristics that an Effective DevOps culture needs to have to be successful within an organization?

1. Technology enablement
2. Effective communication
3. Empathy and trust
4. Humane staffing and resources

- A)** 1 & 2
- B)** 1, 2 & 3
- C)** 2 & 3
- D)** 2, 3 & 4

24 / 50

The Operations team wants to implement a new practice. They explain to their team manager why they want to implement this new practice.

What would **not** be a good reason?

- A)** The team explains the aim of the practice and the value to the business.
- B)** The team explains the benefits and disadvantages of the current practice.
- C)** The team explains the Return on Investment of implementing the practice.
- D)** The team explains how the new practice works in another company.

25 / 50

In DevOps, Service Level Agreements (SLAs) are of great importance so the customer can experience the promised value.

Why are SLAs so important for the **customer**?

- A) Service continuity is essential and guaranteed by the SLA.
- B) Service continuity is part of the documents agreed upon.
- C) Service Level Agreement breaches include financial penalties.
- D) Service Level Agreements are required to measure value.

26 / 50

Implementing DevOps involves changing the culture of the company.

What is a **true** statement for culture change?

- A) Implementing DevOps is creating a new mind-set and behavior for all stakeholders, that focus on single-piece-flow. A change in culture.
- B) In order to create flow, everyone's behavior must be changed within each silo, to reflect the DevOps culture of that department.
- C) Introducing DevOps means that Operations must change to the Agile culture of Development, so they can synchronize their work.
- D) When implementing DevOps, tools and practices must change. However, the most important thing is to change the organizational culture first.

27 / 50

What is **not** considered a step to effectively migrate data in an automated manner when versioning your database?

- A) Create a copy of the database at version x as a restoring point from version x+1
- B) Create a table in your database that contains its version number
- C) Create script that takes database from version x to version x+1
- D) Create script that takes database from version x+1 to version x

28 / 50

Dev2Go is a technology company that provides custom Cloud based technology solutions, for a diverse customer base. In order to increase the velocity of their businesses and be able to expand their customer base, they have adopted a DevOps approach for their customer delivery area.

After the adoption, they have seen an improvement in the quality of their software products, with less impact and faster detection of bugs within the delivery process. They did not see a huge change in their speed-to-market, therefore the business goal is not being realized. They still need to increase delivery speed.

Which practice helps **best** to increase speed, without compromising quality?

- A) Extreme Programming
- B) Ji-Kotei-Kanketsu
- C) One-piece-flow
- D) Slow down

29 / 50

Your company is changing its ways and starting to work with DevOps. Your team is on board with this change. You are discussing best practices for the Commit stage of the code.

Your co-worker Bo says: "When you break a build when committing code, you should try to fix it. If you cannot fix it fast, revert to a previous version."

Is this a sound practice?

- A) Yes. Fix the build if you can within a set time-box. Otherwise, use a previous version.
- B) Yes. Working longer than 10 minutes on anything is waste and should be avoided.
- C) No. Reverting to a previous version makes the problem worse and stops the Deployment Pipeline.
- D) No. You should always fix a broken build, no matter how long it takes. This avoids problems.

30 / 50

In the event of a failure, your infrastructure characteristics should allow for systems to be rebuilt in a predictable amount of time.

Which two characteristics **best** enable this recovery?

- A) Automated bug detection and Cloud Services
- B) Automated deployment and server Virtualization
- C) Automated provisioning and autonomic maintenance
- D) Automated restoring and server configuration

31 / 50

Company X-AppGo has a strong reputation for building robust and powerful web-shopping applications. They have done so for many large retail organizations.

They use a traditional SDLC model to ensure that the appropriate rigor, control and QA is followed before introducing the web-shopping application to the customer.

However, recently aggressive competition has come up. Their competitors release web-shopping applications at a much faster pace, and make them available on mobile devices.

X-AppGo has to rethink how they deploy and release applications. There are some challenges:

- Development often misunderstands the operational requirements of the application
- They experience failed deployment scripts
- Updates fail when deploying new enhancements to existing customers
- Operations is constantly fire-fighting to keep the existing web-shopping applications running

What is the **best** first step for X-AppGo to take to move to a Continuous Deployment model?

- A) Development should informally involve Operations at the start of a project, and create deployment scripts at the end of a project.
- B) Development should informally involve Operations throughout the project and cooperate to create deployment scripts together.
- C) Operations should ask Development at the end of the development project to plan and develop deployment scripts for Operations.
- D) Operations should engage in the release and write deployment scripts, once the application is fully developed and tested by Development.

32 / 50

You work in a start-up company that creates a very successful app for dog-owners, which allows them to find a dog-sitter for a day. Currently, many of the company's practices are in a start-up stage.

Your CEO put in place a plan to drive faster growth of customers, because she is negotiating with a large new partner. She asks you to recommend what to do with testing.

Currently, you have a manual process in place for acceptance testing. So far, this has worked very well for your company.

What should you recommend?

- A) Ask the Development team to create new tests for Operations
- B) Development should write automated tests with Operations
- C) Keep the manual tests, because they have worked well so far
- D) Wait until you know how to create value in the new context

33 / 50

ACMECONST has been managing application configurations in a very ad-hoc manner for their critical applications.

The Development team installs pieces of the application by hand and manually edits the relevant configuration files to make them work.

Often, after making the manual edits to the configuration files, the application fails. The Development team has a difficult time returning to a known good state with any confidence, because there is no record of the last known configuration.

This leads to significant delays in getting application enhancements implemented. Small changes break the application, making it difficult to find and fix problems. This also complicates the creation of environments for testing by hand.

ACMECONST wants to have an effective configuration management process to address their current pain points.

What is **not** considered an effective strategy to achieve that?

- A) Always keeping binary files and configuration information together
- B) Fully automating the management of application configuration files
- C) Keeping all configuration information in a single, central place
- D) Keeping binary files independent from configuration information

34 / 50

Your DevOps team has only recently formed and has been working together for two months. You see that Development and Operations are still siloed: they have a different way of managing their work, a different work ethic, and see things from a slightly different perspective.

To truly start being a DevOps team, they need more cohesion.

How can cohesion **best** be achieved?

- A) by additional formal approval from management for DevOps practices
- B) by allowing time for the changes to impact all team members and interactions
- C) by coaching each individual to avoid acting like a siloed island
- D) by letting team members specialize in the area they are most interested in

35 / 50

You create executables using a build tool.

What type of build tool is this?

- A) Data-oriented
- B) Dependency-oriented
- C) Product-oriented
- D) Task-oriented

36 / 50

What feature of virtualization **best** helps to assure the configuration of the environment will be the same during the phases of the Deployment Pipeline?

- A) Virtual disk image snapshot
- B) Virtual machine image snapshot
- C) Virtual machine template library

37 / 50

According to DevOps, what should you do at a project kick-off?

- A) DevOps shortens the development cycle. Therefore, you should start with discussing the project plan when launching a project.
- B) Stakeholders want to realize strategic services, so you should start discussing why you want the functions of the IT service you will be providing.
- C) You should discuss the goal of the project with the stakeholders to ensure the speed of business, so you can align JiT and prevent stagnation.
- D) You should gather all stakeholders to discuss business continuity and operation, because you want to safely operate your business.

38 / 50

What should testers **avoid** to do as a starting point for their testing database?

- A) Create a copy of the current production dataset via a dump for testing purposes
- B) Create a scaled down dataset that uses the minimum of test data to test expected behavior
- C) Create and manage smaller datasets for specific testing purposes
- D) Create custom datasets by carefully selecting a smaller subset of production data

39 / 50

ACMECONST is having major challenges in identifying issues and troubleshooting applications that are deployed into their infrastructure. They are in constant firefighting mode and there has been a rise in the number of major incidents and outages reported to the Service Desk.

They are interested in creating a robust monitoring strategy that will assist them in more effectively monitoring their production environment so they can more effectively address major incidents and also identify issues sooner to prevent major incidents from happening.

When creating a monitoring strategy, the first key area that needs to be considered is:

- Instrumenting your applications and your infrastructure so you can collect the data ACMECONST needs.

Which three additional actions lead to the **best** result when creating a monitoring strategy?

- A)
- Implementing a new instrumentation system.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Calculating event correlations manually after a pre-defined number of events have happened.
- B)
- Implementing a new instrumentation system.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Setting up notifications to the Service Desk when any event happens.
- C)
- Storing the data so it can easily be retrieved for analysis.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Using a non-free world-class enterprise software that has an event correlation engine.
- D)
- Storing the data so it can easily be retrieved for analysis.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Setting up notifications so that people can find out about the events they care about.

40 / 50

Your company currently uses Scrum as their development process. As a DevOps expert, you are asked to present to management if a DevOps approach would be beneficial.

What would be the **most** appropriate explanation about the impact of DevOps?

- A) It will help them to achieve a certification.
- B) It will **not** provide better outcomes than Scrum.
- C) It will support business outcomes directly.
- D) It will support Development to deliver faster.

41 / 50

Your DevOps team is working on App'n'Go. As the name already indicates this is a mobile App. The most important requirement of that app is that it should be portable.

You argue that App'n'Go should **not** be Cloud based.

Based on this case, which Cloud characteristic makes you say that?

- A) Costs and savings of the Cloud model
- B) Dynamic provisioning and maintenance
- C) Security and service levels
- D) Vendor lock-in and application portability

42 / 50

In DevOps it is recommended to use Information Radiators to measure continually and show the metrics in a hard-to-avoid way.

For a certain project, your co-workers want to start measuring the total number of bugs found, to keep track of the quality of the project.

Is measuring the total number of bugs found the **best** way of keeping track of the quality of the project?

- A) Yes, keeping track of progress with Information Radiators is a great idea, whatever you track.
- B) Yes, the number of bugs found shows you how well the developers and testers are performing.
- C) No, instead you should track the number of bugs found per tester and foster a little competition.
- D) No, you want to optimize globally and not locally, so you add more value by tracking cycle time.

43 / 50

You are a Process Master. The Development team has multiple well-working Deployment Pipelines, of which they are very proud. You have your doubts about the multiple Deployment Pipelines.

Which action should you take?

- A) Listen to the reason why the Development team has multiple pipelines. Multiple pipelines may exist, when there is a good reason for it.
- B) Review the operational rules of each individual pipeline with the Development team. Pipelines that have acceptable rules may be kept.
- C) Watch what happens. When the Development team develops satisfactory products, there is no need to increase pressure on them and decrease velocity.
- D) Work with the team to understand the potential problems multiple pipelines can cause and focus on the need for a single Deployment Pipeline.

44 / 50

Just like Agile and Lean, DevOps focuses on light-weight processes. It is still important to write a Project Charter or project scope, however short it may be. The best way of doing that, is to sit down with the entire team and write it together.

What is the **best** reason to write a project scope together?

- A) To ensure that all the team has the same definition of success for the project
- B) To show the supervisor that the team has understood what they should do next
- C) To test if the Development team can work well together with the Operations team
- D) To write down all the User Stories and other requirements from the customer

45 / 50

As a DevOps consultant, you have been hired by a large corporation to perform an assessment and a plan to fix their Continuous Integration (CI) process and tools that are being used by their 3 distributed Development teams. These teams are located in New Delhi, India (GMT + 5 1/2), Liverpool, Great Britain (GMT) and Dallas, US (GMT - 6). All of them work from 9AM to 5PM.

In order to achieve continuous progress on each developed solution, distributed teams from each of the three centers works on the same solution to cover more hours of each day. Because of this setup, there is a small two hours of overlapping working hours between US and Great Britain and another two hours between Great Britain and India.

You have found that each team uses Continuous Integration (CI). Each team understands its importance and has developed internal tools in each center to facilitate CI.

Each team has its own local set of tools and Version Control system. They do CI locally and send the committed code branch to the other centers at the end of their shift. Due to Work-Life Balance policies, lights out is enforced at 17:10 local time in each building.

Their individual efforts and initiatives are not paying off: all teams lack speed, lack quick bug detection, and use quick fixes.

What is the **best** solution to make sure that the CI process achieves the desired results?

- A) Use of a distributed Version Control system, Point of not Check-In policies and Check-In reversion policies.
- B) Use of a local team only policy that enforces that each individual solution gets developed within one center.
- C) Use of a Point of not Check-In policy and a distributed standup meeting at noon GMT to sync up.
- D) Use of a state of the art Continuous Integration system suited for distributed Development teams.

46 / 50

The Operations team received an urgent request for a security update from a vendor.

Which action should the Operations team take?

- A)** Directly apply the security patch, because it is urgent. Operations manages the infrastructure, so no-one else has to be informed.
- B)** Inform the users about the update immediately. Then start preparing for the emergency security patch.
- C)** Issue an RFC as an emergency patch and inform all stakeholders. Then apply the emergency patch according to the SLA.
- D)** Refer to the SLA, then apply the security patch and after that inform stakeholders and users based on what was described in the SLA.

47 / 50

Version Control is the most obvious tool in Configuration Management and is just the first step to support an organization's Configuration Management strategy.

What are two other **key aspects** that a good Configuration Management strategy will have?

- A)**
 - It can make an incremental change to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy specific internal audit requirements.
- B)**
 - It can make an incremental change to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy all compliance regulations subject to my organization.
- C)**
 - It can make only weekly scheduled changes to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy specific internal audit requirements.
- D)**
 - It can make only weekly scheduled changes to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy all compliance regulations subject to my organization.

48 / 50

Your company sells an online back-up service to its customers. Now, one of the customers has asked to implement new features in your service. They want the new features within a week, or they will seek business elsewhere.

You believe that the new features are important and you know the Development team can build it quickly. However, you encounter the following problems:

- You have difficulty getting everyone to deploy at least once a day.
- The commit stage seems almost always broken.
- There is a long integration phase between releases.

What is your **main** problem and how should you solve it?

- A) You do not deploy often enough. You should solve this by automating the deployment process, upgrading hardware or updating the system's Configuration Management.
- B) Your Continuous Integration process is not properly managed. You should solve this by speeding up automated tests and the Commit stage and increase understanding of the Continuous Integration process.
- C) You have poor Configuration Management. You should solve this by increasing collaboration between Development and Operations, increasing monitoring and logging, and virtualization.
- D) Your testing strategy is not effective. You should solve this by automating tests and increasing collaboration between testers and the rest of the team.

49 / 50

The S Corporation, a medium sized automobile parts supplier, signs a new partnership to supply a large company, T Motors Corporation, with automobile parts, which amounts to almost 60% of their total sales.

The board meets to discuss the new partnership. T Motors Corporation demands that they change the way of delivery to Just-in-Time delivery, or they will stop doing business with S Corporation. S Corporation would not survive this loss of business, so there is a sense of urgency to change to Just-in-Time. This change must happen within 6 months, so there are 5 months at most to prepare.

You are asked to set a time-box length for iterations and a release frequency for this scenario.

What is the **best** way to do this?

- A) You ask your team to work for a short trial period in the new DevOps way. This helps you determine their velocity. You set a time-box and number of releases based on the information you have from the trial period.
- B) You do not specify the number of iterations or the time-box exactly. Instead, you instruct the team to have as many releases in a day as possible. This ensures that you have the shortest iteration time-box possible.
- C) You look at the speed of business and determine the right speed for providing IT services. This leads you to a recommendation of number of iterations and length of time-box that matches the business needs.
- D) You set the number of releases to 12, so that you have a new release every 2 weeks during the time that you have available for delivery. You follow the recommendations of the Scrum Guide and set the time-box to 1 month.

50 / 50

Many organizations release software manually. DevOps promotes a high level of automation to deliver software.

What is an **advantage** of a manual software release process?

- A)** Bugs are easier to track, because you find fewer in a manual review.
- B)** Collaboration is encouraged, while team members review each other's work.
- C)** Experts get a work-out, because they need to solve the problems found.
- D)** You make less errors, because each bug is reviewed personally.



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EXIN DevOps
EXIN DevOps Master (English)

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**At the end of the exam all documents should be handed in.
It is not allowed to take home exam materials.**

Introduction

This is the exam EXIN DevOps Master (DEVOPSM.EN). The EXIN exam rules and regulations apply to this exam.

This exam consists of 50 multiple-choice questions.

Each multiple-choice question has a number of possible answers, of which only one is the correct answer.

The maximum number of points that can be obtained for this exam is 50. Each correct answer is worth one point. If you obtain 33 points or more you will pass.

The time allowed for this exam is 120 minutes.

Good luck!

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Exam

1 / 50

Your organization is committed to achieve an Effective DevOps practice. They realize they should prioritize work in two areas: collaboration and affinity.

What is critical to create the lasting relationships that are part of an Effective DevOps environment?

- A)** Implementing a daily standup meeting to agree on prioritization of issues
- B)** Implementing a streamlined software pipeline for continuous deployment
- C)** Resolving organizational interpersonal and inter-team conflicts
- D)** Resolving organizational issues with a blame free reporting system

2 / 50

For a new product, your team needs to develop a Deployment Pipeline. As part of Continuous Integration, you need to define the Commit stage of the pipeline. You discuss this stage with your team members.

The Process Master says: "It is enough to compile the test at the Commit stage, so that the Deployment Pipeline maintains its speed."

Is this true?

- A)** Yes. The Commit stage is focused on committing the code. This needs to happen fast.
- B)** Yes. This is fine, because there is a testing stage after the Commit stage.
- C)** No. The commit process should be as slow as possible, to achieve single-piece-flow.
- D)** No. Version Control and basic testing should be done in the Commit stage.

3 / 50

When designing the project plan in DevOps, what must be clear and why?

- A)** During the planning stage, not much needs to be clear, because much will be decided during the iterations. A rough outline of the project plan is enough to start the first iteration.
- B)** The project plan should state the reliability, functionality, and availability of the Service Level Requirements (SLR). You need this to see whether changes proposed during iterations can be approved within the SLR.
- C)** The project plan should state when the operational condition of the IT service will satisfy the Service Level Requirements, because a service cannot be developed without defining the operational infrastructure.
- D)** The reliability, functionality, and availability for the Service Level Requirements (SLR) should be described. The SLR define the rules for the IT service when operating, which is why it is required at the planning stage.

4 / 50

Company X-AppGo wants to optimize their current organizational structure, so that they can scale it up to support greater knowledge sharing and specialization.

They want to make sure that the structure effectively supports a *distributed* team that is, so all teams will need to have access to critical systems.

They need to decide whether to maintain their existing single-function teams that are working very well up to now or switch to cross-functional teams.

They also need to decide on an optimal team size for them, so that decisions are made in a timely and effective manner, and are not affected by groupthink.

You advise X-AppGo on the team type and team size.

What is the **best** recommendation in this scenario?

- A) Keep single function teams of 6-8 members
- B) Keep single-function teams of 10-12 members
- C) Switch to cross-functional teams of 6-8 members
- D) Switch to cross-functional teams of 10-12 members

5 / 50

What is **not** a key benefit of Version Control for enabling Effective DevOps?

- A) Ability to commit, compare, merge and restore past object revisions to the repository
- B) Minimizes risks by establishing a way to restore objects in production to previous versions
- C) Provides a better way for two distinct versions of the same release to work better at the same time
- D) Provides stronger cooperation and collaboration within and between teams

6 / 50

The Operations team has found a serious defect, which causes a major incident.

What should they do?

- A) Create an urgent RFC to recover the defect
- B) Define a new policy for Incident Management
- C) Do any of the recovery work themselves
- D) Find a quick patch to ensure business continuity

7 / 50

AppAtoZ has been growing at phenomenal rates in developing and deploying mobile applications to the iPhone and Android platforms. The Development teams for this startup have experienced tremendous pressures in deploying rapid enhancements to their current mobile applications on an aggressive timeline. They have been working on average 60 hours per week over the last 6 months.

Leadership has been reluctant to hire more assistance, and is more concerned about increasing revenue while reducing operational and development costs. In the recent months there has been an increased rate of employee absenteeism and employees calling in sick and even some employees resigned from AppAtoZ, resulting in increased workloads on current employees. Rehiring and ramp up time of a new employee does not alleviate the work pressures in an expedient manner for the Development team to work at a high level of performance.

What would be long term strategies to consider to address employee burnout and stress?

- A)**
 - Have the development team members take a time out
 - Contract developers for managing the increased development workload at peak periods of the year
 - Have developers reach out for professional mental help as needed

- B)**
 - Have the development team members take a time out
 - Have leadership and development identify all factors in the work environment that might be contributing to burnout
 - Develop a plan to address them

- C)**
 - Fire the leadership team, because they are incapable
 - Hire a more competent leadership team that knows how to create a work-life balance and culture that is sustainable and realistic
 - Provide the opportunity for the development team to take time to find their balance

- D)**
 - Add a mix of permanent and contract employees to the team to better manage the workload
 - Have leadership and Development identify factors in the work environment that contribute to burnout
 - Develop a plan to address them

8 / 50

Your company sells an online back-up service to its customers. Now, one of the customers has asked to implement new features in your service. They want the new features within a week, or they will seek business elsewhere.

You believe that the new features are important and you know the Development team can build it quickly. However, you encounter the following problems:

- You have difficulty getting everyone to deploy at least once a day.
- The commit stage seems almost always broken.
- There is a long integration phase between releases.

What is your **main** problem and how should you solve it?

- A) You do not deploy often enough. You should solve this by automating the deployment process, upgrading hardware or updating the system's Configuration Management.
- B) Your Continuous Integration process is not properly managed. You should solve this by speeding up automated tests and the Commit stage and increase understanding of the Continuous Integration process.
- C) You have poor Configuration Management. You should solve this by increasing collaboration between Development and Operations, increasing monitoring and logging, and virtualization.
- D) Your testing strategy is not effective. You should solve this by automating tests and increasing collaboration between testers and the rest of the team.

9 / 50

Your DevOps team is working on App'n'Go. As the name already indicates this is a mobile App. The most important requirement of that app is that it should be portable.

You argue that App'n'Go should **not** be Cloud based.

Based on this case, which Cloud characteristic makes you say that?

- A) Costs and savings of the Cloud model
- B) Dynamic provisioning and maintenance
- C) Security and service levels
- D) Vendor lock-in and application portability

10 / 50

ACMECONST has a good reputation for building successful software solutions to assist large construction companies accurately scope, cost out, manage and execute their building construction projects.

They recently were rated #1 in client satisfaction on their products. However, the relentless culture, constant micro-management from leadership, the unrealistic expectations, and long hours for the Development and Operations team members has resulted in decreased morale. This toxic environment has resulted in losing some of their most talented people.

They have implemented strong leadership practices specific to automation and technological enabling. This allows flawless execution of deployment and introduction of enhancements to the application.

ACMECONST wants to have a successful and sustainable DevOps culture.

What key elements should they introduce **first**?

- A) Affinity and collaboration
- B) Empathy, affinity, humane staffing and resourcing
- C) Empathy, trust, humane staffing and resourcing
- D) Scaling and collaboration

11 / 50

According to DevOps, what should you do at a project kick-off?

- A) DevOps shortens the development cycle. Therefore, you should start with discussing the project plan when launching a project.
- B) Stakeholders want to realize strategic services, so you should start discussing why you want the functions of the IT service you will be providing.
- C) You should discuss the goal of the project with the stakeholders to ensure the speed of business, so you can align JiT and prevent stagnation.
- D) You should gather all stakeholders to discuss business continuity and operation, because you want to safely operate your business.

12 / 50

In DevOps it is recommended to use Information Radiators to measure continually and show the metrics in a hard-to-avoid way.

For a certain project, your co-workers want to start measuring the total number of lines of code written, to keep track of the progress of the project.

Is measuring the total numbers of lines of code written the **best** way of keeping track of the progress of the project?

- A) Yes, keeping track of progress with Information Radiators is a great idea, whatever you track.
- B) Yes, the total number of lines of code shows you how many lines of code are left to be written.
- C) No, instead you should foster competition, by tracking the number of lines of code by developer.
- D) No, you want to optimize globally and not locally, so you add more value by tracking cycle time.

13 / 50

Your company is growing very fast and cannot keep up with hiring demands. Therefore, even though it is unwanted for DevOps, part of the work will be outsourced in a subcontract. The outsourced team and your own DevOps team have problems sharing responsibility. Some of your team members blame the outsourced team for not getting their job done.

What is the recommended way to solve this conflict?

- A) Clearly define tasks and work and instill shared accountability between both teams
- B) Mix the members of your team and the outsourced team, so they are forced to collaborate
- C) Remind your own team members that in DevOps you never place blame on anyone
- D) Stop outsourcing and just ask your team to do overtime until the hiring can be solved

14 / 50

Continuous Delivery is a whole new paradigm for running a business that depends on software. The Deployment Pipeline is at the core of any effective DevOps implementation as it helps with the ultimate goal of the company and its enterprise governance.

How does a Deployment Pipeline contribute to enterprise governance?

- A) It helps to achieve performance and conformance at the same time, by delivering high value.
- B) It helps to generate conformance only, because a good Deployment Pipeline increases transparency.
- C) It helps to increase performance only, because a good Deployment Pipeline helps fast delivery.
- D) It helps to prioritize performance or conformance, because both cannot be achieved at the same time.

15 / 50

Continuous Integration is an essential practice for DevOps. It is as important as using a Version Control system for Development.

What is the **main** benefit of Continuous Integration?

- A) It allows the team to prioritize development and testing better.
- B) It allows the user to be involved with the testing continuously.
- C) It enables testing the proper integration to the production IT services.
- D) It enables you to deliver software faster, with fewer bugs and cheaper.

16 / 50

Virtualization and Cloud computing are techniques that could help and facilitate DevOps practices.

How do they help DevOps?

- A) Virtual environments are easier to standardize and help you test more in less time.
- B) Virtualization makes your costs cheaper, so you add more value for the customer.
- C) Virtualized infrastructure does not need to be changed again, so it is easier to maintain.

17 / 50

You want to automate the deployment of a fresh database as part of the automation of acceptance tests.

Which steps should be included in the automation script, **before** loading the database with data?

- A)
 - Delete database records
 - Create new database tables
- B)
 - Delete database records
 - Create the database structure, database instances, and schemas
- C)
 - Delete the database that was there before
 - Create the database structure, database instances, and schemas
- D)
 - Delete the database that was there before
 - Create new database tables

18 / 50

ACMECONST is having problems with identifying issues and troubleshooting applications that are deployed into their infrastructure.

They are in constant firefighting mode and there more and more major incidents and outages reported to the Service Desk. The impact of the outages puts them at risk of losing some key clients.

They have not been able to use their critical commercial construction application to provide quotes and estimates in a timely manner, as promised in the SLAs they have committed to.

An extensive review was performed on all main infrastructure services such as routers, DNS and directory services and they were all properly configured and optimized to effectively host ACMECONST applications.

ACMECONST comes up with four possible actions to troubleshoot the applications, so that they can effectively identify root causes and eliminate the application failures:

1. Establish **Version control** for every part of the networking infrastructure configuration that the applications depend on to function: DNS zone files to DHCP to firewall and router configurations to SMTP and other services.
2. Enable **application logging** so applications log at WARNING level when an error occurs, a potential network connection times out, or unexpectedly closes. In addition, log at INFO and DEBUG level every time the application opens or closes a connection.
3. Make the **integration testing environment** as similar as possible to production, including using the same pieces of hardware with the same physical connections between them.
4. Have and use **forensic tools**, and analyze application memory dumps when an application fails or has major degradation issues to assist in doing a detailed debug of the application.

Which actions should they take?

- A) 1, 2 & 4
- B) 1, 2, 3 & 4
- C) 2 & 4
- D) 2, 3, & 4

19 / 50

What is an important step to make the DevOps process more mature?

- A) Hiring or training employees to diversify the team
- B) Implementing Kaizen by using PDCA and visualizing the process
- C) Providing guidance by management to mature further
- D) Selecting tools that fit your process well

20 / 50

Consider the following User Story: *As a Sales Manager, I want to review my team's forecast each week by seller and product.*

In order for this Story to comply with the INVEST principles, which question is the **most** relevant to ask the user?

- A) How do you want to do this?
- B) What is your goal with this?
- C) What is your priority with this?
- D) When do you need this?

21 / 50

Company AppAtoZ has traditionally used the common SDLC model for delivering software applications into production. Due to the increased competition in the market place they have to find a more effective manner in deploying applications into production much faster. At the moment a new enhancement to an existing application takes 2 to 3 months to release into production. They need to reduce the cycle time to 3 days.

Which Continuous Deployment key practice below will **not** be beneficial for AppAtoZ to reduce their release cycle time as required?

- A) Automate and validate all unit tests, component tests and acceptance with 100% coverage
- B) Automate all of the build, deploy, and release processes
- C) Automatic deploy of application changes on a continuous basis into production
- D) Ensure all application enhancement changes go through Quality Assurance for extensive review before moving into production

22 / 50

DevOps takes very important concepts from Agile, derived from the Toyota Production System.

Why is Ji-Koutei-Kanketsu (JKK) important for a DevOps adoption?

- A) It creates a Definition of Done based on 100% completion of a high quality item.
- B) It helps the Product Owner to manage product backlogs for 100% completion.
- C) It is a key success factor to establish a single Deployment Pipeline for IT services.
- D) It provides a definition of quality based on Kaizen or Continuous Improvement.

23 / 50

Company X-AppGo has experienced some fatal bootstrapping problems with their applications. When further analyzing the issue, it was determined the application components had unusual dependencies, meaning when building component A, the developer needed to build component B, but to build component B, the developer needed component A.

In order to address this situation, the developer can create a version of component A that can be used to build component B. The developer then can use a new version of component B to build the new version A.

What is this called?

- A) Circular component build ladder
- B) Circular dependency build ladder
- C) Component dependency build ladder
- D) Modular component build ladder

24 / 50

What is the **simplest** solution for managing libraries for small software projects?

- A) Checking libraries into version control and use naming conventions for libraries that includes their version number
- B) Checking libraries out of version control and use naming conventions for libraries that includes their version number
- C) Declare libraries and use a tool like Maven or Ivy to download from Internet repositories or your organization's own artifact repository
- D) Initialize libraries and use a tool like Maven or Ivy to download from Internet repositories or your organization's own artifact repository

25 / 50

Company X-AppGo is interested in integrating all applications through a single database, since it would be too expensive for X-AppGo to change their current application's architecture.

The challenge they face is that changes made on specific database objects, which multiple applications depend on, breaks some applications' functionality, while it works for applications that need the updated changes made to the database objects.

1. Test changes in an orchestrated environment, in which they set up a staging database that resembles the characteristics of a production database.
2. Keep a registry of which applications use which database objects.
3. Enable applications to work with multiple versions of the central database, so the database can be migrated independently of the applications it depends on.
4. Work with the teams maintaining the other applications, to agree and coordinate which changes can be made to the database objects and what applications it impacts.

Which actions should X-AppGo take?

- A) 1, 2 & 3. Coordinating with other teams will take too much time.
- B) 1, 2 & 4. Multiple versions of the central database endangers data integrity.
- C) 1, 2, 3 & 4. All described actions would benefit X-AppGo, within budget.
- D) 2, 3 & 4. Tests in an orchestrated environment are not the same as in production.

26 / 50

Automated acceptance tests are characteristic of a good DevOps implementation.

When you do not have much time and the application is stable, what is the **best** choice for acceptance tests?

- A) Automate happy path
- B) Automate sad path
- C) No test automation

27 / 50

Scrum and DevOps both have iterative processes. Having iterations has benefits for the development. One Scrum iteration is called a Sprint.

What is the **biggest** benefit of working with Sprints?

- A) Iterations ensure that meetings are short, held often, and on-topic, such as the Daily Scrum or Sprint Planning.
- B) Iterations happen very fast, often multiple times in a day, which speeds up the entire development process.
- C) You allow for incidents to happen and be resolved between iterations, so that solving them does not slow you down.
- D) You keep focus on building without distractions, while staying flexible to add the most valuable features.

28 / 50

As the lead developer for ACMECONST, you encounter some repeat failures on the processing of work orders for the critical construction application.

As you further analyze the issue, you identify a bug within the code of the critical application that was updated yesterday as an added enhancement for processing work orders. You use your Version Control system to find out more about that specific line of code. There is a commit message that said "added enhancement".

You try to make a correction to the code in order to fix it, but as a consequence something else breaks. It then takes you almost 8 hours to get the application working again.

What is the recommended style of this commit message?

- A) Write a multi-paragraph commit message providing a summary section and all supporting details on what was updated exactly
- B) Write a multi-paragraph commit message that provides details on when, why, how and by whom the code was updated and what was updated exactly
- C) Write a short commit message that provides details on when and by who the code was updated
- D) Write a short commit message that states what was updated in the code and when it was updated

29 / 50

Just like Agile and Lean, DevOps focuses on light-weight processes. It is still important to write a Project Charter or project scope, however short it may be.

Sometimes, writing even a very short project scope, maybe half a page, will take multiple hours.

What is the **best** reason to still write a project scope?

- A) To discuss differing definitions of success and agree on a list of success criteria
- B) To ensure all requirements from Development and Operations are written down
- C) To prepare for working together during the plan, because it makes a better team
- D) To show the board that the team is committed to the project and invests time in it

30 / 50

A CIO assigns her most reliable employee Em, who is a Scrum Master, to a project: The Development team is preparing to build their first Deployment Pipeline.

Em has confidence in the good intentions and spontaneity of the Development team, but would like them to become more disciplined. In addition, there should be a higher release frequency, so Em wants the Development team to implement more frequent releases.

One of the team members states: "The most important thing about this new Deployment Pipeline is automating the test process. We should start with how to automate the tests we do that are necessary for this process."

Is this statement correct?

- A) No, this is not correct. Achieving single-piece-flow and a solid deployment process should be of highest priority and then automation of testing.
- B) No, this is not correct. Instead of automating the testing process, the Deployment Pipeline should first be automated and fully mature.
- C) Yes, this is correct. Automating the testing process is critical for efficiency. It is the first thing to consider when building the Deployment Pipeline.
- D) Yes, this is correct. By focusing on creating automated tests for the process you overcome problems that you may encounter later.

31 / 50

A Development team wants to improve their coding skill. They want to get better at finding defects.

Which type of training would be the **best** in helping them to improve this skill?

- A) No training, but extra time to get more experience with finding defects
- B) Set a training milestone, based upon the team's maturity
- C) Training in which coding rules are reviewed and learned
- D) Training in which the team reviews code with dormant defects

32 / 50

Your company is changing its ways and starting to work with DevOps. Your team is on board with this change. You are discussing best practices for the Commit stage of the code.

Your co-worker Sydney says: "You should check in, even when the build is broken. Maybe your change will make the build work again."

Is this a sound practice?

- A) No. You should never check in a broken build. Your co-workers should fix the build before you check in.
- B) No. You should test whether your change fixes the build first. If it does, you should check your code in.
- C) Yes. By checking in your code, you allow the build to run more tests. This helps identify the problem.
- D) Yes. Your co-workers are already working on fixing the build, so you can easily check your own code in.

33 / 50

Company AppAtoZ currently is having many challenges in performing continuous integration in a distributed environment. The teams are all based in the United States, but they are not together:

1. one team is in San Diego
2. one team is in New York
3. one team is in Dallas

Each location has their own local repository for performing code commits at the end of each day. There is a single shared global master repository.

Each location is responsible for working on specific areas of their application and then, after they complete their parts, they submit their commits to their local repository.

At the end of the working day, the global lead developer takes responsibility to coordinate all the commits from the three locations to be merged into the shared global master repository.

The teams have run into significant merge conflicts when each regional team uploads to the shared global master repository.

Assume that cost is **not** an issue. What is the **best** solution for AppAtoZ?

- A) Continue working this way, but increase collaboration and communication across the teams, during early development to eliminate merge conflicts
- B) Do not use a shared global master repository, but let the teams work in isolation. Once their code is complete, merge them into a single repository
- C) Move to centrally managed farms and authorization schemes, using Continuous Integration as a centralized service to the three Development teams
- D) Only perform commits in a serial fashion, starting commits to be implemented from the New York team, followed by Dallas and then San Diego commits

34 / 50

Tools are accelerators of the DevOps culture. When selecting tools, the organization App'n'Go focuses on the following three factors:

- Product Development
- Community Health
- In-house Customization

Is it possible to agree, without further information, that this is a good focus for App'n'Go?

- A) Yes, because the three mentioned factors are commonly needed key factors across all organizations.
- B) Yes, because these are the only three factors that support an effective DevOps culture.
- C) No, they are better off looking at process focus, automated deployment capabilities, and interoperability.
- D) No, you always need the context of the specific organization to confirm this statement.

35 / 50

Your company is creating software or a service that will be used by many different end-users, that will be working on several different operating systems, with non-controllable configurations.

You want to test as many different configurations as you can before releasing your product. At the same time, you would like to find bugs or incompatibilities as easy as possible. You would like leverage your Cloud environment for this opportunity.

What is the **best** testing approach to test the different configurations in this case?

- A) Automated parallel testing. Parallel testing makes testing faster.
- B) Automated serial testing. Serial testing makes it much easier to find bugs.
- C) Continuous delivery testing. Following this process helps to make testing more expedient.
- D) Continuous integration testing. This helps you find integration bugs in the most expedient manner.

36 / 50

DevOps requires a specific mindset, or it just will not work well.

Why is it important that DevOps is a learning culture?

- A) Because DevOps always works in diverse teams and diversity can only work well if you keep learning from each other
- B) Because only by learning in a deliberate way can you keep transforming the company by adding business value
- C) Because only if everyone feels comfortable coming forward with all details of an incident, true learning can happen
- D) Because you need to implement continual tooling updates to automate the releases, which require constant learning

37 / 50

Negotiation or conflict resolution styles are important for how we communicate.

What is **true** about negotiation styles?

- A) Collaboration and compromise can end in win-win situations.
- B) Collaboration in DevOps means working towards someone else's goals.
- C) Compromise ends in a win-win situation and collaboration does not.
- D) Compromise is reaching an agreement in order to avoid conflict.

38 / 50

When adopting a DevOps approach, you should apply Lean. This implies detecting areas for waste to be minimized.

What should be considered as a target for waste elimination in software development?

- A) Completed work
- B) Extra features
- C) Project planning
- D) Team skills

39 / 50

Many organizations fully depend on IT services and software products to keep the organization running.

Why does DevOps fit the current software development process so well?

- A) DevOps focuses on Just-in-Time, so that software and services are never late for releases.
- B) DevOps helps to reduce cycle time through the use of frequent releases, delivering high-quality software and services.
- C) DevOps increases the total number of features released, to keep up with the increased customer demand.
- D) DevOps reduces the number of supervisors needed, cutting expensive managers from Development teams.

40 / 50

When your application or service fails, your logging policies should facilitate a quick restart or redeploy.

How can you **best** enable this?

- A) Log all changes and let Operations code part of your software
- B) Log all errors and work with Operation's monitoring software
- C) Log only critical failures and write a good manual for Operations
- D) Log only major updates and let Operations back-up regularly

41 / 50

Susan is not getting along with Joe, since Joe at times comes across as confrontational to Susan. This has made her very uncomfortable resulting in an increase in passive-aggressive behaviors, indirect conflict and tension.

Susan sent an email to her boss where she shifted work or blame without being too direct regarding Joe's behavior.

She also complained to other co-workers about Joe's behavior without ever talking directly to Joe about the situation.

Which negotiation style is Susan exhibiting?

- A) Accomodation
- B) Avoidance
- C) Competition
- D) Compromise

42 / 50

In DevOps, Service Level Agreements (SLAs) are of great importance to the customer.

Why are SLAs also important for the DevOps team?

- A) They contain the high level version of the release plan.
- B) They contain the items of the product backlog.
- C) They ensure that the customer pays on time.
- D) They helps focussing on adding business value.

43 / 50

DevOps has critical team roles that need to be in place to be successful.

Visual control can be defined as: *Everybody easily understands the situation by just looking at the boards without explanations.*

Which team role should implement visual control across the entire process and has a strong focus on establishing a stream-lined process?

- A) Developer
- B) DevOps Engineer
- C) Process Master
- D) Service Master

44 / 50

The S Corporation, a medium sized automobile parts supplier, supplies a large company, T Motors Corporation. They supply automobile parts to T Motors Corporation, which amounts to almost 60% of their total sales. The board meets to discuss the new partnership.

T Motors Corporation demands that S Corporation change their way of delivery to Just-in-Time delivery, or they will stop their business with S Corporation. S Corporation would not survive this loss of business, so there is a sense of urgency to change to Just-in-Time.

This change must happen within 6 months, so there are 5 months at most to prepare.

What is the **most** important aspect when dealing with this accelerated timeline and pressure?

- A) Adhering to acceptance criteria as the Scrum Master defines them.
- B) Committing to a release plan and delivering on time.
- C) Disciplined Agile. Releasing small increments whilst maintaining a sustainable pace.
- D) Frequent releases. This is the basis of DevOps and Agile.

45 / 50

What is **not** considered a general principle and practice for build and deployment scripting?

- A) Create a script for each stage in your Deployment Pipeline
- B) Evolve your deployment system incrementally
- C) Use an appropriate technology to deploy your application
- D) Use different scripts to deploy to every environment

46 / 50

To avoid confusion by the Operations team, there should be clearly defined rules for infrastructure management.

What is **not** a principle for managing infrastructure?

- A) Automating required configuration settings
- B) Monitoring the infrastructure state with dashboards
- C) Specifying rules for Version Control in the configuration
- D) Writing a new universal foundation management script

47 / 50

An IT service has been up and working for years, its usage has reached an all-time low. You did some research on who might be using it and it turns out that only new employees are starting it up to see what it is. In addition, you have noticed some operational problems that are still logged in the Product Backlog as TO DO, but no effort is being put into them.

Who decides if this service's life should end?

- A) The entire DevOps team, because these decisions cannot be made by a single person.
- B) The Process Master, because she decides whether items on the backlog need to be done or not.
- C) The Reliability Engineer, because she gathers all customer and quality issues.
- D) The Service Master, because she can determine under which conditions the service should end.

48 / 50

What is **not** an effect of building a seamless process from Development to Operations?

- A) Automating processes, which reduces the human work load
- B) Flow between Development and Operations by means of standard work and checklists
- C) Optimization from the customer's perspective in terms of value
- D) Synchronization of the operation and management cycle between Development and Operations

49 / 50

The principal benefit of a good DevOps practice is that it creates a repeatable, reliable and predictable process.

Which process is this?

- A) Configuration
- B) Development
- C) Release
- D) Service

50 / 50

You work in a DevOps team. You are a developer. For a certain build, you would like to discuss risks and security measures with an Operations team member. However, when you walk over to them, all of the Operations team members tell you they are busy.

In order to get time from one of them, you need to ask your supervisor, to ask the supervisor of the Operations team to schedule a meeting with you.

Although this has been standard protocol for years, you believe that this process is tedious. You recognize that if you believe something is tedious, that there is something going on that is **not** DevOps; a so-called DevOps anti-pattern.

Which DevOps anti-pattern is this and how should you solve it?

- A) **Blame Culture.** Clearly, the Operations team must stop blaming Development for asking for time. Once they have been trained to do so, this problem is solved.
- B) **Human Error.** You should ask your supervisor to coach the other supervisor in making fewer errors of judgment when you ask for time, to solve this problem.
- C) **Root Cause Analysis.** You can solve this by just stopping to look for a cause of the behavior from the Operations team members and start friendly competition.
- D) **Silos.** You can change this by ensuring easy collaboration between teams or making two cross-functional teams, instead of keeping the two teams separate.



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EXIN DevOps
EXIN DevOps Master (English)

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**At the end of the exam all documents should be handed in.
It is not allowed to take home exam materials.**

Introduction

This is the exam EXIN DevOps Master (DEVOPSM.EN). The EXIN exam rules and regulations apply to this exam.

This exam consists of 50 multiple-choice questions.

Each multiple-choice question has a number of possible answers, of which only one is the correct answer.

The maximum number of points that can be obtained for this exam is 50. Each correct answer is worth one point. If you obtain 33 points or more you will pass.

The time allowed for this exam is 120 minutes.

Good luck!

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Exam

1 / 50

Your company is changing its ways and starting to work with DevOps. Your team is on board with this change. You are discussing best practices for the Commit stage of the code.

Your co-worker Bo says: "When you break a build when committing code, you should try to fix it. If you cannot fix it fast, revert to a previous version."

Is this a sound practice?

- A) Yes. Fix the build if you can within a set time-box. Otherwise, use a previous version.
- B) Yes. Working longer than 10 minutes on anything is waste and should be avoided.
- C) No. Reverting to a previous version makes the problem worse and stops the Deployment Pipeline.
- D) No. You should always fix a broken build, no matter how long it takes. This avoids problems.

2 / 50

According to DevOps, what should you do at a project kick-off?

- A) DevOps shortens the development cycle. Therefore, you should start with discussing the project plan when launching a project.
- B) Stakeholders want to realize strategic services, so you should start discussing why you want the functions of the IT service you will be providing.
- C) You should discuss the goal of the project with the stakeholders to ensure the speed of business, so you can align JiT and prevent stagnation.
- D) You should gather all stakeholders to discuss business continuity and operation, because you want to safely operate your business.

3 / 50

Dev2Go is a technology company that provides custom Cloud based technology solutions, for a diverse customer base. In order to increase the velocity of their businesses and be able to expand their customer base, they have adopted a DevOps approach for their customer delivery area.

After the adoption, they have seen an improvement in the quality of their software products, with less impact and faster detection of bugs within the delivery process. They did not see a huge change in their speed-to-market, therefore the business goal is not being realized. They still need to increase delivery speed.

Which practice helps **best** to increase speed, without compromising quality?

- A) Extreme Programming
- B) Ji-Kotei-Kanketsu
- C) One-piece-flow
- D) Slow down

4 / 50

ACMECONST has been managing application configurations in a very ad-hoc manner for their critical applications.

The Development team installs pieces of the application by hand and manually edits the relevant configuration files to make them work.

Often, after making the manual edits to the configuration files, the application fails. The Development team has a difficult time returning to a known good state with any confidence, because there is no record of the last known configuration.

This leads to significant delays in getting application enhancements implemented. Small changes break the application, making it difficult to find and fix problems. This also complicates the creation of environments for testing by hand.

ACMECONST wants to have an effective configuration management process to address their current pain points.

What is **not** considered an effective strategy to achieve that?

- A) Always keeping binary files and configuration information together
- B) Fully automating the management of application configuration files
- C) Keeping all configuration information in a single, central place
- D) Keeping binary files independent from configuration information

5 / 50

For a new product, your team needs to develop a Deployment Pipeline. As part of Continuous Integration, you need to define the Commit stage of the pipeline. You discuss this stage with your team members.

The Process Master says: "The Commit stage is the entry point of the Deployment Pipeline. Therefore, it is important to do Version Control during the Commit stage."

Is this true?

- A) Yes. Doing Version Control during the Commit stage prevents breaking builds.
- B) Yes. The Commit stage is the only place where Version Control can happen.
- C) No. There is a later testing phase in which Version Control can be done.
- D) No. Version Control should be done long before you enter the Commit stage.

6 / 50

ACMECONST is having major challenges in identifying issues and troubleshooting applications that are deployed into their infrastructure. They are in constant firefighting mode and there has been a rise in the number of major incidents and outages reported to the Service Desk.

They are interested in creating a robust monitoring strategy that will assist them in more effectively monitoring their production environment so they can more effectively address major incidents and also identify issues sooner to prevent major incidents from happening.

When creating a monitoring strategy, the first key area that needs to be considered is:

- Instrumenting your applications and your infrastructure so you can collect the data ACMECONST needs.

Which three additional actions lead to the **best** result when creating a monitoring strategy?

- A)
 - Implementing a new instrumentation system.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Calculating event correlations manually after a pre-defined number of events have happened.
- B)
 - Implementing a new instrumentation system.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Setting up notifications to the Service Desk when any event happens.
- C)
 - Storing the data so it can easily be retrieved for analysis.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Using a non-free world-class enterprise software that has an event correlation engine.
- D)
 - Storing the data so it can easily be retrieved for analysis.
 - Creating dashboards which aggregate the data and present it in a format suitable for operations and for the business.
 - Setting up notifications so that people can find out about the events they care about.

7 / 50

Many organizations release software manually. DevOps promotes a high level of automation to deliver software.

What is an **advantage** of a manual software release process?

- A) Bugs are easier to track, because you find fewer in a manual review.
- B) Collaboration is encouraged, while team members review each other's work.
- C) Experts get a work-out, because they need to solve the problems found.
- D) You make less errors, because each bug is reviewed personally.

8 / 50

The Operations team received an urgent request for a security update from a vendor.

Which action should the Operations team take?

- A) Directly apply the security patch, because it is urgent. Operations manages the infrastructure, so no-one else has to be informed.
- B) Inform the users about the update immediately. Then start preparing for the emergency security patch.
- C) Issue an RFC as an emergency patch and inform all stakeholders. Then apply the emergency patch according to the SLA.
- D) Refer to the SLA, then apply the security patch and after that inform stakeholders and users based on what was described in the SLA.

9 / 50

Your DevOps team is working on App'n'Go. As the name already indicates this is a mobile App. The most important requirement of that app is that it should be portable.

You argue that App'n'Go should **not** be Cloud based.

Based on this case, which Cloud characteristic makes you say that?

- A) Costs and savings of the Cloud model
- B) Dynamic provisioning and maintenance
- C) Security and service levels
- D) Vendor lock-in and application portability

10 / 50

DevOps requires a specific mindset, or it just will not work well.

Why is it important that DevOps is a learning culture?

- A) Because DevOps always works in diverse teams and diversity can only work well if you keep learning from each other
- B) Because only by learning in a deliberate way can you keep transforming the company by adding business value
- C) Because only if everyone feels comfortable coming forward with all details of an incident, true learning can happen
- D) Because you need to implement continual tooling updates to automate the releases, which require constant learning

11 / 50

You create executables using a build tool.

What type of build tool is this?

- A) Data-oriented
- B) Dependency-oriented
- C) Product-oriented
- D) Task-oriented

12 / 50

What feature of virtualization **best** helps to assure the configuration of the environment will be the same during the phases of the Deployment Pipeline?

- A) Virtual disk image snapshot
- B) Virtual machine image snapshot
- C) Virtual machine template library

13 / 50

Which bodies of knowledge **best** reflect DevOps principles?

- A)
 - Agile
 - Continuous Integration
 - Continuous Delivery
 - Cloud
- B)
 - Continuous Integration
 - Continuous Delivery
 - ITIL
- C)
 - Agile
 - Continuous Delivery
 - IT Service Management
 - Lean/TPS
- D)
 - PMBoK
 - Architecture
 - Continuous Delivery
 - ITIL

14 / 50

In DevOps, Service Level Agreements (SLAs) are of great importance so the customer can experience the promised value.

Why are SLAs so important for the **customer**?

- A) Service continuity is essential and guaranteed by the SLA.
- B) Service continuity is part of the documents agreed upon.
- C) Service Level Agreement breaches include financial penalties.
- D) Service Level Agreements are required to measure value.

15 / 50

In DevOps it is recommended to use Information Radiators to measure continually and show the metrics in a hard-to-avoid way.

For a certain project, your co-workers want to start measuring the total number of bugs found, to keep track of the quality of the project.

Is measuring the total number of bugs found the **best** way of keeping track of the quality of the project?

- A) Yes, keeping track of progress with Information Radiators is a great idea, whatever you track.
- B) Yes, the number of bugs found shows you how well the developers and testers are performing.
- C) No, instead you should track the number of bugs found per tester and foster a little competition.
- D) No, you want to optimize globally and not locally, so you add more value by tracking cycle time.

16 / 50

Company X-AppGo has a strong reputation for building robust and powerful web-shopping applications. They have done so for many large retail organizations.

They use a traditional SDLC model to ensure that the appropriate rigor, control and QA is followed before introducing the web-shopping application to the customer.

However, recently aggressive competition has come up. Their competitors release web-shopping applications at a much faster pace, and make them available on mobile devices.

X-AppGo has to rethink how they deploy and release applications. There are some challenges:

- Development often misunderstands the operational requirements of the application
- They experience failed deployment scripts
- Updates fail when deploying new enhancements to existing customers
- Operations is constantly fire-fighting to keep the existing web-shopping applications running

What is the **best** first step for X-AppGo to take to move to a Continuous Deployment model?

- A) Development should informally involve Operations at the start of a project, and create deployment scripts at the end of a project.
- B) Development should informally involve Operations throughout the project and cooperate to create deployment scripts together.
- C) Operations should ask Development at the end of the development project to plan and develop deployment scripts for Operations.
- D) Operations should engage in the release and write deployment scripts, once the application is fully developed and tested by Development.

17 / 50

You work in a DevOps team pursuing to implement automated deployment.

Which Platform in the Cloud characteristic **best** enables automated deployment?

- A) Dynamic capacity and availability
- B) Flexibility of provisioning
- C) Scalability and availability
- D) Standardized stack

18 / 50

Scrum is a recommended practice for DevOps implementations. An iteration in Scrum should be time-boxed.

Which word is used for each iteration in Scrum and how long should it be within DevOps?

- A) Release. It should be as short as possible for the business needs.
- B) Release. The recommended length in the Scrum Guide is 3 weeks.
- C) Sprint. It should be as short as possible for the business needs.
- D) Sprint. The recommended length in the Scrum Guide is 3 weeks.

19 / 50

A CTO needs to organize the DevOps team. The Operations team has some problems with:

- investigating compliance
- checking if all process statuses are 'green'
- monitoring the Operations process

Which DevOps role should do this work?

- A) Process Master
- B) Release Coordinator (Gatekeeper)
- C) Reliability Engineer
- D) Service Master

20 / 50

An IT service has been up and working for years, its usage has reached an all-time low. You did some research on who might be using it and it turns out that only new employees are starting it up to see what it is. In addition, you have noticed some operational problems that are still logged in the Product Backlog as TO DO, but no effort is being put into them.

Who decides if this service's life should end?

- A) The entire DevOps team, because these decisions cannot be made by a single person.
- B) The Process Master, because she decides whether items on the backlog need to be done or not.
- C) The Reliability Engineer, because she gathers all customer and quality issues.
- D) The Service Master, because she can determine under which conditions the service should end.

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DevOps takes very important concepts from Agile, derived from the Toyota Production System.

Why is Work-in-Progress (WiP) important for a DevOps adoption?

- A) It allows your team to work in a sustainable pace with predictable velocity.
- B) It helps the team to focus on adding features with the most business value possible.
- C) It increases the shared responsibility of work between the different team members.
- D) It reduces bottlenecks and ensures that needed features actually get finished.

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Consider these two statements for **build-time** dependencies:

1. Build-time dependencies must be present when the application executes, performing its usual function.
2. Build-time dependencies must be present when the application is compiled and linked.

And these two statements for **run-time** dependencies:

- A. Run-time dependencies must be present when the application executes, performing its usual function.
- B. Run-time dependencies must be present when the application is compiled and linked.

Which two choices are **correct**?

- A) 1 and A
- B) 1 and B
- C) 2 and A
- D) 2 and B

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What is the **best** description of what the collaboration pillar for Effective DevOps addresses?

- A) The process of building these cross-team relationships and keeping collaborative mind sharing among people
- B) The process of building toward a specific outcome through supporting interactions and input from multiple people
- C) The process of fostering collaboration, empathy and learning between different groups of people
- D) The process of sharing information to support the business better between Development and Operations

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What is **not** considered a step to effectively migrate data in an automated manner when versioning your database?

- A) Create a copy of the database at version x as a restoring point from version x+1
- B) Create a table in your database that contains its version number
- C) Create script that takes database from version x to version x+1
- D) Create script that takes database from version x+1 to version x

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Consider the following User Story: *As a Sales Manager, I want to review my team's forecast each week by seller and product.*

In order for this Story to comply with the INVEST principles, which question is the **most** relevant to ask the user?

- A) How do you want to do this?
- B) What is your goal with this?
- C) What is your priority with this?
- D) When do you need this?

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Company X-AppGo has challenges in keeping their Development and Operations teams of 10 team members, in a healthy state. Team members do not have a clear understanding of each other's strengths and weaknesses. Certain tasks are specifically assigned to individuals. This often results in bottlenecks. Sometimes, stressed team members will snap at their co-workers.

Which key team scaling and growth strategy should X-AppGo focus on to address this specific issue?

- A) Establishing a centralized team
- B) Fostering collaboration
- C) Keeping teams small and flexible
- D) Managing conflict

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In the event of a failure, your infrastructure characteristics should allow for systems to be rebuilt in a predictable amount of time.

Which two characteristics **best** enable this recovery?

- A) Automated bug detection and Cloud Services
- B) Automated deployment and server Virtualization
- C) Automated provisioning and autonomic maintenance
- D) Automated restoring and server configuration

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You are a Process Master. The Development team has multiple well-working Deployment Pipelines, of which they are very proud. You have your doubts about the multiple Deployment Pipelines.

Which action should you take?

- A) Listen to the reason why the Development team has multiple pipelines. Multiple pipelines may exist, when there is a good reason for it.
- B) Review the operational rules of each individual pipeline with the Development team. Pipelines that have acceptable rules may be kept.
- C) Watch what happens. When the Development team develops satisfactory products, there is no need to increase pressure on them and decrease velocity.
- D) Work with the team to understand the potential problems multiple pipelines can cause and focus on the need for a single Deployment Pipeline.

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As a DevOps consultant, you have been hired by a large corporation to perform an assessment and a plan to fix their Continuous Integration (CI) process and tools that are being used by their 3 distributed Development teams. These teams are located in New Delhi, India (GMT + 5 1/2), Liverpool, Great Britain (GMT) and Dallas, US (GMT - 6). All of them work from 9AM to 5PM.

In order to achieve continuous progress on each developed solution, distributed teams from each of the three centers works on the same solution to cover more hours of each day. Because of this setup, there is a small two hours of overlapping working hours between US and Great Britain and another two hours between Great Britain and India.

You have found that each team uses Continuous Integration (CI). Each team understands its importance and has developed internal tools in each center to facilitate CI.

Each team has its own local set of tools and Version Control system. They do CI locally and send the committed code branch to the other centers at the end of their shift. Due to Work-Life Balance policies, lights out is enforced at 17:10 local time in each building.

Their individual efforts and initiatives are not paying off: all teams lack speed, lack quick bug detection, and use quick fixes.

What is the **best** solution to make sure that the CI process achieves the desired results?

- A) Use of a distributed Version Control system, Point of not Check-In policies and Check-In reversion policies.
- B) Use of a local team only policy that enforces that each individual solution gets developed within one center.
- C) Use of a Point of not Check-In policy and a distributed standup meeting at noon GMT to sync up.
- D) Use of a state of the art Continuous Integration system suited for distributed Development teams.

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Company X-AppGo is interested in integrating all applications through a single database, since it would be too expensive for X-AppGo to change their current application's architecture.

The challenge they face is that changes made on specific database objects, which multiple applications depend on, breaks some applications' functionality, while it works for applications that need the updated changes made to the database objects.

1. Test changes in an orchestrated environment, in which they set up a staging database that resembles the characteristics of a production database.
2. Keep a registry of which applications use which database objects.
3. Enable applications to work with multiple versions of the central database, so the database can be migrated independently of the applications it depends on.
4. Work with the teams maintaining the other applications, to agree and coordinate which changes can be made to the database objects and what applications it impacts.

Which actions should X-AppGo take?

- A)** 1, 2 & 3. Coordinating with other teams will take too much time.
- B)** 1, 2 & 4. Multiple versions of the central database endangers data integrity.
- C)** 1, 2, 3 & 4. All described actions would benefit X-AppGo, within budget.
- D)** 2, 3 & 4. Tests in an orchestrated environment are not the same as in production.

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AppAtoZ has been growing at phenomenal rates in developing and deploying mobile applications to the iPhone and Android platforms. The Development teams for this startup have experienced tremendous pressures in deploying rapid enhancements to their current mobile applications on an aggressive timeline. They have been working on average 60 hours per week over the last 6 months.

Leadership has been reluctant to hire more assistance, and is more concerned about increasing revenue while reducing operational and development costs. In the recent months there has been an increased rate of employee absenteeism and employees calling in sick and even some employees resigned from AppAtoZ, resulting in increased workloads on current employees. Rehiring and ramp up time of a new employee does not alleviate the work pressures in an expedient manner for the Development team to work at a high level of performance.

What would be long term strategies to consider to address employee burnout and stress?

- A)**
 - Have the development team members take a time out
 - Contract developers for managing the increased development workload at peak periods of the year
 - Have developers reach out for professional mental help as needed

- B)**
 - Have the development team members take a time out
 - Have leadership and development identify all factors in the work environment that might be contributing to burnout
 - Develop a plan to address them

- C)**
 - Fire the leadership team, because they are incapable
 - Hire a more competent leadership team that knows how to create a work-life balance and culture that is sustainable and realistic
 - Provide the opportunity for the development team to take time to find their balance

- D)**
 - Add a mix of permanent and contract employees to the team to better manage the workload
 - Have leadership and Development identify factors in the work environment that contribute to burnout
 - Develop a plan to address them

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There is a new member in your team: Lisa. You hired her for her commitment, passion and critical thinking, because you think she will help the team to reflect on opportunities for improvement and to renew the drive to achieve new levels of performance.

After the first two meetings of her with the team, you start to receive complaints from the other team members about her behavior, such as: she interrupts the seniors, questioning their proposals; she is rude and self-absorbed; she does not seem to understand how much effort it has taken the team to get where they are now.

You know she is trying to help and feels pressure to show the team she can be a valuable member. Most of the complaints are coming from senior men and you know this might be influencing this conflict, considering their different working culture and attitudes.

What is the **best** thing you can do in order to help generate trust and empathy between Lisa and the team?

- A) Coach Lisa to develop her listening skills, avoid interrupting others and reflect on her ideas.
- B) Coach Lisa to respect senior people and avoid questioning their proposals or ways.
- C) Congratulate Lisa on being straightforward and honest and encourage her to continue to challenge the team.
- D) Have a team meeting to discuss the complaints openly, because a good team should have no secrets.

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What are specific characteristics that an Effective DevOps culture needs to have to be successful within an organization?

1. Technology enablement
2. Effective communication
3. Empathy and trust
4. Humane staffing and resources

- A) 1 & 2
- B) 1, 2 & 3
- C) 2 & 3
- D) 2, 3 & 4

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You work in a start-up company that creates a very successful app for dog-owners, which allows them to find a dog-sitter for a day. Currently, many of the company's practices are in a start-up stage.

Your CEO put in place a plan to drive faster growth of customers, because she is negotiating with a large new partner. She asks you to recommend what to do with testing.

Currently, you have a manual process in place for acceptance testing. So far, this has worked very well for your company.

What should you recommend?

- A) Ask the Development team to create new tests for Operations
- B) Development should write automated tests with Operations
- C) Keep the manual tests, because they have worked well so far
- D) Wait until you know how to create value in the new context

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You work in a DevOps team. You are a developer. For a certain build, you would like to discuss risks and security measures with an Operations team member. However, when you walk over to them, all of the Operations team members tell you they are busy.

In order to get time from one of them, you need to ask your supervisor, to ask the supervisor of the Operations team to schedule a meeting with you.

Although this has been standard protocol for years, you believe that this process is tedious. You recognize that if you believe something is tedious, that there is something going on that is **not** DevOps; a so-called DevOps anti-pattern.

Which DevOps anti-pattern is this and how should you solve it?

- A) **Blame Culture.** Clearly, the Operations team must stop blaming Development for asking for time. Once they have been trained to do so, this problem is solved.
- B) **Human Error.** You should ask your supervisor to coach the other supervisor in making fewer errors of judgment when you ask for time, to solve this problem.
- C) **Root Cause Analysis.** You can solve this by just stopping to look for a cause of the behavior from the Operations team members and start friendly competition.
- D) **Silos.** You can change this by ensuring easy collaboration between teams or making two cross-functional teams, instead of keeping the two teams separate.

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Your company currently uses Scrum as their development process. As a DevOps expert, you are asked to present to management if a DevOps approach would be beneficial.

What would be the **most** appropriate explanation about the impact of DevOps?

- A) It will help them to achieve a certification.
- B) It will **not** provide better outcomes than Scrum.
- C) It will support business outcomes directly.
- D) It will support Development to deliver faster.

37 / 50

Your company sells an online back-up service to its customers. Now, one of the customers has asked to implement new features in your service. They want the new features within a week, or they will seek business elsewhere.

You believe that the new features are important and you know the Development team can build it quickly. However, you encounter the following problems:

- You experience unexplained failures in the production environment.
- Your team becomes uneasy when you have to deploy.
- You believe that you need a large team to manage the environment configuration.
- If the production environment goes down, it takes a long time to get it back up.

What is your **main** problem and how should you solve it?

- A) You deploy buggy code. You should solve this by increasing understanding of the deployment process, increasing collaboration and work in a more disciplined manner.
- B) Your testing strategy is not effective. You should solve this by automating tests and increasing collaboration between testers and the rest of the team.
- C) Your Continuous Integration process is not managed properly. You should solve this by speeding up automated tests and the Commit stage and increase understanding of the Continuous Integration process.
- D) You have poor Configuration Management. You should solve this by increasing collaboration between Development and Operations, increasing monitoring and logging, and virtualization.

38 / 50

The S Corporation, a medium sized automobile parts supplier, signs a new partnership to supply a large company, T Motors Corporation, with automobile parts, which amounts to almost 60% of their total sales.

The board meets to discuss the new partnership. T Motors Corporation demands that they change the way of delivery to Just-in-Time delivery, or they will stop doing business with S Corporation. S Corporation would not survive this loss of business, so there is a sense of urgency to change to Just-in-Time. This change must happen within 6 months, so there are 5 months at most to prepare.

You are asked to set a time-box length for iterations and a release frequency for this scenario.

What is the **best** way to do this?

- A) You ask your team to work for a short trial period in the new DevOps way. This helps you determine their velocity. You set a time-box and number of releases based on the information you have from the trial period.
- B) You do not specify the number of iterations or the time-box exactly. Instead, you instruct the team to have as many releases in a day as possible. This ensures that you have the shortest iteration time-box possible.
- C) You look at the speed of business and determine the right speed for providing IT services. This leads you to a recommendation of number of iterations and length of time-box that matches the business needs.
- D) You set the number of releases to 12, so that you have a new release every 2 weeks during the time that you have available for delivery. You follow the recommendations of the Scrum Guide and set the time-box to 1 month.

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The Sales department of MC Corporation has asked if the service you are developing could include the commitment of increasing the number of unique visitors to the website and improving the click-through rate.

With a claim like this, the relative market position of MC Corporation becomes stronger, compared to their competitors. In order to realize the needs of the Sales department, you need a focus that is different from conventional methods.

What should be the **main** focus in the planning, requirements and design phases to address this commitment better?

- A) A review of the activities in planning and design phases, to ensure you can construct a pull system.
- B) The architecture design for the (micro)service, because DevOps cannot work without good architecture.
- C) The Cloud infrastructure, because all services in DevOps will be implemented in the Cloud.
- D) The Service Level Requirements (SLR) and the Service Level Agreement (SLA), because these are always most important.

40 / 50

You have been hired to lead the new IT department of a mid-sized business. The former IT department was only responsible for Software Development. The IT Operations function was under the direction of the COO that opted to outsource most of Operations to a well-known top outsourcer several years ago.

The IT staff, both internal and outsourced, are all professional and committed to the quality of their deliverables. However, the results are far from business needs and expectations. In addition, when things go wrong, which happens often, they all point fingers and distrust each other. When downtime occurs, everyone blames the outsourcing party.

Management wants to put a stop to this, by creating a new IT department that takes full responsibility for their actions, updates the technology and really supports the business needs. They want to introduce DevOps. A growth mindset is needed, which requires a cultural shift.

Which strategy helps **best** to instill the DevOps mindset?

- A) Develop your niche, enhance the team style, and fire people that cannot stop blaming others
- B) Develop your niche, recognize your strengths, progress and plan to end the outsourcing
- C) Develop your working style, enhance the team style, and coach the team towards a blameless culture
- D) Develop your working style, learn the fundamentals, and put under-performers under review and coaching

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Just like Agile and Lean, DevOps focuses on light-weight processes. It is still important to write a Project Charter or project scope, however short it may be. The best way of doing that, is to sit down with the entire team and write it together.

What is the **best** reason to write a project scope together?

- A) To ensure that all the team has the same definition of success for the project
- B) To show the supervisor that the team has understood what they should do next
- C) To test if the Development team can work well together with the Operations team
- D) To write down all the User Stories and other requirements from the customer

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Version Control is the most obvious tool in Configuration Management and is just the first step to support an organization's Configuration Management strategy.

What are two other **key aspects** that a good Configuration Management strategy will have?

- A)**
 - It can make an incremental change to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy specific internal audit requirements.
- B)**
 - It can make an incremental change to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy all compliance regulations subject to my organization.
- C)**
 - It can make only weekly scheduled changes to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy specific internal audit requirements.
- D)**
 - It can make only weekly scheduled changes to any of the individual items and deploy the change to any, and all, of my environments.
 - It can satisfy all compliance regulations subject to my organization.

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Many organizations fully depend on IT services and software products to keep the organization running.

Why does DevOps fit the current software development process so well?

- A)** DevOps focuses on Just-in-Time, so that new features that are build are never late for a release.
- B)** DevOps helps to reduce cycle time through the use of frequent releases, delivering high-quality software and services.
- C)** DevOps increases the total number of features released to keep up with the increased customer demand.
- D)** DevOps reduces the number of supervisors needed, cutting expensive managers from Development teams.

44 / 50

A CIO assigns her most reliable employee Em, who is a Scrum Master, to a project: The Development team is preparing to build their first Deployment Pipeline.

Em has confidence in the good intentions and spontaneity of the Development team, but would like them to become more disciplined. In addition, there should be a higher release frequency, so Em wants the Development team to implement more frequent releases.

One of the team members states: "The most important thing about this new Deployment Pipeline is automating the test process. We should start with how to automate the tests we do that are necessary for this process."

Is this statement correct?

- A) No, this is not correct. Achieving single-piece-flow and a solid deployment process should be of highest priority and then automation of testing.
- B) No, this is not correct. Instead of automating the testing process, the Deployment Pipeline should first be automated and fully mature.
- C) Yes, this is correct. Automating the testing process is critical for efficiency. It is the first thing to consider when building the Deployment Pipeline.
- D) Yes, this is correct. By focusing on creating automated tests for the process you overcome problems that you may encounter later.

45 / 50

Company X-AppGo is interested in identifying what is the **best** starting strategy to make their application more interchangeable and reusable.

X-AppGo wants the strategy to change to:

- divide development into smaller and more valuable chunks
- design and maintain software with clear delineation of responsibilities
- limit the impact of changes
- make it easier to understand and change the code base.
- provide freedom for optimizing the build and deployment process

Which strategy will **best** support these goals?

- A) Hide new functionality from the customer until it is completely finished
- B) Make changes incrementally as a series of individual small releasable changes
- C) Use branch by abstraction to make large-scale changes to the code base
- D) Use components to decouple parts of applications that change at different rates

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You want to achieve the following:

- Reduction of long-term costs
- Quicker identification of defects
- Better collaboration between testers, developers and customers

Which test approach **best** helps you do this?

- A) Automated acceptance testing, because this shortens the feedback loop leading to these effects.
- B) Automated unit testing, because this saves time, creating time for testers to collaborate more.
- C) Manual acceptance testing for every release, because this ensures that you find all defects together.
- D) Unit and component testing, because testers can easily point out each other's mistakes.

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The Operations team wants to implement a new practice. They explain to their team manager why they want to implement this new practice.

What would **not** be a good reason?

- A) The team explains the aim of the practice and the value to the business.
- B) The team explains the benefits and disadvantages of the current practice.
- C) The team explains the Return on Investment of implementing the practice.
- D) The team explains how the new practice works in another company.

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What should testers **avoid** to do as a starting point for their testing database?

- A) Create a copy of the current production dataset via a dump for testing purposes
- B) Create a scaled down dataset that uses the minimum of test data to test expected behavior
- C) Create and manage smaller datasets for specific testing purposes
- D) Create custom datasets by carefully selecting a smaller subset of production data

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Continuous Integration is essential for Effective DevOps. It is as important as using a Version Control system for Development. It enables you to deliver software faster, with fewer bugs and lower costs.

How does Continuous Integration do this?

- A) By following Ji-Koutei-Kanketsu (JKK) and automation, which encourages collaboration between all DevOps team members
- B) By integrating the views of the Development team members with the needs from the Operations team on a daily basis
- C) By streamlining the Deployment Pipeline that keeps codes in working condition all the time and helps detect issues sooner

50 / 50

A small startup is getting well established. In the last two years they saw their client base increasing with 20% every quarter.

They would like to implement DevOps but do not have the budget to hire any extra expertise or new people.

Is it possible to adopt DevOps without hiring a new group of superstar developers?

- A)** Yes, as long as the organization creates clear roles and responsibilities to support the DevOps culture. Doing this will allow the teams to learn on the job.
- B)** Yes, if they create a shared understanding of goals, provide and encourage learning opportunities for the teams, and create a blame free environment.
- C)** No, it will cost too much to disrupt the organizational culture. It is better to wait until it has more revenue before moving to a DevOps culture.
- D)** No, you need a specialized skill set to adopt DevOps. The current team does not have the necessary skills to handle this type of organizational change.