1. Public IP address and Elastic IP address – Which of these statements is NOT correct?
    A. Elastic IP address is released when instance is stopped
    B. Public IP address is released when instance is stopped
    C. Elastic IP address can be reassigned to another instance
    D. Elastic IP address hourly charge applies if it is not used
2. You have developed a web crawler that queries external websites and indexes them. You need to run the crawler in several EC2 instances. What configuration is recommended for these EC2 instances?
    A. Private IP Address and a NAT for outbound queries
    B. Public IP address
    C. Elastic IP address
    D. Private IP address with path to Internet Gateway
3. Total cost of running an EC2 instance consists of:
    A. Data Transfer
    B. Storage
    C. EC2 instance hourly charges
    D. All the above
4. What are advantages of software defined infrastructure that AWS provides?
    A. Allows you to audit infrastructure changes
    B. Ability to version control infrastructure
    C. Automate deployment of resources
    D. All the above
5. What data transfer pricing applies when two instances in the same availability zone communicate using Public or Elastic IP address?
    A. Data transfer is free
    B. Intra Region data transfer pricing applies
    C. Inter Region data transfer pricing applies
    D. Internet data transfer pricing applies
6. You misplaced the private key for the keypair that was used for launching an Amazon Linux EC2 instance. What options do you have?
    A. Download private key from AWS Management Console
    B. Contact AWS Support to retrieve private key
    C. You cannot logon to the instance without matching private key
    D. Use root password that was configured during instance launch
7. There are two EC2 instances in your VPC. Instance 1 must allow traffic only on port 80 and Instance 2 must allow traffic only on port 443. Where will you enforce this policy?
    A. Security Group
    B. Network ACL
    C. Security Group or Network ACL
    D. OS Firewall
8. Which one of these choices about Bastion Host is NOT correct?

A. Improve security posture
B. Reduce attack surface
C. Better auditing and control
D. Improve Fault tolerance

9. You are using bastion host to manage your application EC2 instances. All instances are secured with keypairs. To connect to the application EC2 instance, which option is recommended?
A. You must maintain private keys in bastion host
B. You must use credential forwarding
C. You must temporarily copy private key to bastion host
D. Any of the above would work

10. Your EC2 instances are attached to "WebServer" security group. You added two additional rules to the security group. How do you ensure EC2 instances use the latest changes?
A. Restart instance
B. Stop and Start instance
C. Enable Auto Apply
D. New changes are automatically applied

11. Which one of these choices cannot be used as a source or destination in a security group rule?
A. IPv4 address block
B. IPv6 address block
C. DNS Names
D. Security Group

12. Security group has the following inbound rules: first rule allows Port 80 access from 10.2.50.60/32 and second rule allows Port 80 access from 0.0.0.0/0. What is the net effect?
A. Port 80 access is allowed only from 10.2.5.60/32
B. Port 80 access is allowed from anywhere
C. Port 80 access is not allowed
D. Behavior is undefined

13. You have two rules in a Network ACL:
Rule # 10 allows SSH access from 0.0.0.0/0
Rule #20 denies SSH from 0.0.0.0/0

What is the behavior you would observe?
A. SSH access is denied
B. SSH access is allowed
C. Behavior is undefined
D. Network ACL would not save these rules as it has conflicting policies

14. You need to build a system for supporting high performance cluster computing solution consisting of several instances. These systems closely interact with each other. For best network performance:
A. Deploy all instances in a single AZ
B. Deploy all instances in a single AZ inside same VPC subnet

C. Deploy all instances in a single placement group
D. Deploy all instances across atleast two placement groups

15. If you have an EC2 instance with instance store, you will NOT lose the volume when you:
    A. Stop and Start
    B. Reboot
    C. Resize
    D. Terminate
16. If you have an EC2 instance with Elastic Block Storage (EBS), you CAN lose the volume when you:
    A. Stop and Start
    B. Reboot
    C. Resize
    D. Terminate
17. Who is responsible for updating OS security patches in an EC2 instance?
    A. AWS
    B. Customer
    C. EC2 Service
18. Amazon Machine Images (AMI) are provided by:
    A. Amazon
    B. Third Party Companies
    C. Community
    D. All the above
19. You need to run an application on a single tenant hardware. What EC2 options are available?
    A. Dedicated Host
    B. Dedicated Instance
    C. Baremetal Instance
    D. All the above
20. You are evaluating options for picking EC2 instances to meet the needs of a new application. What possible steps can use to determine the correct EC2 instance type?
    A. Map application needs to instance families and then pick a suitable instance size based on performance/load testing
    B. Use General purpose instance as a starting point and then pick a suitable instance size based on performance/load testing
    C. You can easily resize with AWS. So, choose any instance family/size
21. Your T2 instance is constantly running out of CPU credits. What is NOT a valid option?
    A. Use Unlimited Mode
    B. Use a more powerful instance
    C. Use a fixed performance instance
    D. Purchase more CPU credits
22. With reserved instances, which option is NOT correct:
    A. Capacity reservation when availability zone is specified
    B. Lower cost
    C. Requires 1-year or 3-year commitment

D.  You pay only when instances are running
23. You would like to bring your own license (BYOL) that is tied to physical cores and sockets.  Which EC2 offering is NOT suitable for this requirement?
    A.  EC2 Dedicated Host
    B.  EC2 General Purpose
    C.  EC2 Bare metal
24. Amazon Machine Images are centrally available and can be used in any region of your choice
    A.  True
    B.  False
25. Which of these choices is NOT a valid reason for launching instances across multiple availability zones in a region?
    A.  Protect from instance failures
    B.  Protect from availability zone failures
    C.  Phased upgrade of application software
    D.  Improve network performance between instances

Answers:

1.  A – Only Public IP address is released when instance is stopped.  Elastic IP address stays with the instance until Elastic IP is released or reassigned to another instance
2.  B – Public IP address is sufficient, and these instances should be placed in a public subnet. Elastic IP address is not required for this scenario as instances are primarily making outbound calls.  Private IP address and NAT would also work; however, it involves extra hop at NAT and extra cost of NAT.  Private IP Address with Internet Gateway will not work as as instances need Public IP address to directly talk to Internet Gateway.
3.  D – EC2 instance pricing has two components – one is the instance cost that is based on instance type, size and how it was purchased. Second aspect to pricing depends on what the instance uses – it is based on storage, data transfer, burstable instance unlimited mode, elastic IPs
4.  D – Every resource in AWS can be managed through service specific APIs.
5.  B – Inside an availability zone if instances use Private IP for communication, then Data transfer is free.  Otherwise, intra-region transfer fee applies.  Instances (private or public or elastic IP) communicating across availability zones is assessed intra-region transfer charges.
6.  C –  If you use AWS generated keypair, you can download the keypair only at time of creation. AWS does not keep your private key.  If you lost the private key, you cannot logon to the EC2 instance. Other users who were granted access to the instance can still logon with their keys.  It is possible for administrative users on that instance to grant access to a new keypair.
7.  A – You can enforce instance specific firewall policies using Security Group.  Network ACL is at subnet level and applies the same rules for all instances in the subnet. OS Firewall is not needed and security group should be used.
8.  D – Bastion Host does not improve fault tolerance. Benefits of bastion host are improved security posture, reduced attack surface, better visibility, auditing and control
9.  B – You should keep your private keys in a secure location that only you can access.  Private keys must never be stored in a bastion host.  Use appropriate credential forwarding solution to connect to your instances
10. D – Security Group changes are automatically applied to the attached EC2 instances.

11. C – DNS names cannot be used in a security group.  You can refer another security group or refer itself.  You can also put IPv4 and IPv6 based source and destination
12. B – Security Group evaluates all rules and applies the rule appropriate for the traffic.  In this case, access is allowed from any IPv4 source.
13. B – Network ACL evaluates rules by rule number starting from lowest numbered rule.  The first rule that matches the traffic is applied. In this case, rule 10 applies to all traffic and rule 20 is never evaluated.
14. C - Instances in the Placement group have low latency high throughput connectivity
15. B – Reboot is the only operation you can perform without the risk of losing your instance storage.  When you stop, resize or terminate, you will lose your instance storage
16. D – Instances with Elastic Block Storage volume can be stopped and restarted, rebooted and resized.  When you terminate an instance, EBS volume is deleted if DeleteOnTermination attribute is True (default for root volume).  If DeleteOnTermination is False (default for non-root volume), EBS volume is not deleted. Ref: https://aws.amazon.com/premiumsupport/knowledge-center/deleteontermination-ebs/
17. B – Under Shared Responsibility Model, Customer has full control of the instance and is responsible for OS level patching of the instance
18. D – AMI as provided by Amazon, Third Party Companies and Community.  You may incur additional charges when you use third party AMIs.  You must use AMIs only from a trusted source
19. D – Dedicated hardware is used when you select dedicated host or dedicated instance or baremetal instances.  All other options share hardware (multi-tenant)
20. A – AWS recommends that you first map it an appropriate family and try various instance sizes and types.
21. D - Application Workload is more than available compute capacity of a burstable instance.  You can turn-on unlimited mode support or move to a more powerful instance or use a fixed performance instance instead of burstable instance.  You cannot purchase CPU Credits
22. D – With reservation, you must pay whether you have running instance or not. Reservation offers substantial discount over on-demand pricing, provides capacity reservation when you specify availability zone in the reservation and requires a 1 year or 3 year commitment
23. B – BYOL is supported on dedicated hosts and bare metal.
24. False - AMIs are region specific.  Amazon and third party AMIs may be available in one or more regions.  You would need to find region specific AMIs and use them.  If you build your own AMIs, you can copy them over to other regions
25. D – Multi-AZ deployment is recommended as it protects from instance failures, availability zone failures and gives you flexibility when upgrading your application.  You can upgrade application software in one AZ, test the impact and upgrade systems in other AZs.  To improve network performance, you would need to use network optimized instances or use placement groups.