DPC questions asked during various interviews for CIG/PPEG

1. Explain MAIS?

2. Explain in-house and External fabrication handling in MAIS software?

3. Are you using any sensors on the component to capture fabrication process details automatically?

4. Suppose many external vendors send various specification for their for their component and how do you filter out wrong ones using ontology or semantic?

5. Are you using any of the automated process in ISRO for screening external vendors? Which algorithm can best fit this process?

6. Did wanna cry affected ISAC?

7. How did you protect it?

8. MAIS is operational since 2014, did you measure any quantitative change (say number of days improved) in the fabrication process?

9. Which is the best intranet website among ISRO centre websites?

10. How to transfer and display High resolution JPG image on mobile?

11. How to do data analytics for your automation software? Technically, how to setup?

12. Which is the biggest challenge do you face in S/W?

13. Which technology are you using for your software development?

1. How to protect from malicious data/code placed in options field of TCP header ?  
   2. What are the processes for Business Process Management and how to use workflow for them ?  
   3. Which is the parameter to be tuned to improve performance of a website when it is not responding at all due to heavy load ?  
   4. In Bhuvan website, how to monitor who has accessed how many times a particular location within the image data of GIS ?  
   5. What would you like to do in future from professional career point of view ?  
   6. What is RSS,Web 2.0, Proxy Server,Reverse Proxy Server, Workflow?  
   7. What is the difference between IPv4 and IPv6, HTTP and HTTPS ?  
   8. Even though you are securing your network through Router, why do you use firewall ?  
   9. How do you say that your security protection is better than a general Internet security setup ?  
   10. Why not are you using Reverse Proxy ?  
   11. What is OS hardening ?
2. Why did you choose AES Encryption for capturing final grade? Latest encryption algorithm that you know?
3. How did you know about Lamda-probe, Apache Jmeter, Jhat and Jconsole profiling tools?
4. How do you improve performance of an application which is already developed?
5. What is knowledgebase system? Is it similar to Wikipedia?
6. What could be the alternative method if the opensource FreeTTS was not available?
7. Real time example of n-tier architecture system
8. What are Unicode fonts? Can Unicode be used for any language? Is it necessary for the developer to know the language for which he is using Unicode?
9. If the approver for approving the notice is not available. And I need to post & display a notice immediately, how do I achieve this?
10. How frequently you synchronize SAMWAD database with COWAA database? What happens if one the database is down?
11. What are the security measures undertaken for development of APAR scheduler?
12. Difference between SNMPv1, SNMPv2 and SNMPv3.

What is the difference between LAN and Intranet? How do I make my LAN to an Intranet?  
What is UML? Why did you select UML for your projects?  
What are the diagrams in UML?  
What are the control flow diagrams are available in UML?  
what is the difference between state chart and finite automata?  
What are the automata models exists? explain?  
What is Vidyuthchitra? What are the features?  
What is digital signature? What is analog signature? What is digitized signature?  
Your write-up says paperless, is it less paper? or paper less?  
Is it possible to use XML like HTMLs in web pages?  
What is the difference between http & https?  
What is SSL? Which layer it is in?  
Which is deterministic ethernet or token ring?  
What is the web server program in Linux? What is the mail software available in linux?  
What is cloud computing? What is the difference between virtualisation and cloud?  
What is software life cycle model? Which one you are using?  
Why do use iterative model? What is Agile model? Why are you not using agile?  
You said agile doesn't use much documentation, still how it is successfully used to develop software? What are the specialized Agile models?  
How you are re-using your code?  
What is Component Based architecture?  
How do you re-use your components as mentioned in CBA?  
What is SOA? Give an example? How do you differentiate parameter passing and SOA?  
What is 12207? Are you using for your projects?  
Did you use any workflow tools? Why didn't you use?  
How do you remove redundancies in table? What is it called?  
What are the normal forms you are using? explain all normal forms?  
What is the difference between Swing and AWT?  
How do you develop web pages? Are you using any tools? Why are you not using Adobe Flex?  
Are you using any IDE for software development?  
What is CSMA/CD?  
What is the MIL standard bus we are using in our satellite?  
What is Firewall? How it is used in ISAC?  
What is TCP/IP? What is TCP/IP Specification?  
What is SPAM? How do you find SPAM?  
what is 3-tier architecture? Explain Login module in 3-tier architecture?  
How did you name vidyuthchitra? What are the features? How do other centre people can access vidyuthchitra?  
You said 2000 computers in office, what is the best way of utiltising those after office hours?  
Why grid computing model, can't we use in cloud model to utilise those computers? why

1)Can you name ONE Specific drawback of Sun Solaris OS ( Ans: Support to 3rd Party tools... ?) ?  
2)What is a patch?, What are different types of Patches.?, What is Difference between a Patch and a Code revision?  
3)How will you ensure the systems performance from degrading , when you add a new application to the Server ?  
4)What are the different types of Maintenance ? Preventive , Corrective and which is the other ?  
5)How do you monitor your Systems/ Servers performance ? When you have a large number of systems or servers to be monitored which tools you will use?  
6)What contingency plans are built by you to minimise the down time?, What is Cluster ? Have you configured ?  What is RAID, Explain RAID 5, What is RAID 6?  
7)Can you pl. tell me the different OS , you have worked on, and the advantages and disadvantages of each?  
8)What is the software development platform you have used? , Can you name some Open source Web Development tools?  
9)What is time synchronisation? What is its importance ? How is time synchronizaion done in ACS , e-Procurement? , What is NTP? Does any group in ISAC maintains  the timing services?  
10)what is 3 tier / n-tier Architecture ? Can you map your Sandesh and cowaa to the Architecture models?  
11)In which tier  the  business logic stored in cowaa? What are the advantages of it?  
12)what is e-procurement ? How the Tamper proofing is achieved in e-procurement Bids ?  
13)What is Hashing ? , What is Encryption / Decryption? , What is PKI?  
14)Do you do any backend correction to Cowaa Database? , How can you Prevent doing this ?

1.   What security risks are introduced by the use of Network Monitoring.  
2.   Cell switching and Packet switching.  
3.   Silly window Syndrome and Brouter concept.  
4.   Describe the command to setup route in router.  
5.   What is cross-linked Cluster.  
6.   How can you measure the performance of an IP-Link.  
7.   Difference between Vector and Link-State Protocol.  
8.   Channel Utilization and Load Balancing done in IGRP.  
9.   What information about a peer would you need to establish a VPN.  
10.  Explain the convergence of Network.  
11.  Types of clusters and which one would you use to improve your  
     web server Performance.  
12.  JIT ,  CPU & GPU Comparison , Aspect Oriented programming .  
13.  Advantages of OOP over Functional Programming.  
14.  How can you say you are being hacked ? WebSense Server ?  
15.  What is Test Log ?  
16.  Types of EJB and the reason for not using it in your software.  
17.  Para Virtualization and Issues of semantic web.  
18.  What is Casual Analysis and Resolution.  
19.  What are the software needed for setting up a Private cloud in your  
     Organization.  
20.  Login/Passward is what ? (Authorization  OR Authentication ).  
21.  What are the Denial of Service attacks and how to prevent ?  
22.  What are the Challenges you faced while designing your software.  
23.  What is statistical Database ? How it can be compromised ?  
24.  How complex is your software and how to measure it ?  
25.  4GT Tools.

1. What is Digital Signature ?
2. Role of Open Network Tools
3. Ideas of Network Security System
4. Latest IDEAS algorithm you have used ?
5. Performance of Security – simulation
6. Any comparison you have done ?
7. SMTP/POP ? Other protocol ?
8. How do you implement Authentication / Authorization
9. ARP ? Transmission type used for ARP in Ipv4 / Ipv6
10. I have a large file, a symmetric key and an asymmetric key ? Which one do you use for encryption of file and why ?
11. What are 2 modes of VPN ?
12. 2 protocols used in IPSec VPN
13. Firewall. How it works ?
14. How many ports in firewall ? What are they ?
15. What is UTM ? What are the facilities it provides for installation, configuration ?
16. External traffic kinds of log analyzer, frequency and kind of report
17. Prevention of threats how ? (IPS)
18. If IPS prevents a threat ? How do you get alert ?
19. Mail access over Internet , what are the threats ?
20. 2-factor authentication, what is the other factor ?
21. Database ACID properties explain ?
22. How atomicity is achieved in databases ?
23. If i begin a transaction, i dont give commit, what happens ? Autocommit ?
24. Which languages you have used ?
25. How you implemented, commit/rollback in code ?
26. Firewall policy IP based or service based ?
27. Guidelines for web application security ? Examples ?
28. Which Database you have used ?

 What vibration Info system does?

 What is tested?

 How vibration tests are conducted?

 How vibration is measured?

 What are the sensors used?

 What is the unit of vibration?

 How test/sensor info fed in system?

 What structural info system does?

 How you have designed database for structural info system?

 A question whose answer was normalization !

 What are the normal forms?

 Is there a database in RDMS which is not in 1NF

 Example of database not in 1NF

 How requirements are gathered?

 How will you plan for network requirements for applications.

 Which workflow engine you have used?

 Design tools UML etc.....

 How workflow is validated before coding?

 What is authentication and authorization?

 What is client and server model?

 what is business logic?

 How business logic is implemented?

 Where is business logic in server?

 What server you have used?

 Types of database

 What is a relational database

 Which database server was used?

 What a web server does?

 Example of Network database

 How you have implemented business logic in application

 Have you used network database?

* 1. How do you map software requirements to a requirements model?  
     2. How do you convert use cases into Class diagram?  
     3. Difference between Web-based and web-enabled software?  
     4. What is cloud computing?  
     5. Technologies used in pooling resources for implementing private cloud?  
     6. What are the components used in the Work Flow?  
     7. What are the some important contents of ISRO's IT Security Policy?  
     8. DOs and Donots of Internet use policy?  
     9. If 1MB is sent to 10 ISACmail users, At the ISACmail server it is stored as what size?  
     10. What is required to migrate from http to https?  
     11. What are the advantages of migrating to https?  
     12. What is webcasting  
     13. Technologies used in webcasting?  
     14. What is multicasting?  
     15. Advantages of multicasting?  
     16. What is UTM?  
     17. Different types of firewall?  
     18. What are some important configurations w.r.t our Internet security?

How will you show non functional requirements in   use cases  and SRS .  
  
  Use case components used in your work.  
  
  what is Reflections in Java  and   where it is used with example.  
  
  What is bytecode in java and  what is intermediate code .  
  
  Have you worked on compiler Design and explain how byte code is generated.  
  
  What is Instruction virtualization .  
  
  Can you run a FORTRAN program on JVM.  What are the changes you need for  
  that.  
  
  Advantages of Component Based Development and how you have used it in your  
  code.  
  
  Why you have decided to use Agile Model as SDLC.  
  
  Show different steps of Agile Modeling in diagram and tell the manifesto of  
  this model.  
  
 If you want to connect your recruitment portal to Bank gateway for payment  
 , what are the changes you need in your program.  
  
 What IEEE standard you have used in your software.  
  
 What is your Application Server standard (??). In what way you can stop  
 automatic generation of Applications (Captha).  
  
 Is there any way to filter garbage applications from entering into the  
 database.  
  
 How will you measure Agility in your SDLC.  
  
 What is  Facelet,  did you use it.  
  
 How did you ensure Security(IP Locking) features in your web applications .

1.) What is the equivalence relation for RDBMS in mathematics ?  
     2.) What is the data structure used by MySQL for storing data ?  
     3.) What is B-tree and B+ tree?  
     4.) Do you know the traversal techniques in B-tree ?  
     5.) Explain what is DFS and BFS ?  
     6.) What is clustered database ? How Concurreny control is achieved in MySQL ?  
     7.) Example of linear datastructure and non-linear data structure (i said array and tree)  
     8.) How null is stored in database ? (Said as bitmap vector, But not right, was expecting some value either 0 or 1)  
     9.) Types of software design architecture (i said client-server, 1-tier and n-tier architecture, then used MVC, not satisfied and told me it is wrong. Then i told to be design pattern, even that is not right)  
   10.) What is ER diagram ? why it is used ? Give an example  
   11.) Necessity of Gamma testing ?  
   12.) Techniques for improving business process.  
   13.) Three levels of authentication ? Example for three factor authentication ? Order how you implement  
   14.) How do you establish connectivity from JAVA to database ? (used jdbc)  
   15.) How do you manage connection in java (connection pooling)  
   16.) How do you develop a https application ? explain the procedure  
   17.) what is the compression algorithm used my winzip or 7-zip and othe compression software ? How the compression is acheived in these software ?

1. What is NIST standard for cloud and 5 properties of cloud? Written paper

2. Cloud 3 service models and what to be outsourced?

3 what u mean by high availability... How do you measure it? Answered: (total time -down

time)/total time. Up time don’t give high availability since system may be up but not

serving like the in maintenance mode etc...He was satisfied.

4. How do you measure network performance... I answered throughput packet loss errors

QoS parameters but he wanted name of the matrix also

5. KVM kernel VM what another KVM Answered: Keyboard Video mouse

6. Types of Hypervisors explain difference...told bare metal type1 and hosted hypervisor

type 2...difference And kernel details ring -1 and ring 0...was fully satisfied.

7. What cold vs hot backup...What to be backed up in database for hot backup

Answered redo logs, archive mode control files, data files etc...Expected question so I had

prepared it

8. Point in time recovery, mean time to recover etc

...

9. Node lock licenses

10. Workstation vs. server difference in hardware

11. Thin client vs. zero client hardware difference...where to use zero client.

12. How you are securing your storage. Explained authentication and encryption

support...various security styles of Qtrees. SAN ismore secure point to point...without

TCP/IP...Switched Fabric..NCA. Etc.

13. What is Stuxnet ----complex worm took control of Siemens software controlling Iranian

nuclear facility... May be by Israel....

14. What is zoning in fibre channel....explained SAN disk on auto detection on multiple

hosts...so zoning like VLAN in TCP/IP...

15. Hashing

16. Salt where used

17. Where is password stored in Linux? Told no where only hash value...in /etc/passwd or

shadow files

18. Explain this hash authentication procedure

19. What is PLM? Compare with PDM

20. Encryption used in zero clients: Told: NSA suite B, 192 bit Elliptic curve, AES-128-

GCM with Salsa20-256-Round12 etc.. or RSA with AES, PCoIP has its own local host CA

21. Database latest versions...name etc Answered: Oracle 11gR2, Oracle12c etc.

22. 120 systems...how you are taking logs etc...Answered: central syslog, various opr

daemons, On NFS file systems, Own developed tools...etc

23. What is distributed network?

24. You are using LDAP... Is there any standard...

answered X.500 Active directory services...LDAP can be used using openLDAP AD or MS

AD.

25. Explain RAID6

1.What encryption/cryptography used in WPA WiFi n/w(TKIP).

2.What provides hardness is behind ECC PKC cryptography.

3.How you generated Self signed Digital certificate and HTTPS implementation in TOMCAT.

4.Why you have used RSA not DSA algorithm in implementing Digital Signature.

5.Why Extreme Programming is called Extreme with example (Code review with pair programming)

6.Why you have chosen Agile SDLC not conventional SDLC, also features of AGILE, manifesto etc, different types .

7.What s/w metrics you used in Design and use of concept of Cohesion and Coupling ,and what is Temporal cohesion.

8.What is SMI and CMMI and its use and similarity ( one is product maturity and other is process maturity).

9.How you separated automatic application generation from candidates typed applications (CAPTCHA) and what is Turing Machine .

10.what is Structural Complexity and how you calculate it.

11.What is Test Specification and define Specificity .

12.How you design Test Cases and what is your Test Strategies ,Smoke testing etc.

13.What is Code Smell and Code Refactoring.

14.Finite state machine and State chart diagram difference ,can we use interchangeably.

15. Use of BPEL in SOA , and difference between Component based and Service oriented software development.

16.What is Hyper calls in Para virtualization ,types of CPU virtualization.

18.Differences between Cloud and Utility computing and security issues and solution possible in cloud computing.

19.What is Thread based and Use based Testing. How Object Oriented Unit testing is different from Unit Testing in Conventional method.

20.What is OCP and DIP principles in component design.

21.Architectural Styles and Architectural Patterns differences . What you have used. How Framework is different than these. What you have used.

22.What is your Customization Index in web based software.

23.What security measures you have taken to secure your web site.

24.How you have implemented two phase authentication in Screening .

25.Write a code to implement the GUI contents (Login Window ,Frames, layout etc).

26.Write a small Action Class in Java to implement password comparison.

27.one question relating to Architecture and Design which I could not understand still.

1. Explain is layered architecture of FTP ?  
   2) What architecture you followed to design FTP ?  
   3) How FTP works ?  
   4) What is OS and what are the functions of OS ?  
   5) How the printer is represented in OS?  
   6) How your print indent system represented in layered architecture ?  
   7) What is VPN ? What are the protocols used in VPN?  
   8) What is difference between ip4 and ipv6 ? tell me at least 10 major difference apart from address space ?  
   10) What is database replication ?  
   11) How database replication achieved ? what are the methods to achieve replication?   
   12) How https request gets establishes ? is it symmetric are asymmetric encryption ?   
   13) What is difference between function and sub\_routine ?  
   14) What is virtual network ? what is virtual means in network ?  
   15) What is HPC ? (High Performance Computing)   
   16) What is egps ?  
   17) What NKN ?  
   18) What is grate in COSPAR session management software
2. 1) Tell me the protocols used each of the  layer in the OSI model.  
         2) What CSMA/CD?  Explain?  
         3) How collisions are getting detected in CSMA/CD?  
         4) what is DNS?  why it is required?  
         5) Can you map OSI layers with TCP model?  
         6) What is protocol?  
         7) what is the difference between router, bridge, gateway?  
         8) what is the difference between hub,switch?  
         9) Tell me one email security policy implemented is ISRO/DOS?  
       10) What is the difference between Thin Client and Thick Client?  
       11) What is hypervisor?  
       12) What are the methods of implementation of virtualization? Give examples for each.  
       13) What is data security, how it is implemented in ISRO/DOS?  
       14) what is struxnet?  
       15) How is it propogated?  
       16) what is the architecture of your LAN implementation?  
       17) What are the different types of LAN implementations?  
       18) How LOOP Dectection works in Switches?  
       19) How STP is implemented, explain?

1.What is the Problem with  EGPS ? Why there are So many issues?  
2.What is ERP ? Are there any ERP systems in ISRO?  
3.What is s/w qaulity? how do you tell your s/w is a quality s/w?  
4.what are the Quality Matrics of s/w? give examples of metrics.  
5.What is difference between Realtime system,Online system? can you give some examples  
6.Online transaction Processing Systems?  
7.What is BIG data ,What are the Characterstics ?,Give Example of BIG data system / tools.  
8.Can a Vendor submit tender on EGPS without a digital Certificate?, What is digital Signature?  
9.What is DOI?  
10.Which is the One ISRO Procurement process Functionality NOT covered in EGPS ?  
11.What is Falut rejection Ratio of ACS cards ?  
12.Is your software Platform independent? how do you say?  
13.How do you  update the the data in Mobile?  
14.What is testing?  
15.Can you say that all the error in your software are eliminated and it is 100% correct ?.  
16.When you can say stop testing of your s/w?  
17.Which tool/s you have used to asses VA of software?