QUESTION BANK

CCTV

UP POLICE RADIO TRAINING CENTRE
MAHANAGAR, LUCKNOW

CCTV QUESTION BANK

UP POLICE RADIO TRAINING CENTER
MAHANAGAR, LUCKNOW

पर्यवेक्षण, डिज़ाइन एवं सम्पादन

सत्य प्रकाश सिंह,

उपमहानिरीक्षक (पुलिस दूरसंचार), एम0सी0आर0 / प्रशिक्षण

सहयोग

अजय कुमार सोनकर

प्र0परि0यॉ0 / 1049

INDEX

SHORT ANSWER TYPE QUESTIONS ON CCTV CAMERA

1. सीसीटीवी कैमरे का मुख्य कार्य क्या है ?
सीसीटीवी कैमरे का मुख्य कार्य सजीव चित्रण को संकेत में परिवर्तित कर, मानीटर पर प्रदर्शित करना है।

2. सीसीटीवी कैमरों के प्रकार का वर्णन कीजिये ?
सीसीटीवी कैमरों को उनकी गुणवत्ता एवं कार्य के आधार पर निम्नानुसार वर्गीकृत किया गया है–
   - मैनुअल सीसीटीवी कैमरा
   - सेमी आटोमेटिक सीसीटीवी कैमरा
   - आटोडोम सीसीटीवी कैमरा
   - आई0पी0 सीसीटीवी कैमरा
   - बुलेट सीसीटीवी कैमरा
   - ड्रोन सीसीटीवी कैमरा

3. सीसीटीवी कैमरे में प्रयुक्त होने वाली पावर सप्लाई का वर्णन कीजिये ?
सीसीटीवी को मुख्यतः एसएमपीएस(स्विच मोड पॉवर सप्लाई) पावर सप्लाई, जिनका इनपुट 220 वोल्ट एसी एवं आउटपुट 12 वोल्ट डीसी अथवा 24 वोल्ट डीसी हो, द्वारा संचालित किया जाता है।

4. लेन्स से प्राप्त सिग्नल को कैमरा किस तरह वीडियो केबिल के माध्यम से मानीटर तक पहुॅचाता है ?
लेन्स से प्राप्त सिग्नल के प्रकाश को, कैमरे में लगे इमेजर द्वारा इलेक्ट्रिक एनर्जी में परिवर्तित कर, क्रमबद्ध तरीके से वीडियो केबिल के माध्यम से मानीटर तक पहुचाता है।

5. मैनुअल एवं आटोडोम सीसीटीवी कैमरा में क्या भिन्नता है ?
मैनुअल सीसीटीवी कैमरें को जहॉ, जिस स्थिति में अधिष्ठापित कर दिया जाता है, उसके द्वारा एक फिक्स व्यू ही मानीटर पर प्रदर्शित होता है। इसके विपरीत आटोडोम सीसीटीवी कैमरे को कही भी अधिष्ठापित करने के उपरान्त भी ज्वास्टिक की सहायता से उसके फोकस को घुमाकर, अलग–अलग एंगिल से व्यू को प्रदर्शित किया जाता है।

6. पिक्सल क्या है ?
मानीटर पर प्रदर्शित होने वाले चित्र, भिन्न–भिन्न रंगों एवं छोटे–छोटे बिन्दुओं से मिलकर बना होता है, इन्हीं बिन्दुओं को पिक्सल कहा जाता है।

7. आटोडोम कैमरा में आई0डी0 का क्या महत्व है ?
अधिक संख्या में आटोडोम कैमरों का एक साथ संचालन करने की स्थिति में, किसी एक कैमरें का व्यू देखने हेतु उस कैमरे की आई0डी0 की आवश्यकता होती है।

8. सीसीटीवी कैमरों में आईडी0 किस तरह निर्धारित करते है ?
सीसीटीवी कैमरों की आई0डी0 निर्धारित करने हेतु प्रत्येक कम्पनी अपने तरह से कैमरों में स्थान एवं आई0डी0 क्रमांक का निर्धारण करती है।

9. सीसीटीवी कैमरे के प्रयोग करते समय क्या–क्या सावधानिया होनी चाहिए ?
सीसीटीवी कैमरे के प्रयोग करते समय निम्न बातों का ध्यान रखना चाहिए–
   - सीसीटीवी कैमरों को कभी भी विद्युत के खम्भों पर नही अधिष्ठापित करना चाहिए।
   - सीसीटीवी कैमरों को दी जाने वाली सप्लाई को पहले चेक कर लेना चाहिए।
   - डाटा एवं वीडियो केबिल्स को हाईटेंशन लाइन से दूर रखना चाहिए।
   - सभी ज्वाइंट्स पर टेपिंग की जानी चाहिए।

10. PTZ कैमरे से आप क्या समझते है ?
वह कैमरें, जिनमें P-Pan, T-Tilt एवं Z-Zoom की गुणवत्ता हो, उन्हें PTZ कैमरें कहते है।

11. सीसीटीवी का फुल फार्म लिखिए ?
Closed Circuit Television

12. सीसीटीवी सिस्टम को किस–किस स्थानों/अवसरों पर प्रयोग किया जाता हैं ?
सीसीटीवी सिस्टम को वीवीआईपी, मेलों, अर्न्तराष्ट्रीय क्रिकेट मैच इत्यादि स्थानों/अवसरों पर प्रयोग किया जाता है।

13. मैनुअल सीसीटीवी कैमरों के अधिष्ठापन हेतु किन–किन उपकरण/सामान की आवश्यकता होती हैं ?
सीसीटीवी सिस्टम अधिष्ठापन हेतु पर्याप्त संख्या में निम्न उपकरण/सामान की आवश्यकता होती हैं–
- मैनुअल कैमरें
- मानीटर
- व्यू फाइंडर
- डीवीआर
- ट्राईपॉड स्टैण्ड
- आवश्यकतानुसार डाटा एवं वीडियो केबिल
- वोल्टेज स्टेबलाइजर
- आवश्यक टूल्स

14. आटोडोम सीसीटीवी कैमरों के अधिष्ठापन हेतु किन–किन उपकरणो की आवश्यकता होती हैं ?
- आटोडोम कैमरें
- ज्वास्टिक
- मानीटर
- व्यू फाइंडर
- डीवीआर
- ट्राईपॉड स्टैण्ड
- आवश्यकतानुसार डाटा एवं वीडियो केबिल
- वोल्टेज स्टेबलाइजर
- आवश्यक टूल्स

15. सामान्य रूप से बाजार में कितने तरह के कैमरें उपलब्ध हैं ?
आटोमेटिक, फिक्स, आटोडोम एवं आई0पी0 बेस्ड सीसीटीवी कैमरे बाजार में उपलब्ध है।

16. मैनुअल कैमरा/आटोडोम कैमरा में अन्तर एवं उपयोगिता लिखियें ?
- मैनुअल कैमरा एक निश्चित व्यू ही प्रदर्शित कर सकता है, जब कि आटोडोम कैमरों में ज्वास्टिक की सहायता से लेंस को घुमाकर व्यू चेंज किया जा सकता है।
- मैनुअल कैमरों का छोटे एवं बंद स्थानों पर उपयोग करना उचित होता है, जब कि आटोडोम कैमरों का खुले एवं बड़े स्थानों पर उपयोग उचित होता है।

17. सीसीटीवी कैमरे को कार्य करने हेतु दिन के समय कितने प्रकाश की आवश्यकता होती हैं ?
50,000 लक्स

18. कैमरो की रात्रि के समय कितने प्रकाश की आवश्यकता होती हैं ?
0.01 लक्स

19. इन्फ्रारेड कैमरों को रात्रि के समय कितने प्रकाश की आवश्यकता होती हैं ?
.01 लक्स

20. सीसीटीवी कैमरे का उचित वीडियो कम्प्रेशन फार्मेट क्या होना चाहिए ?
सीसीटीवी कैमरों का वीडियो कम्प्रेशन, कैमरों के निर्माता कम्पनी एवं कैमरों के प्रकार पर निर्भर करता है। सामान्तयः निम्न वीडियो कम्प्रेशन का उपयोग किया जाता है–
- H-261
- M-JPEG/M-JPG
- Wavelet
- MPEG/MPG

21. सीसीटीवी अधिष्ठापन के समय किस प्रकार के स्थान का चयन किया जाना चाहिए ?
सीसीटीवी अधिष्ठापन के समय निम्न प्रकार के स्थान का चयन किया जाना चाहिए–

- कैमरें, आब्जेक्ट को भली–भांति कवर कर सके।
- कैमरें ऐसे स्थान पर अधिष्ठापित किये जाने चाहिए, जहॉ आसानी से कोई न पहुॅच सके।
- कैमरें नमीं वाले स्थान अथवा विद्युत के खम्भों पर नही अधिष्ठापित किये जाने चाहिए।
- सीसीटीवी कण्ट्रोल रूम वेदरप्रूफ हो।

22. कैमरे की सुरक्षा के लिए क्या उपाय किया जाता हैं ?
कैमरे सुरक्षित स्थानों पर, अच्छे एवं मजबूती से अधिष्ठापित किये जायें, आवश्कतानुसार सुरक्षा हेतु ड्यूटी लगायी जायें।

23. सीसीटीवी अधिष्ठापन के समय कितने तरह की केबिल की आवश्यकता होती हैं ?
सीसीटीवी अधिष्ठापन के समय तीन प्रकार की केबिल की आवश्कता होती है–

- पावर केबिल
- वीडियो केबिल
- डाटा केबिल

24. सीसीटीवी सिस्टम के उपयोग के बारे में लिखिये ?
आजकल सीसीटीवी कैमरों का उपयोग, अपराध एवं चोरी पर नियंत्रण रखने हेतु सबसे अधिक किया जा रहा है। सामान्तयः शापिंग माल्स, शो–रूम्स, ज्वैलर्स की दुकानों, बैकों, राजकीय संस्थानों, अपार्टमेन्ट इत्यादि स्थानों पर सीसीटीवी सिस्टम का उपयोग किया जा रहा है।

25. सीसीटीवी कैमरें कितने प्रकार के होते है ?
सामान्तयः सीसीटीवी कैमरें निम्न प्रकार के होते है–

- मैनुअल/सेमी आटोमेटिक कैमरा
- फिक्स कैमरा
- आटोडोम कैमरा
- आई0पी0 बेस्ड कैमरा

SHORT ANSWER TYPE QUESTIONS ON DIGITAL VIDEO RECORDER(DVR)

26. सीसीटीवी सिस्टम में कितने तरह के रिकार्डर प्रयोग करते हैं ?
सीसीटीवी सिस्टम में मूलतः निम्न प्रकार के रिकार्डर का प्रयोग करते हैं–
- डीवीआर
- एनवीआर

27. डीवीआर का फुलफार्म लिखिये ?
डिजीटल वीडियो रिकार्डर

28. एन0वी0आर0 किसे कहते है ?
एन0वी0आर0, किसी नेटवर्क के माध्यम से जुड़े सीसीटीवी कैमरों की रिकार्डिंग करता है।

29. वीडियो सिग्नल का स्टोरेज कहॉ होता है ?
वीडियो सिग्नल का स्टोरेज, डी0वी0आर0/एन0वी0आर0 में लगी हार्डडिस्क में होता है।

30. मल्टी प्लक्सर क्या है ?
डी0वी0आर0 के प्रचलन से पूर्व सीसीटीवी की रिकार्डिंग/मूविंग हेतु मल्टी प्लक्सर का प्रयोग किया जाता था। वर्तमान में यह फीचर डी0वी0आर0 में ही उपलब्ध है।

31. स्पाट आउट से क्या सम्बन्ध है ?
स्पाट आउट एक प्रकार का कनेक्टर होता है, जो डी0वी0आर0 में होता है। इस कनेक्टर से कैमरों की मानीटरिंग हेतु मानीटर को जोड़ा जाता है।

32. क्या पीटीजेड कैमरों की रिकार्डिंग डीवीआर से की जा सकती है ?
हॉ, डाटा केबिल को डीवीआर से जोड़कर, पीटीजेड कैमरों की रिकार्डिंग की जा सकती है।

33. शिड्यूल रिकार्डिंग क्या होती है ?
प्रत्येक दिन, सप्ताह अथवा माह में निर्धारित समय की रिकार्डिंग को शिड्यूल रिकार्डिंग कहते है।

34. एन0वी0आर0 में लैन का प्रयोग क्यों किया जाता है ?
एन0वी0आर0 किसी नेटवर्क पर ही कार्य कर सकता है, इसलिये इसमें लैन का प्रयोग किया जाता है।

35. क्या डीवीआर से लॉग का समय जान सकते हैं ?
हॉ, डीवीआर में लॉग शीट स्वतः तैयार होती है, इसे इडिट नही किया जा सकता है।

36. डीवीआर में स्पेशिफिकेशन का क्या सिम्बल हैं ?
डीवीआर में किताब का चित्र, स्पेशिफिकेशन का सिम्बल होता है।

37. डीवीआर में डाटा बैकअप का क्या सिम्बल हैं ?
डीवीआर में सीडी का चित्र, डाटा बैकअप का सिम्बल होता है।

38. रिकार्डर की उपयोगिता का वर्णन कीजिये ?
सीसीटीवी सिस्टम में रिकार्डर की उपयोगिता निम्न प्रकार है–
- महत्वपूर्ण मीटिंग्स/कार्यक्रमों की रिकार्डिंग को कभी भी देखने हेतु।
- अपराध अथवा चोरी आदि की घटना में अपराधी अथवा चोर का पता लगाने हेतु।
- किसी भी घटित घटना के साक्ष्य हेतु।

39. रिकार्डर के लाभ के बारे में लिखिये ?
- घटना/दुघर्टना को कभी भी देखने/दिखाये जाने हेतु।
- महत्वपूर्ण कार्यक्रमों के दृष्टान्त को सुरक्षित रखने हेतु।

40. रिकार्डर में कौन–कौन सी हार्डडिक्स का प्रयोग करते है ?
रिकार्डर में सामान्तयः दो प्रकार की हार्डडिस्क का प्रयोग करते है–
- PATA(Parllel advanced technology attachment) बेस्ड हार्डडिस्क
- SATA(Serial advanced technology attachment) बेस्ड हार्डडिस्क

41. रिकार्डर किस तरह से काम करता है ?
रिकार्डर को सीसीटीवी कैमरे एवं मानीटर के बीच में जोड़ते है तथा रिकार्डिंग को ओवर राइट मोड पर रखते है, जिससे रिकार्डिंग अनवरत होती रहती है। आवश्यकतानुसार, रिकार्डिंग का बैकअप संरक्षित करके अलग रख लिया जाता है।

42. सीसीटीवी सिस्टम में पासवर्ड की आवश्यकता क्यों पड़ती है ?
सीसीटीवी सिस्टम में पासवर्ड लगाये जाने से अनाधिकृत व्यक्ति द्वारा सिस्टम में अनावश्यक छेड़छाड़ अथवा किसी भी महत्वपूर्ण डेटा को डिलीट करने से बचाया जा सकता है।

43. एफ0पी0एस0 से आप क्या समझते है ?
यह प्रदर्शित/रिकार्डिंग किये जाने वाले दृश्य का साइज होता है। इसका फुल फार्म Frame per second होता है।

44. आई0पी0एस0 से आप क्या समझते है ?
यह डीवीआर की रिकार्डिंग स्पीड होती है। इसका फुल फार्म Image per second होता है।

45. रिकार्डिग में एफ0पी0एस0/आई0पी0एस0 का क्या महत्व है ?
रिकार्डिंग में एफ0पी0एस0/आई0पी0एस0 की सही वैल्यू सेट करने से प्रदर्शित होने वाला चित्रण मौलिक रूप से दिखायी देता है, यदि वैल्यू को चेंज कर दिया जाये तो प्रदर्शित होने वाला चित्रण धीमी अथवा तेज गति से प्रदर्शित होने लगेगा।

46. दो या दो से अधिक कैमरों को डीवीआर से कैसे जोडेंगे ?
डीवीआर के 01 एवं 02 इनपुट पोर्ट से कैमरों को कनेक्ट कर देंगे।

47. रियल टाइम रिकार्डिंग क्या होती है ?
25 आई0पी0एस0/एफ0पी0एस0 मानक पर की गयी रिकार्डिंग को रियल टाइम रिकार्डिंग कहते है।

48. डीवीआर से मानीटर को जोड़ने वाले कनेक्टर का नाम बताइये ?
वी0जी0ए0 (Video Graphic Array)

49. क्या डीवीआर से एक से अधिक मानीटरों का प्रयोग कर, मानीटरिंग कर सकते है ?
हॉ, एक वीजीए, दूसरा मेन आउट, तीसरे स्पाट आउट पर जोड़ सकते है।

50. रिकार्डिंग डाटा को किस तरह ट्रांसफर करेंगे तथा कौन–कौन से माध्यम अपनायेंगे ?
रिकार्डिंग डाटा को सीडी, डीवीडी, पेनड्राइव एवं हार्डडिस्क में सीधे ट्रांसफर कर सकते है।

SHORT ANSWER TYPE QUESTIONS ON LENS

51. सीसीटीवी सिस्टम में कितने प्रकार के लेन्स का प्रयोग किया जाता है ?
सीसीटीवी सिस्टम में निम्न प्रकार के लेन्स का प्रयोग किया जाता है–
- मैनुअल लेन्स
- सेमी मैनुअल लेन्स
- आटो लेन्स

52. प्रकाश की इकाई क्या है ?
जूल या लक्स

53. मैनुअल लेन्स एवं सेमी आटो लेन्स में क्या अन्तर हैं ?
मैनअल लेन्स वाले कैमरों में प्रकाश का नियंत्रण सीसीटीवी ऑपरेटर द्वारा किया जाता है, जबकि सेमी आटो लेन्स वाले कैमरें उपलब्ध प्रकाश के अनुसार स्वतः नियंत्रित हो जाते है।

54. फोकस दूरी क्या हैं ?
कैमरें द्वारा दर्शाये जाने वाले चित्र के प्रत्येक भाग को स्पष्ट करने हेतु फोकस दूरी सेट की जाती है।

55. सीसीडी क्या है एवं किस साइज में उपलब्ध हैं ?
सीसीडी(Charged Coupled device) जो कैमरें द्वारा दर्शाये जाने वाले चित्र को इलेक्ट्रिकल सिग्नल में बदलती है। मुख्यतः सीसीडी 1/3" का प्रयोग किया जाता है।

56. CMOS क्या हैं ?
CMOS मुख्यतः एक प्रकार का इमेजर होता है, जिसे Complementary metal oxide semiconductor बेस्ड transister भी कहते है।

57. सी0सी0डी0 एवं सी–मास में अन्तर लिखिए ?
सी0सी0डी0 एवं सी–मास, दोनों इमेजर का कार्य करते है। सी0सी0डी0, लो न्वायस एवं उच्च गुणवत्ता की इमेज दिखाता है, जबकि सी–मास, अत्याधिक न्वायस वाली सामान्य इमेज को दिखाता है।

58. सीसीटीवी सिस्टम में लेन्स की उपयोगिता एवं कार्य का वर्णन कीजिये ?
सीसीटीवी सिस्टम में, चित्र को ग्रहण करने का कार्य लेन्स द्वारा किया जाता है। लेन्स, कैमरें का सबसे महत्वपूर्ण अंश है। लेन्स द्वारा ही प्रकाश की तीवव्रा को नियंत्रित किया जाता है, जिससे चित्र स्पष्ट दिखाई देता है।

59. वाइड एंगेल लेन्स क्या होता है ?
वाइड एंगेल लेन्स का फोकल प्वाइंट, नेचुरल लेन्स के फोकल प्वाइंट से कम होता है।

60. कैमरें में "जूम" शब्द से आप क्या समझते है ?
कैमरें द्वारा दर्शाये जाने वाले चित्र को छोटा या बड़ा करने हेतु जूम का प्रयोग किया जाता है।

61. आटो आइरिस क्या होता है ?
आटो आइरिस, चित्र के प्रकाश की तीवव्रा को स्वतः नियंत्रित करता है।

62. "आइरिस" शब्द से आप क्या समझते है ?
कैमरें द्वारा दर्शाये जाने वाले चित्र में प्रकाश की मात्रा को सेट करने हेतु आईरिस का प्रयोग किया जाता है।

63. मैनुअल आइरिस क्या होता है ?
मैनुअल आईरिस वाले कैमरें द्वारा दर्शाये जाने वाले चित्र में प्रकाश की मात्रा को सीसीटीवी ऑपरेटर द्वारा मैनुअली सेट किया जाता है।

64. लेन्स को कैसे चेक करते है ?
लेन्स को निम्न प्रकार चेक करते है–
- कैमरें का फोकस सही हो रहा है या नही।
- कैमरें द्वारा जूम/वाइड हो रहा है या नही।

- कैमरें का अपरचर पूरा खुल रहा है या नही।

65. D.S.L.R. का फुल फार्म लिखिये ?
Digital Single lens reflector

66. B.N.C. का फुल फार्म लिखिये ?
Beiyonet Neil Conselman Connector

67. W.D.R. का फुल फार्म लिखिये ?
Wide Dynamic Range

68. कैमरें में लेन्स का क्या महत्व है ?
सीसीटीवी सिस्टम में, चित्र को ग्रहण करने का कार्य लेन्स द्वारा किया जाता है। लेन्स, कैमरें का सबसे महत्वपूर्ण अंश है। लेन्स द्वारा ही प्रकाश की तीवत्रा को नियंत्रित किया जाता है, जिससे चित्र स्पष्ट दिखाई देता है।

69. कैमरें में इन्फ्रा–रेड तकनीकी क्या होती है ?
इन्फ्रा–रेड तकनीकी में कैमरें द्वारा पूर्ण अन्धकार में भी चित्र को ग्रहण किया जा सकता है। इस तकनीकी में इन्फ्रारेड एल0ई0डी0 का प्रयोग किया जाता है।

70. कैमरें के लिये फुल सनलाइट कितनी होनी चाहिये ?
लक्स, इससे अधिक होने पर कैमरें में लगी सी0सी0डी0/सी–मास के जलने/खराब होने की सम्भावना हो सकती है।

71. कैमरें में ओवर कास्ट स्काई कितनी होनी चाहिये ?
5000 लक्स

72. कैमरें में आफिस लाइट कितनी होनी चाहिये ?
500 लक्स

73. कैमरें में हॉल–वे/इमरजेंसी लाइट कितनी होनी चाहिये ?
50 लक्स

74. कैमरें में सनसेट लाइट कितनी होनी चाहिये ?
10 लक्स

75. कैमरें में स्ट्रीट लाइट कितनी होनी चाहिये ?
5 लक्स

SHORT ANSWER TYPE QUESTIONS ON JYOSTICK

76. ज्वायस्टिक का प्रयोग क्यों किया जाता है ?
ज्वायस्टिक का प्रयोग, आटोडोम कैमरों में व्यू को अलग–अलग एंगिल से देखने में किया जाता है।

77. ज्वायस्टिक को डीवीआर या जक्शन बाक्स से जोड़ने वाली लीड का नाम बताइयें ?
RJ-45 कनेक्टर लीड

78. ज्वायस्टिक कितने प्रकार की होती है ?
ज्वायस्टिक निम्न प्रकार की होती है–
- डिजीटल
- पैडल
- एनालॉग
- पीसी एनालॉग
- ज्वाय पैड

79. ज्वायस्टिक में कितने वोल्ट की सप्लाई दी जाती हैं ?
12 वोल्ट डीसी

80. क्या ज्वायस्टिक को डीवीआर के माध्यम से भी प्रयोग कर सकते हैं ?
हॉ, ज्वायस्टिक को डीवीआर के माध्यम से प्रयोग कर सकते है।

81. क्या ज्वायस्टिक में पासवर्ड लगाया जा सकता हैं ?
हॉ, ज्वायस्टिक में पासवर्ड लगाया जा सकता है।

82. आटोडोम कैमरों को आटोमूविंग हेतु क्या करते हैं ?
विभिन्न कम्पनियों के आटोडोम कैमरों में आटोमूविंग की अलग–अलग सेटिंग होती है। सम्बन्धित कैमरें के ऑपरेटिंग मैनुअल के अनुसार सेटिंग करके आटोमूविंग कर सकते है।

83. प्रीसेट रिकार्डिंग मोड और पैटर्न रिकार्डिंग मोड में क्या अन्तर है ?
प्रीसेट रिकार्डिंग मोड से एक ही स्थान की रिकार्डिंग की जा सकती है, जबकि पैटर्न रिकार्डिंग मोड में स्थान बदल कर रिकार्डिंग की जा सकती है।

84. कैमरे से ज्वायस्टिक को जोड़ने वाली लीड का नाम बताइये ?
RJ-45 कनेक्टर केबिल

85. ज्वायस्टिक की उपयोगिता बताइयें ?
ज्वायस्टिक से कैमरें में लगे लेन्स का घुमाकर व्यू को अलग–अलग एंगिल से देखा जा सकता है।

86. ज्वास्टिक को कैसे चेक करते है ?
ज्वायस्टिक को कैमरें से जोड़कर उसे चेक कर सकते है।

87. डिजीटल की–बोर्ड से आप क्या समझते है ?
डिजीटल की–बोर्ड का प्रयोग डीवीआर के साथ किया जाता है। इसके द्वारा कैमरें एवं डीवीआर दोनों को ऑपरेट किया जा सकता है।

88. ज्वास्टिक में आई–डी को कैसे चेंज करते है ?
ज्वायस्टिक द्वारा फास्ट एड्रेस का प्रयोग करके कैमरे की आई0डी0 को चेंज किया जा सकता है।

89. क्या ज्वास्टिक में फोकस/आईरिस नियंत्रण की व्यवस्था होती है ?
हॉ, ज्वास्टिक में फोकस/आईरिस नियंत्रण की व्यवस्था होती है।

90. यदि सीसीटीवी सिस्टम में ज्वास्टिक न लगाया जाय तो क्या होगा ?
सीसीटीवी सिस्टम में यदि ज्वायस्टिक का प्रयोग न किया जाय तो कैमरे से एक ही स्थान का व्यू देखा जा सकता है।

91. क्या ज्वास्टिक में आई0डी0 के लिये स्क्रीन लगी होती है ?
हॉ, ज्वास्टिक में आई0डी0 के लिये स्क्रीन लगी होती है।

92. ज्वास्टिक में दी जाने वाली सप्लाई कितनी होती है ?
12 वोल्ट डीसी

93. ज्वास्टिक को वॉल माउंट बोर्ड किस केबिल से कनेक्ट करते है ?
RJ-45 केबिल

94. एक ज्वास्टिक से कितने कैमरों को कण्ट्रोल किया जा सकता है ?
यह ज्वास्टिक एवं डीवीआर के स्पेशीफिकेशन पर निर्भर करता है।

95. क्या ज्वास्टिक के स्थान पर माउस से कैमरों को कण्ट्रोल किया जा सकता है ?
हॉ, डीवीआर और कैमरे की compatibility के अनुसार कण्ट्रोल किया जा सकता है।

96. माउस को दूसरे ज्वास्टिक के रूप में हम कैसे प्रयोग कर सकते है ?
डीवीआर से माउस को जोड़कर दूसरे ज्वास्टिक के रूप में प्रयोग कर सकते है।

97. ज्वास्टिक का अविष्कारक कौन थे ?
Esnault-Pelterie(French pilot)

98. क्या एक साथ कई ज्वास्टिक का प्रयोग किया जा सकता है ?
हॉ, कई डीवीआर के साथ प्रयोग किया जा सकता है।

99. क्या ज्वास्टिक को यूएसबी पोर्ट से कनेक्ट कर सकते है ?
हॉ, ज्वास्टिक को यूएसबी पोर्ट से कनेक्ट कर सकते है।

100. बाजार में मुख्य रुप से उपलब्ध ज्वास्टिक कम्पनियों के नाम लिखिये ?
बाजार में मुख्य रुप से निम्न कम्पनियों के ज्वास्टिक उपलब्ध है–

- पेल्को
- बोच
- पैनासोनिक
- सैमसंग
- हनीवेल

MISCELLANEOUS SHORT ANSWER TYPE QUESTIONS

101. **What is Pixel?**

The pixel (a word invented from "picture element") is the basic unit of programmable color on a computer display or in a computer image. Think of it as a logical - rather than a physical -unit. The physical size of a pixel depends on how you've set the resolution for the display screen. If you've set the display to its maximum resolution, the physical size of a pixel will equal the physical size of the dot-pitch (let's just call it the dot size) of the display. If, however, you've set the resolution to something less than the maximum resolution, a pixel will be larger than the physical size of the screen's dot (that is, a pixel will use more than one dot).

102. **What is Resolution**?

Resolution is the number of Pixels(individual points of color) contained on a display monitor, expressed in terms of the number of pixels on the horizontal axis and the number on the vertical axis. The sharpness of the image on a display depends on the resolution and the size of the monitor. The same pixel resolution will be sharper on a smaller monitor and gradually lose sharpness on larger monitors because the same numbers of pixels are being spread out over a larger number of inches.

103. **Give short note About C.C.D.?**

A **charge-coupled device** (**C.C.D.**) is a device for the movement of electrical charge; usually from within the device to an area where the charge can be manipulated, The CCD is a major piece of technology in digital imaging. In a CCD image sensor, pixels are represented by MOS capacitors. These capacitors are biased above the threshold for inversion when image acquisition begins, allowing the conversion of incoming photons into electron charges at the semiconductor-oxide interface; the CCD is then used to read out these charges.

104. **Give short note About C-MOS image sensor?**

A CMOS imaging chip is a type of active pixel sensor made using the CMOS semiconductor process. Extra circuitry next to each photo sensor converts the light energy to a voltage. Additional circuitry on the chip may be included to convert the voltage to digital data.

105. **Give short note about Types of camera lenses?**

- **Fix Lens: -** A photographic lens for which the focus is not adjustable is called a **fixed-focus lens** or sometimes **focus-free**. The focus is set at the time of lens design, and remains fixed. It is usually set to the hyper focal distance, so that the depth of field ranges all the way down from half that distance to infinity, which is acceptable for most cameras used for capturing images of humans or objects larger than a meter.
- **Manual Lens: -** Iris, Zoom Open / close, Focus, control by manually**.**
- **Semi manual lens: -** Only iris level controlled by camera and rest is control by manually.
- **Auto lens: -** Iris and Focus level controlled automatically.

106. **What are CCTV systems?**

Closed-circuit systems are designed to provide video to specified viewers. One closed-circuit system that is primarily designed for surveillance purposes is generally called a closed-circuit television or CCTV system. CCTV is used in a wide variety of applications which include security, disaster prevention, energy and manpower saving, sales promotion and information services, production management, industrial measurement, medical care, education and military fields.

107. **How many types of CCTV cameras are in use in U.P.Police?**

- **Manual Camera:** - All controls of camera used manually
- **Semi Manual Camera**: - This type of camera use by manually only Iris is controlled automatically.

- **Auto dome Camera**: - PTZ or Autodome camera controlled by remotely from distance, equipped with helpful features like, Auto tracking, Pattern, Preset, ECT.
- **IP Based Camera**: - An IP camera is a networked digital video camera that transmits data over a Fast Ethernet link. IP cameras (also called "network cameras") are most often used for surveillance a digitized and networked version of closed-circuit television (CCTV).

108. **How many types of storage devices are used to preserve videos?**

- **V.C.R.(Video Cassette Recorder)-** This device uses cassettes to preserve video signals.
- **D.V.R.(Digital Video Recorder)-** This device uses hard disc, Pan Drive, CD, DVD, to save video recording , audio or log in digital form .

109. **How many types of Monitors do you know?**

- **CRT Based Monitor: -** The **cathode ray tube** (**CRT**) is a vacuum tube containing one or more electron guns, and phosphorescent screen used to view images. It has a means to accelerate and deflect the electron beam(s) onto the screen to create the images.
- **LCD Monitor: - LCD** is a flat-panel display or electronic visual display that uses the light modulating properties of **Liquid crystals.**
- **LED Monitor:** - It's used an **Array of light - emitting diodes** as Pixels for display. Their brightness allows them to be used in as lamination of picture.

110. **Write a short note about NVR.**

A network video recorder (**NVR**) is a software program that records video in a digital format to a disk drive, USB Flash Drive, SD memory card or other mass storage device. An NVR contains no dedicated video capture hardware. However, the software is typically run on a dedicated device, usually with an embedded operating system. Alternatively, to help support increased functionality and serviceability, standard Linux and Windows operating systems are used with standard Intel processors and video management software. An NVR is typically deployed in an IP video surveillance system. Network video recorders are distinct from digital video recorder (DVD) as their input is from a network rather than a direct connection to a video capture card or tuner. Video on a D.V.R. is encoded and processed at the D.V.R., while video on an NVR is encoded and processed at the camera, then streamed to the NVR for storage or remote viewing. Additional processing may be done at the NVR, such as further compression or tagging with Meta data. Hybrid NVR/D.V.R. surveillance systems exist which incorporate functions of both NVR and D.V.R.; these are considered a form of NVR.

111. **What is spot monitor?**

D.V.R. allows to **Spot monitor for** monitoring the live camera Channel from distance. Viewing Camera channel can be selected by D.V.R. as required.

112. **What do you mean by logging list of DVR?**

The System log provides a list of events by description, date, and time. Log can be viewed after logging the system. The system log icon is like open book.

113. **What shows the system information icon?**

The system information option displays system and hard disk information.

114. **What's the difference between Hardware Compression and Software Compression?**

Hardware Compression: Both Capturing Video Signal and Compressing Video Signal are done by DSP(Digital Signal Processing) chipset integrated on DVR Board. It doesn't need the computer's CPU to do this work. It's low cost of CPU and RAM resources. In this system the computer CPU's task focus on answering network request, streaming the video/audio to network and saving recorded data to local hard disk.

Software Compression: The DVR Board only capture video signal but doesn't compress it, it is the computer CPU and RAM to do this compression work. It's high cost of CPU and RAM

resources. In this system the computer CPU and RAM are often overloaded. It is easier to crash than hardware compression system.

115. **How should to choose the correct camera for my application?**
This in general is a comparatively difficult decision. Many aspects of the installation must be taken into consideration in order to obtain the correct performance that meets your requirements. A high-resolution camera should be considered where greater detail of scene is required. E.g. Color 460 TVL, Monochrome 570 TVL. Choosing a more sensitive camera will improve reproduction in poorly lit areas. The sensitivity of a camera is indicated by the minimum amount of light in order for the camera to produce a usable picture. e.g. Color 1.0 Lux at F1.2. A conventional camera produces a pale backdrop when an object is shot against a bright background. BLC(Back Light Compensation) will counter strong light sources retaining picture quality. Concentrated light sources directed towards the camera (e.g. car head lamps) can be inverted by an optional peak white inverter or an eclipse function. This has the effect of bringing detail to areas and making an object clear, that would otherwise be shadowed.

116. **How do I set up a camera and lens for use in Low Light conditions without infrared lighting and with Infrared Lighting?**
When you have to set the back focus of a Color camera for low light conditions, you should place an ND1 (Neutral Density) filter in front of the lens. When you have to set back focus of a Mono camera for low light conditions you should place an ND3 (Neutral Density) filter in front of the lens. When setting the back focus of a Mono camera fitted with I/R lighting for low light conditions you should place an IRP (Infra- Red Pass) filter in front of the lens.

117. **What to do if I am unable to obtain a sharp image after installing a new camera and lens?**
The most common resolve to this is to ensure that both camera and lens are the same mount i.e. 'CS' mount lens on a 'CS' mount camera and a 'C' mount lens on a 'C' camera.

118. **Why do I have a clear sharp picture during the day and it is out of focus at night?**
This is due to the depth of field changing as the light conditions change and can be easily overcome by following set procedures.

119. **When can I use a manual iris lens?**
A general rule of thumb is only to use a MI lens in an internal application. This is because you are reliant on the electronic circuitry of the camera compensating for light changes in the scene and this is not able to compensate to the same degree as that of an Auto Iris lens.

120. **How do back focus a camera fitted with a fixed focal length lens?**
This is achieved by following five simple steps.

- Set the physical focus of the lens to infinity (clockwise from the front).
- Aim the camera at the subject to be viewed.
- Release the camera back focus mechanism.
- Adjust the back focus to obtain the best possible picture.
- Secure the cameras back focus mechanism.

121. **What is the maximum length I can pull my cameras away from the DVR?**
Using RG59 Coaxial cable, the maximum distance is approx 600 feet away from the DVR and upto 1,000 feet using RG6 Coax. For longer distances, a video amplifier should be used.

122. **How do I connect an Auto Iris lens to a camera?**
This is usually performed by a simple plug-in connection to the rear or side of the camera. However you should always refer to the relevant camera handbook.

123. **What is the difference between Auto Iris and Direct Drive Lenses?**
An Auto Iris lens is one that automatically adjusts its iris for changes in the scene lighting levels. The motor that opens and closes the iris is driven by an Amplifier that processes a

small electronic signal changing with the light level. A Direct Drive 'DD' lens does not have this Amplifier and can only operate with a camera fitted with one. A camera specification will indicate the available output options.

124. **Does the 'f' stop matter when choosing a lens?**

Yes, lenses are usually specified as having a minimum and maximum 'f' stop rating; the 'f' stop is a measure of how efficiently the lens allows light from the scene, to pass through the lens and onto the camera CCD sensor. The maximum aperture (when the lens is fully open), is the minimum 'f' stop number and the minimum aperture, (just before the lens completely closes) is the maximum 'f' stop number. A low minimum 'f' stop number means that the lens can pass more light through during dark conditions, which will produce better pictures at night. A high maximum 'f' stop number may be necessary where there is a high level of light or reflection. This will prevent the camera 'whiting out'.

125. **How do I Back focus a camera fitted with a ZOOM Lens?**

This can be achieved by following these steps.

- Set the lens to full wide angle view.
- Set the physical focus of the lens to infinity (clockwise viewed from the front).
- Aim the camera at an object at least 30 Meters away.
- Release the camera back focus mechanism.
- Adjust the back focus to obtain optimum clarity.
- Zoom the lens in to full telephoto and focus on a nearby object.
- Keep this object in view as you slowly zoom out and if all is set correctly it should remain in focus (track). Secure the back focus mechanism.

126. **How do I set up an Auto Iris lens?**

An Auto Iris lens has two 'pots' on the side commonly marked ALC (Automatic level control) and LEVEL. The ALC control has settings of PEAK and AVERAGE (P+A). The LEVEL control has HIGH and LOW settings 'H+L'. The adjustment allows control over any bright areas in the scene e.g. sun reflection through windows, street lighting etc. There are two settings PEAK and AVERAGE. If set to PEAK, bright areas in the scene are taken into account more, reducing the contrast in the surrounding area. This allows more detail to be seen in the bright areas.

127. **What size monitor should I be using?**

The correct size monitor is dependent on its use e.g. the number of images to be displayed at any given time, the viewing distance and the available space.

128. **What is Video Termination?**

This is the end of line resistance of any CCTV system and this should be set to 75 ohm. Should you encounter any double image or ghosting this is more often than not caused by two pieces of equipment in series both having the 75-ohm switch set on. Only the last piece of equipment should be set at 75-ohm.

129. **What camera housing should I use and at what IP Rating?**

Camera housings come in various shapes and sizes. With regard to the correct IP rating protection, this will range from dust and water ingress. This system is governed by a number of European and British standards. IP55 Protected against dust - limited ingress.

130. **What is the difference between simplex and duplex multiplexers?**

Video multiplexers are designed to allow recording of several cameras onto one recorder.

Simplex- A simplex machine is best suited to applications where recording only is the priority. Simplex machines cannot display multi screen images (i.e. quad, 9 way and 16 way split) while in the record mode.

Duplex -If an operator is monitoring the system (i.e. security guard) then a duplex machine is more suitable. A duplex machine can provide screen splits and user selectable images

without affecting what is recorded onto the recorder. Should you use two recorders, it becomes possible to record and playback simultaneously.

131. **Do I have to use a Regulated Power Supply?**
In general the answer is yes. Most manufacturers will recommend the use of such power supplies as standard with their equipment. You should always consult the manufacturer's specifications prior to the connection of any power supply.

132. **What is the maximum distance I can run 12vdc when powering a camera?**
Some manufacturers may recommend that their cameras can be run over (X) distance with (Y) cable. This however should still be considered as a general guide. Cable conductor size and installation route must also be taken into consideration. If you are unsure, we would recommend that you contact Technical Support for guidance.

133. **What is Digital CCTV?**
Digital CCTV, or Digital Closed Circuit Television, is the technology used in modern surveillance systems. Traditional ,VCR, CCTV pictures are sent via cctv cameras to a closed area, e.g. a CCTV Monitor, this type of CCTV is likely to produce lower resolution images and have to be displayed via cabling in the workplace. Modern Digital CCTV Systems can be operated remotely via a pc or mobile phone, can monitor various locations and can be monitored from wherever there is internet or GPRS Access.

134. **What is Analogue CCTV?**
In the past, all CCTV Cameras were attached to a Multiplexor (A device that will split multiple camera pictures onto an individual CCTV Monitor). The Multiplexor then sends the analogue camera images to a Time Lapse Video Player. These are special CCTV recording devices that can record up to 960 hours of footage on a three hour Video Cassette. This method is still used today for simple CCTV installations but the quality of recording is usually very low (Frame Per 12.8 Seconds).

135. **What is a ground loop?**
An AC current can be produced in a cable. This is usually caused by parts of the system being fed from different electrical sources resulting in different earth potentials at each end. The result is interference on the signal, usually in the form of dark bands across the monitor and on occasion tearing in the top third of the image.

136. **How can I eliminate ground loop faults?**
This can be achieved in a number of ways, the easiest of which is the installation of a Ground Loop Isolation Transformer. This is best installed at the monitor or recording end of the system.

137. **What is the correct level for a video picture?**
The correct level is 1 volt peak to peak. This can only be accurately set either with an oscilloscope or with a video level meter.

138. **What is CCTV? Why is there a need for CCTV?**
CCTV is the abbreviation for Closed Circuit Television. It is a visual surveillance technology. System designed to monitor the desired surrounding environment and its activities. In recent Years, the role of CCTV has grown to unprecedented levels. Originally used to deter crime and 'anti-social behavior' CCTV now a more important role, assisting the police and security organizations in their investigations. CCTV is fast becoming an integral plan for crime control policies and social behaviour control. It has become an icon for security and its presence is guaranteed to generate a sense of security and welcomed by public.

139. **What is NTSC and PAL system?**

NTSC stands for National Television Standards Committee. It is the colour video signal television Standard: 525 lines, 60Hz PAL stands for Phase Alternate Line. It is the colour video signal television standard: 625 lines, 50Hz.

140. **How does focal length affect angle of view?**

Focal length is measured in mm. A short focal length (e.g. 3.6mm) represents a wide angle of View while a long focal length (16mm) represents a narrow angle of view.

141. **What is Auto and Manual Iris?**

Auto Iris lenses are lenses that are able to change the size of their iris in accordance to its Surrounding light condition. When the camera mechanism detect that there is insufficient light, the lens will automatically enlarge its iris to accommodate more light in so it could focus properly and produce images that are not too bright or too dark to see. It will do the reverse when it's too bright. For outdoor applications, where the light conditions are constantly changing, auto iris lenses are needed. For indoor applications, where light conditions are constant most of the time, a manual Iris lens Would be sufficient for the application. Manual iris lenses provide an effective solution for Applications where the surrounding environment and its lighting conditions are relatively stable. It gives the best performance when used with cameras that are equipped with electronic shutters.

142. **What is Day and Night Camera?**

Day and night cameras are cameras that are able to provide video surveillance even at low levels of illumination. A day and night camera displays a full colour image during the day time but produces monochrome (Black and white) video images at times when the lighting is poor. The camera has a device that is sensitive to the surrounding light conditions and switches the camera between colour and black & white modes automatically. It is designed to increase its light sensitivity in poor lighting conditions and at the same time reduce noise level in the images. However, the day and night camera will fail if the illumination (Lux) level is too low.

143. **What are OSD IN cameras?**

OSD (On Screen Display) cameras have a menu system within the camera assembly that can be accessed in order to set functions such as Iris levels, AGC on/off and most features of standard and advanced cameras

144. **What features should I look for in a CCTV DVR?**

All DVRs are different. There are various factors to consider when purchasing a DVR besides price comparison. The basic and most important factors to consider are

- Number of cameras supported, i.e. number of video inputs
- Recording at how many frames per second (fps)
- Compression technology used
- Hard disk space, number of hard disk it can support
- Network connection / remote viewing capability
- Motion detection or scheduling recording functions
- Video backup means, by USB, CD, DVD or other means.
- Easy and comprehensive search capabilities

145. **What is the term frames per second (fps)?**

Frames per second (fps) relates to how many pictures the DVR can record in a second. Real time recording is about 30 fps. To calculate the fps per camera, take the total fps that the system could offer and divide it by the number of video inputs. For example, a 100 fps DVR with 4 video inputs would give u 100/4, 25fps per camera.

146. **What is image compression and what are the types of compression formats used?**
CCTV DVR converts analog images to digital and save them in hard disk. Image compression plays an important role of improving transmission as well as reducing storage size. There are various formats of image compression in the market. Among which, JPEG and MPEG format of compression are the most widely used formats in the market currently. The major difference between JPEG and MPEG is in compression techniques. JPEG processes images by compressing one by one still pictures but MJPEG compresses images sequence by sequence. JPEG compression method can be divided into JPEG, M-JPEG, wavelet and etc. MPEG compression method can be divided into H.263, MPEG, MPEG-II and MPEG-IV.

147. **Do I need 30 frames per second (fps) recording on all security cameras?**
CCTV surveillance systems are generally intended to capture images and not to make movie quality videos. Recording rates of as low as 1 or 2 frames will be sufficient to capture critical moments for example, a criminal act in progress. Even at low frame rates, recording on motion, the compressed video files produced per day are huge in size. Therefore, it is not advisable to set all cameras to be recording at a high frames per second rate.

148. **What is the difference between a simplex DVR and a duplex DVR?**
A simplex DVR only performs one task at a time. The DVR cannot playback recorded videos when it is recording, it can only do so when the recording is stopped. A duplex DVR is able to playback recorded footages without having to stop recording. Recording is uninterrupted and taking place concurrently as you playback the recorded videos.

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CCTV is the abbreviation for Closed Circuit Television. It is a visual surveillance technology system designed to monitor the desired surrounding environment and its activities. In recent years, the role of CCTV has grown to unprecedented levels. Originally used to deter crime and' anti-social behavior' such as minor offenses like littering, urinating in public and etc., CCTV now plays a more important role, assisting the police and security organizations in their investigations. Britain is currently the leading nation in implementing CCTV, most British towns and cities are moving to CCTV surveillance in public areas, housing estates, car parks and public facilities. Other countries are quickly following. North America, Australia and some European countries are installing the cameras in urban environments which a few years ago would most likely have rejected the technology in Singapore, an extensive round-the-clock CCTV surveillance system covers majority of the highways and roads island wide, providing 24 hours visual surveillance on traffic situations. With the system, authorities are able to response faster to traffic situations. In recent years, there is a vast increase in demand for CCTV applications. Thousands of cameras are installed island wide. They can be found in various places such as shopping malls, boutiques, bus terminals, MRT stations, underpasses, Automatic Teller Machines ATM, sensitive government buildings, private estates and even extending its application to red-light districts, in an attempt to monitor and deter illegal activities.

150. **Can CCTV prevent crime?**
CCTV acts as deterrence rather than prevention to crime. CCTV deters 'opportunistic' crime, where people take advantage of a situation on the spur of the moment. The cameras are also creating a vastly increased rate of conviction after crimes are detected. Virtually everyone caught committing an offense on camera pleads guilty nowadays. Once people know they have been videotaped, they admit the offense immediately.

151. **Will the Camera's work anywhere in the World?**
The output of CCTV cameras is composite video. US, Japan and Canada uses NTSC system whereas most Asia and European countries uses PAL system.

152. **What is Auto and Manual Iris?**

Auto Iris lenses are lenses that are able to change the size of their iris in accordance to its surrounding light condition. When the camera mechanism detect that there is insufficient light, the lens will automatically enlarge its iris to accommodate more light in so it could focus properly and produce images that are not too bright or too dark to see. It will do the reverse when it's too bright. For outdoor applications, where the light conditions are constantly changing, auto iris lenses are needed. For indoor applications, where light conditions are constant most of the time, a manual Iris lens would be sufficient for the application. Manual iris lenses provide an effective solution for applications where the surrounding environment and its lighting conditions are relatively stable. It gives the best performance when used with cameras that are equipped with electronic shutters.

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154. **What is IR camera?**

IR is the abbreviation for Infrared. IR cameras have image sensors that are designed to sense and process infrared light emitted from IR LEDs. Similar to Day & Night cameras, IR cameras turned to monochrome mode when illumination falls below a certain Lux. An IR camera differs from a Day & Night camera in which an IR camera is able to capture video images in absolute darkness with the help of infrared light source.

155. **What is C and CS mounts?**

It refers to the 2 different standards of CCTV camera lens mount. The difference between the two is the distance between the lens and the image sensor. C mount: 17.5 mm, CS mounts: 12.5 mm. Cameras and lenses nowadays are generally CS mount rather than C mount. With CS mount cameras, both types of lenses can be used. However, the C mount lens requires an additional 5 mm ring to be fitted between the camera and lens to achieve a focused image. With C mount cameras it is not possible to use CS mount lenses as it is not physically possible to mount the lens close enough to the image sense to achieve a focused image.

156. **What is CCTV DVR?**

DVR is abbreviation for Digital Video Recorder, it main function is to compress images recorded from the cameras into a particular image compression format and store them.

157. **What is the difference between a PC-based DVR and an Embedded DVR?**

A PC-based digital video recorder is basically a personal computer that has been modified with hardware and software to work as a DVR. An embedded digital video recorder is a video recording machine that has been manufactured specifically to record video input from CCTV cameras. In embedded DVRs there is typically one circuit board with software burned into its processor chip. There used to be significant differences in features between the PC-based and the embedded machines. But with recent advancements in the embedded DVR technologies the differences are becoming less. The advantage of an embedded digital video recorder is that they are extremely stable and reliable as they consist of fewer circuitry parts. The software is often written in basic machine code or Linux code which tends to be more stable. The advantages of the PC-based digital video recorders is that they are easier to interact with because you use the on-screen menus and a mouse

(as opposed to embedded which you interact with more like a VCR - via buttons). And you tend to have more features and options on the PC-based machines.

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All DVRs are different. There are various factors to consider when purchasing a DVR besides price comparison. The basic and most important factors to consider are

- Number of cameras supported, i.e. number of video inputs
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CCTV surveillance systems are generally intended to capture images and not to make movie quality videos. Recording rates of as low as 1 or 2 frames will be sufficient to capture critical moments for example, a criminal act in progress. Even at low frame rates, recording on motion, the compressed video files produced per day are huge in size. Therefore, it is not advisable to set all cameras to be recording at a high frames per second rate.

162. **How many days/weeks of recording can be stored?**

This depends on the size of your hard drive, the number of cameras, which recording mode (on motion, on alarm, continuously, etc.), what type of video compression you are using, quality of resolution used. Please contact our technical support directly for assistance on the calculation.

163. **What is the difference between a simplex DVR and a duplex DVR?**

A simplex DVR only performs one task at a time. The DVR cannot playback recorded videos when it is recording, it can only do so when the recording is stopped. A duplex DVR is able to playback recorded footages without having to stop recording. Recording is uninterrupted and taking place concurrently as you playback the recorded videos.

164. **How do I keep the CCTV cameras recording if there is a power cut?**

Battery back-up makes sure the security cameras can keep running if there is a power cut. It also acts as a surge protector and regulates power supply to the hardware reducing the risk of damage from electrical spikes. A UPS is a cost effective addition to your CCTV set-up.

165. **How do I get a high resolution image from my CCTV camera?**

The resolution of an analogue security camera is usually represented by how many horizontal TV lines (TVL) it has. A 420 TVL camera is low resolution of 500X582 pixels whereas a 600 TVL (795X596 pixels) or more will provide a higher resolution image. However it is important to know that the maximum viewing and recording resolution of an analogue surveillance system is determined by the DVR not the camera. If your DVR only records at CIF resolution (352×288 pixels) connecting a 600TVL camera will not improve the resolution as the DVR is only recording at the lower CIF resolution. For true high resolution images we recommend looking at a HDCVI or ideally IP systems.

166. **What does the Lux measurement of the camera mean?**

Lux relates the energy per unit area falling on a surface to what the human eye can see. The light sensitivity of a camera is measured in Lux and indicates to what light level the camera will be able to record to.

- Direct sunlight is 100,000 – 130,000 Lux
- Daylight is 10,000 – 20,000 Lux
- An overcast day is 1,000 Lux
- An office is around 200 – 400 Lux
- Twilight is 10 Lux
- Full moon is 0.1 Lux
- Quarter moon is 0.01 Lux
- No moon in a clear night sky is 0.001 Lux

167. **What is the difference between video driver and a DC driver in an auto iris lens?**

Auto iris lenses need a driving circuit to control and operate a motor to adjust the aperture range in accordance to varying light conditions. The driving circuit can be placed on either the camera lens or inside the camera itself. For video driver function, the control circuit is found on the camera lens. DC driver function camera has the control circuit built-in in the camera itself. Depending on the type of lens and camera you are using, you should always set it to the correct setting in order for the auto iris function to operate correctly.

168. **What is the maximum length I can pull my cameras away from the DVR?**

Using RG59 Coaxial cable, the maximum distance is approx. 600 feet away from the DVR and up to 1,000 feet using RG6 Coax. For longer distances, a video amplifier should be used.

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Network-attached storage (**NAS**) is a file-level computer data storage server connected to a computer network providing data access to a heterogeneous group of clients. NAS is specialized for serving files either by its hardware, software, or configuration. It is often manufactured as a computer appliance – a purpose-built specialized computer. NAS systems are networked appliances which contain one or more storage drives, often arranged into logical, redundant storage containers or RAID.

170. **How do choose the correct camera?**

This in general is a comparatively difficult decision. Many aspects of the installation must be taken into consideration in order to obtain the correct performance that meets your requirements.

- A high-resolution camera should be considered where greater detail of scene is required. E.g. Color 460 TVL, Monochrome 570 TVL. Choosing a more sensitive camera will improve reproduction in poorly lit areas. The sensitivity of a camera is indicated by the minimum amount of light in order for the camera to produce a usable picture. e.g. Color 1.0 Lux at F1.2.

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The most common resolve to this is to ensure that both camera and lens are the same mount i.e. 'CS' mount lens on a 'CS' mount camera and a 'C' mount lens on a 'C' camera.

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174. **How do back focus a camera fitted with a fixed focal length lens?**
This is achieved by following five simple steps.
- Set the physical focus of the lens to infinity (clockwise from the front).
- Aim the camera at the subject to be viewed.
- Release the camera back focus mechanism.
- Adjust the back focus to obtain the best possible picture.
- Secure the cameras back focus mechanism.

175. **How a 1/3" Lens to a 1/2" cab be fit in a camera?**
The simple answer is NO.

176. **How does an Auto Iris lens connect to a camera?**
This is usually performed by a simple plug-in connection to the rear or side of the camera.

177. **Does the 'f' stop matter when choosing a lens?**
Yes, lenses are usually specified as having a minimum and maximum 'f' stop rating; the 'f' stop is a measure of how efficiently the lens allows light from the scene, to pass through the lens and onto the camera CCD sensor. The maximum aperture (when the lens is fully open), is the minimum 'f' stop number and the minimum aperture, (just before the lens completely closes) is the maximum 'f' stop number.

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- Adjust the back focus to obtain optimum clarity.
- Zoom the lens in to full telephoto and focus on a nearby object.
- Keep this object in view as you slowly zoom out and if all is set correctly it should remain in focus (track).
- Secure the back focus mechanism.

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The correct size monitor is dependent on its use e.g. the number of images to be displayed at any given time, the viewing distance and the available space.

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This is the end of line resistance of any CCTV system and this should be set to 75-ohm. Should you encounter any double image or ghosting this is more often than not caused by two pieces of equipment in series both having the 75-ohm switch set on. Only the last piece of equipment should be set at 75-ohm.

181. **Which pan and tilt unit should you use?**
The choice is wide and varied dependent on the system requirements. You may require Top mount, Side mount, 230V AC or 24V DC to name just a few.

182. **What type of illumination can you use with color cameras?**
Only lighting within the visible wavelength should be used with color cameras. Tungsten Halogen is often the recommended source of lighting.

183. **Can you use I/R Lamps with color cameras?**
The answer to this is a definitive NO. Color cameras are typically fitted with an IR cut filter and will not allow IR light in excess of 700Nm to pass resulting in the camera performing poorly in these circumstances.

184. **Do you have to use a Regulated Power Supply?**
In general, the answer is yes. Most manufacturers will recommend the use of such power supplies as standard with their equipment. You should always consult the manufacturer's specifications prior to the connection of any power supply.

185. **What is the maximum distance I can run 12vdc when powering a camera?**
This is a commonly asked question and there is no simple answer. Some manufacturers may recommend that their cameras can be run over (X) distance with (Y) cable. This however should still be considered as a general guide. Cable conductor size and installation route must also be taken into consideration. If you are unsure, we would recommend that you contact Technical Support for guidance.

186. **How can you eliminate ground loop faults?**
This can be achieved in a number of ways, the easiest of which is the installation of a Ground Loop Isolation Transformer. This is best installed at the monitor or recording end of the system.

187. **What is the correct level for a video picture?**
The correct level is 1-volt peak to peak. This can only be accurately set either with an oscilloscope or with a video level meter.

188. **How many types of optical fibers are there?**
Mainly there are three types of optical fibers-

- Step index optical fibers
- Multimode optical fibers
- Single mode optical fibers

189. **Which basic electronic components are used in producing light for fibre optics cables?**
The two basic electronic components in producing light for fibre optics cables are-

- LEDs
- LDs

190. **What is Cellular Network?**
Transmitting images over mobiles phone is an example of Cellular Network. A mobile phone with a modem socket, combined with a PC, can easily be equipped with software & hardware needed for wireless and mobile image transmission. With the digital cellular network, speed of up to 9600 Kb/s can be achieved when using the modem mode.

191. **What is RIPA?**

The Regulation of Investigatory Powers Act 2000, RIPA, stipulates how and in what circumstances Local Authorities can use covert investigation methods. In itself it does not give any powers to carry out such activities. Using RIPA ensures that Local Authority officers carry out covert activities compatibly with the European Convention of Human Rights and especially article 8 the right to respect for private and family life. The techniques can only be used where it is considered necessary to investigate a suspected crime or disorder and it is proportionate i.e. the seriousness of the offence outweighs the seriousness of the intrusion into privacy and whether the information can be obtained by other (less intrusive) means. Local Authorities can use three covert techniques:

- Directed Surveillance
- Covert Human Intelligence Source (CHIS)
- Communications Data

192. **What is POE injector?**

When the device is a switch, it is commonly called an endspan. Otherwise, if it's an intermediary device between a non **PoE** capable switch and a **PoE** device, it's called a midspan. An external **PoE injector** is a midspan device. The Power over Ethernet injector provides PoE power for a single IP camera or other device by "Injecting" DC power through the CAT5 Ethernet cable. This POE injector, also known as a PoE mid-span, connects via CAT5 Ethernet cable inline with your network switch or router.

193. **What is Drone camera?**

Drones are more formally known as unmanned aerial vehicles (UAV). Essentially, a drone is a flying robot. The aircraft may be remotely controlled or can fly autonomously through software-controlled flight plans in their embedded systems working in conjunction with GPS. UAVs have most often been associated with the military but they are also used for search and rescue, surveillance, traffic monitoring, weather monitoring and firefighting, among other things. **Drone** aerial photography allows you to capture that same kind of landmark footage, minus the Hollywood effects. Instead of relying on a film crew, you only need is a remote-controlled **drone**, otherwise called an unmanned aerial vehicle by hobbyists and camera equipment.

194. **What is VGA input?**

VGA Video provides a resolution of 720X400 pixels. In graphics mode, the resolution is either 640 X480(with 16 colors) or 320 X200(with 256 colors). The total palette of colors is 262,144. Since its introduction in 1987, several other standards have been developed that offer greater resolution and more colors.

195. **What is SDI?**

Serial Digital Interface is a digital broadcast television standard providing a lossless digital encoding of standard NTSC and PAL formats. **SDI** is used in Television stations, cable channels, and professional production Equipment.

196. **What is HDMI?**

HDMI (**High-Definition** Multimedia Interface) is a proprietary audio/video interface for transferring uncompressed video data and compressed or uncompressed digital audio data from an **HDMI**-compliant source device, such as a display controller, to a compatible computer monitor, video projector and digital television.

197. **What is DVI?**

Digital Visual Interface (**DVI**) is a video display interface developed by the Digital Display Working Group (DDWG). The digital interface is used to connect a video source, such as a video display controller to a display device, such as a computer monitor.

198. **Write about the video connectors/ports?**

Basically, there are so many connectors/ports are used for different video interfaces. Some main connectors/ports are following as-

- VGA connector/port is used for 2048X1536 pixel
- DVI connector/port is used for 2560X1600 and 3840X2400 pixel
- HDMI connector/port is used for 2560X1600 and 4096X2160 pixel

199. **What is HD SDI Convertor?**

It is an up/down cross-**converter** that converts between SD, **HD**, and 3G formats. It accepts VGA, **SDI**, and HDMI video inputs. It automatically converts to the selected output format, even when the video input changes.

200. **What is wireless CCTV system?**

Wireless CCTV system consist of wireless transmitter and receiver antennas and allow closed circuit cameras or IP security cameras to transmit a wireless signal using a 5.8 Ghz signal up to 4 miles. These systems are used in situations where cable dredging is not practical or is cost prohibitive. The wireless CCTV systems are new high performance digital wireless camera transmission systems. These wireless CCTV systems offer exceptional video data transmission using 5.8Ghz frequency. They are made for long distance outdoor use with a direct line of sight between the transmitting and receiving antennas.

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OBJECTIVE TYPE QUESTIONS

201. PTZ cameras are being used within a CCTV zone. What does PTZ stand for?
   a) Pan Tilt Zon
   b) Point Tilt Zoom
   c) Pan Tilt Zoom
   d) Point Tilt Zone

202. What does the Data Protection Act deal with?
   a) Personal Information
   b) All information
   c) Covert Surveillance
   d) Secret Information

203. Wide Dynamic Range activates command?
   a) ON 95
   b) ON 35
   c) ON 26
   d) None of these

204. Sharpness adjusting command is?
   a) ON 55
   b) ON 52
   c) ON 44
   d) None of these

205. What is the main reason for control room security?
   a) To keep the boss out
   b) To preserve confidentiality
   c) To keep out the Police
   d) To copy images for colleagues

206. DIGITAL ZOOM Lock off Command is?
   a) OFF 70
   b) OFF 80
   c) OFF 90
   d) None of these

207. To reset all setting, command is?
   a) SET 899
   b) ON 96
   c) OFF 90
   d) None of these

208. Command Lock Open, Command is?
   a) OFF 55
   b) OFF 52
   c) OFF 90
   d) None of these

209. Digital Zoom Lock command is?
   a) ON 19
   b) ON 35
   c) ON 80
   d) None of these

210. On Screen display selection command is?
   a) ON 68
   b) ON 60
   c) ON 65
   d) None of these

211. An IED is what?
   a) An improvised electrical device
   b) An internal electronic device
   c) An improbable economic discussion
   d) An improvised explosive device

212. You see well-known thieves on CCTV in the town centre, what would you do?
   a) Ignore them, they are not offending and not of interest
   b) Watch them closely all the time they are in town
   c) Ignore them until called by the Police
   d) Watch them but if no crime is committed move off to other views

213. What type of surveillance is carried out under RIPA?
   a) Covert
   b) Co-ordinated
   c) Focused
   d) Overt

214. Signs should be placed so that the public are aware that they are entering a CCTV zone. Which of these best describes the information a sign should contain?
   a) Picture of a camera only in black outline
   b) Picture of a camera and phone number of owners only
   c) Name, phone number of operators and reasons for cameras
   d) The reasons for cameras being installed

215. Night Mode Menu Command is?
   a) ON 56
   b) ON 14
   c) ON 44
   d) None of these

216. How long should images be kept once recorded?
   a) At least 31 days
   b) No more than 30 days
   c) At least 1 year
   d) As long as it is necessary

217. Play back a continuous Command is?
   a) ON 66
   b) ON 52
   c) ON 32
   d) None of these

218. When we produce images for evidence, we have to maintain continuity of evidence. This can be done by creating a---?
   a) Evidence trail
   b) Evidence queue
   c) Audit Trail
   d) Audit queue

219. A hazard can best be described as---?
   a) A computer left on overnight
   b) A camera that is not responding
   c) An office with fluorescent lighting
   d) Anything that has the potential for causing harm

220. What type of firefighting method would you use for a chip fat fire?
   a) Fire Blanket
   b) Powder
   c) C02
   d) Water

221. Which cable is used in joystick to control autodome camera
   a) Power cable
   b) Data cable
   c) Video cable
   d) None of these

222. Which equipment is used to control manual camera
   a) Joystick
   b) Self
   c) DVR
   d) None of these

223. How does focus of a semi manual camera adjust?
   a) Self
   b) By Joystick
   c) By focus
   d) None of these

224. Which accessory is used to safeguard manual camera from environmental effects?
   a) Polythene
   b) Cloth
   c) Housing
   d) None of these

225. Which cable does not use in operation of manual camera
   a) Power cable
   b) Data cable
   c) Video cable
   d) None of these

226. What is the full form of C.C.D.?
   a) Camera Checking device
   b) Colour Camera device
   c) Charged coupled device
   d) None of these

227. C-Mos is
   a) Electrical spike
   b) Imager
   c) Data Decoder
   d) None of these

228. Impedance of video cable is
   a) 150 ohm
   b) 90 ohm
   c) 75 ohm
   d) None of these

229. Which cable is not used in installation of CCTV system?
   a) RG-01
   b) RG-06
   c) RG-11
   d) None of these

230. Which metal is used in live wire/main core of video cable?
   a) Silver
   b) Brass
   c) Iron
   d) None of these

231. Advanced Menu set up command is?
   a) ON 46
   b) ON 80
   c) ON 47
   d) None of these

232. Focus control Command is?
   a) ON 4
   b) ON 8
   c) ON 10
   d) None of these

233. Which of the following could be a crime hotspot?
   a) A well-lit communal area
   b) Your control room
   c) A locked and secure warehouse
   d) An abandoned building

234. Which of the following would not be suspected of being an IED?
   a) Clear packaged sandwich
   b) Unaccompanied briefcase
   c) Unaccompanied hold all
   d) Clear box with a marzipan type substance in it

235. How many tour programs can be form in AUTODOME (BOSCH) camera?
   a) One
   b) Two
   c) More than three
   d) None of these

236. What is fast address?
   a) Change ID from DOME CAMERA
   b) Change ID from Key Board
   c) Change ID from Software
   d) None of these

237. Using command. Function command on 999 enter is?
   a) Fast address command
   b) Focus variation command
   c) Iris variation command
   d) None of these

238. What is Password edit command
   a) Function command 100
   b) Function command 999
   c) Function command 802
   d) None of these

239. Restore camera setting command is?
   a) ON 20
   b) ON 40
   c) ON 44
   d) None of these

240. Back light compensation command is?
   a) On 57 ENTER
   b) ON 20 ENTER
   c) ON 11
   d) None of these

241. Night Mode setting command is
   a) ON 50 Enter
   b) ON 57 Enter
   c) ON 81 Enter
   d) None of these
242. Command lock mode?
   a) ON 90
   b) ON 56
   c) ON 82
   d) None of these
243. Display Software Version number command is
   a) OFF 65
   b) ON 66
   c) ON 54
   d) None of these
244. What is video output?
   a) 2V, p-p
   b) 1V, p-p
   c) 1.5V, p-p
   d) None of these
245. Video signal to noise
   a) 45 dB
   b) 50 dB
   c) 60 dB
   d) None of these
246. A CCTV operator can monitor groups of people because
   a) Of their age
   b) They are acting suspiciously
   c) Of their ethnic origin
   d) They are wearing hooded tops 2:1, interface
247. Horizontal resolution in DVR
   a) 540 TV lines
   b) 550 TV lines
   c) 555 TV lines
   d) None of these
248. High resolution recording
   a) 720X480 pixel
   b) 720X720 pixel
   c) 480X480 pixel
   d) None of these
249. Image sensor is used in DVR
   a) 1/2" progressive scan CCD
   b) 1/3" progressive scan CCD
   c) 1/4" progressive scan CCD
   d) None of these
250. Clear full moon in lens is
   a) 0.1 lux
   b) 0.2 lux
   c) 0.3 lux
   d) None of these

251. During a bomb alert a CCTV operator can assist the army by:
   a) Monitoring the surrounding area to warn of potential attack
   b) Turning off the camera as it is a sensitive situation
   c) Turning off the recorders to prevent a court appearance
   d) Monitoring usual sear patterns away from the incident

252. What does IED stand for?
   a) Improvised expensive device
   b) Implemented explosive devices
   c) Improvised explosive device
   d) Introduced explosive device

253. Which organization might a control room have a direct communication link with?
   a) HM Prison Service
   b) Police
   c) Ambulance Service
   d) HM Revenue and Customs

254. On receiving a telephone call stating that an IED is located in the control room, CCTV operators should:
   a) Leave the building immediately
   b) Discuss whether it is likely to be a hoax
   c) Search the control room for unusual items
   d) Use their radio to contact other members of the team

255. What is the name of the device that allows four surveillance camera images to be viewed on a monitor at the same time?
   a) A video splitter
   b) A modulator
   c) A quad switcher
   d) A photoelectric sensor

256. Which type of jack is required to be installed to allow the security system to seize the line when an alarm condition exists?
   a) RJ-11x
   b) RJ-45
   c) RJ-12
   d) RJ-31x

257. Which TIA/EIA standard describes the requirements for residential security system cabling?
   a) 568-A
   b) 568-B
   c) 570-A Addendum 1
   d) 570-A Addendum 3

258. What is the term used to describe the amount of light required to obtain a reasonable image with a surveillance video camera?
   a) Lux rating
   b) Candlepower rating
   c) Resolution
   d) Pixels

259. How many wires are normally required for connecting a passive sensor to the control panel?
   a) 1
   b) 4
   c) 2
   d) 3

260. Which type of sensor is used for door installations?
   a) PIR
   b) Contact sensor
   c) Active
   d) Magnetic switch

261. Which types of cable are used when installing video surveillance components?
   a) RG-6 and RG-58
   b) RG-8 and RG-59
   c) RG-59 and RG-6
   d) RG-59 and RG-58

262. What is the minimum separation required between security wiring and AC power wiring when they are installed in parallel wire runs?
   a) 18''
   b) 8"
   c) 6''
   d) 12''

263. Which type of residential location is typically classified as a perimeter security location when designing a security system?
   a) Doors & Windows
   b) Basements
   c) Driveways
   d) None of these

264. Direct Drive lens is
   a) One that automatically adjusts its iris for changes in the scene lighting levels
   b) One that automatically adjusts its distance according to the scene
   c) One that automatically adjusts its coverage according to the scene
   d) None of these

265. Auto Iris lens is
   a) One that can automatically adjust the changes in the scene lighting levels
   b) One that cannot automatically adjust the changes in the scene lighting levels
   c) One that automatically adjusts its coverage according to the scene
   d) None of these

266. Simplex multiplexers can
   a) Not display multi-screen images while in the record mode.
   b) Display multi-screen images while in the record mode.
   c) Display only two screen images while in the record mode.
   d) None of these

267. Duplex multiplexers can
   a) Provide screen splits and user selectable images without affecting.
   b) Not provide screen splits and user selectable images without affecting.
   c) can provide user selectable recordings
   d) None of these

268. Digital CCTV system is
   a) The technology remotely used in modern surveillance systems via internet
   b) The technology remotely used in modern surveillance systems without internet
   c) The technology used in modern surveillance systems via wires and cables
   d) None of these

269. The speed of "Light" is
   a) 3000 km/second
   b) 30000 km/second
   c) 300000 km/second
   d) None of these

270. Ground loop is
   a) Interference on the signal, usually in the form of dark bands across the monitor due to DC current produce in the cable
   b) Interference on the signal, usually in the form of dark bands across the monitor due to AC current produce in the cable
   c) Interference on the signal, usually in the form of dark bands across the monitor
   d) None of these

271. Which country has the most CCTV cameras per person than any other country?
   a) Australia
   b) Europe
   c) India
   d) United Kingdom

272. It is illegal to work in security without a SIA license?
   a) False
   b) True
   c) Not necessary
   d) None of these

273. The specific cameras that need to be selected should be based on
   a) Price of the camera
   b) Field of View, lighting conditions & the mounting location of the camera
   c) Specification of the cameras
   d) None of these

274. The quality of a DVR depends on
   a) It's manufacturing company
   b) It's price
   c) It's number of channels, size of hard disk & speed of recording
   d) None of these

275. To focus the views, we move the camera with …….
   a) DVR
   b) Monitor
   c) Joystick
   d) None of these

276. "Pixel" derived from the words …….
   a) Picture element
   b) Picture elegant
   c) Picture emerge
   d) None of these

277. "Pixel" is the basic unit of
   a) Size of a computer display or in a computer image
   b) Programmable color on a computer display or in a computer image
   c) Color brightness and shining of an image
   d) None of these

278. Fixed camera is
   a) A photographic lens for which the focus is adjustable
   b) A photographic lens for which the focus is not adjustable
   c) A photographic lens
   d) None of these

279. Manual camera is
   a) All controls of camera used manually
   b) All controls of camera used automatically
   c) No controls on camera
   d) None of these

280. "Resolution" is
   a) Total number of color of an image
   b) The size of an image
   c) The number of Pixels of an image
   d) None of these

281. Semi manual camera is
   a) All level control by manually
   b) Only iris level controlled by camera and rest is control by manually
   c) Only iris level controlled by camera and rest are not control by manually
   d) None of these

282. Lens is a
   a) Thermo optical equipment
   b) Optical equipment
   c) Semi optical equipment
   d) None of these

283. C-MOS image sensor is
   a) A type of active pixel sensor made using the MOSFET semiconductor process
   b) A type of de-active pixel sensor made using the CMOS semiconductor process
   c) A type of active pixel sensor made using the CMOS semiconductor process
   d) None of these

284. Auto dome Camera is
   a) Iris and Focus level are not controlled automatically
   b) Iris and Focus level are controlled automatically
   c) Iris and Focus level are controlled semi-automatically
   d) None of these

285. CCTV systems are
   a) Closed-circuit systems, designed to provide video to specified viewers
   b) Closed-circuit systems, designed to keep watch activities of many points
   c) Closed-circuit systems, designed to provide safety
   d) None of these

286. Types of CCTV cameras used in U.P. Police are
   a) Manual camera, Semi-manual camera & Autodome camera
   b) Manual camera, Semi-manual camera, Autodome camera & I.P. based camera
   c) Only manual camera
   d) None of these

287. How many ways of storage used to preserve video in CCTV
   a) VCR & DVR
   b) Floppy drive & Pen drive
   c) DVD & CD
   d) None of these

288. Monitors are used in CCTV
   a) Only CRT
   b) CRT & LCD
   c) CRT, LCD & LED
   d) None of these

289. Full form of NVR is
   a) Network Video Recorder
   b) Network Voice Recorder
   c) Network Views Recorder
   d) None of these

290. NVR is
   a) A software program that records video in both analog/digital format
   b) A software program that records video in an analog format
   c) A software program that records video in a digital format
   d) None of these

291. Spot monitor is
   a) D.V.R. allows to Spot monitor for monitoring the live camera Channel from distance.
   b) D.V.R. allows to Spot monitor for monitoring the camera Channel from distance.
   c) D.V.R. allows to Spot monitor for monitoring the live/recorded camera Channel from distance.
   d) None of these

292. What do you mean by logging list of DVR?
   a) The System log provides a list of activities done by operator.
   b) The System log provides a list of events by description, date, and time.
   c) The System log provides a list which shows when system was on & off.
   d) None of these

293. The system log icon looks like
   a) Open book
   b) Closed book
   c) Briefcase
   d) None of these

294. The system information icon shows
   a) System and hard disk information
   b) Camera information
   c) DVR information
   d) None of these

295. Hardware Compression in CCTV means
   a) Capturing Video Signal are done by DSP chipset of DVR
   b) Capturing Video Signal and Compressing Video Signal are done by DSP chipset of DVR
   c) Compressing Video Signals are done by DSP chipset of DVR
   d) None of these

296. Software Compression in CCTV means
   a) Capturing Video Signals are done by DSP chipset of DVR
   b) Compressing Video Signal are done by CPU of computer
   c) Compressing Video Signal are done by DSP chipset of DVR
   d) None of these

297. What should be the parameters to buy a best CCTV camera
   a) High-resolution & sensitivity
   b) High-resolution & size
   c) Manufacturing Company
   d) None of these

298. What equipment is being used when we have to set up a camera in low light conditions?
   a) ND1(Neutral Density) filter in front of the lens
   b) ND1(Neutral Density) filter in back of the lens
   c) ND1(Neutral Density) filter in side of the lens
   d) None of these

299. Why does a clear sharp picture during the day and it is out of focus at night?
   a) Due to the width of field changing as the light conditions change
   b) Due to the height of field changing as the light conditions change
   c) Due to the depth of field changing as the light conditions change
   d) None of these

300. What can be maximum length between CCTV cameras and the DVR?
   a) Using RG59 Coaxial cable, the maximum distance is approx. 500 ft.
   b) Using RG59 Coaxial cable, the maximum distance is approx. 600 ft.
   c) Using RG59 Coaxial cable, the maximum distance is approx. 700 ft.
   d) None of these

301. Which cable is used to put CCTV cameras beyond 600 feet from the DVR?
   a) RG4 Coaxial cable
   b) RG5 Coaxial cable
   c) RG6 Coaxial cable
   d) None of these

302. What is to do if we have to put CCTV cameras 1000 feet away from the DVR?
   a) Use video amplifier
   b) Use signal amplifier
   c) Use digital amplifier
   d) None of these

303. How do we connect an Auto Iris lens to a camera?
   a) By simple plug-in connection to the front or side of the camera
   b) By simple plug-in connection to the back or side of the camera
   c) By simple plug-in connection to the mid of the camera
   d) None of these

304. The size of monitor depends on
   a) The number of images to be displayed
   b) The number of images to be displayed & viewing distance
   c) The number of images to be displayed, viewing distance & available space
   d) None of these

305. Video Termination is
   a) The end of line resistance of any CCTV system and this should be set to 50 ohm
   b) The end of line resistance of any CCTV system and this should be set to 75 ohm
   c) The end of line resistance of any CCTV system and this should be set to 100 ohm
   d) None of these

306. What IP rating for camera housing should I use?
   a) IP54
   b) IP55
   c) IP56
   d) None of these

307. What is the correct level of voltage for a video picture?
   a) 1-volt peak to peak
   b) 2-volt peak to peak
   c) 3-volt peak to peak
   d) None of these

308. How to set correct level for a video picture?
   a) With a signal generator
   b) With a multimeter
   c) Either with an oscilloscope or with a video level meter
   d) None of these

309. NTSC stands for
   a) National Television Standards Committee
   b) National Telecommunication Standards Committee
   c) National Television Student Committee
   d) None of these

310. PAL stands for
   a) Past Alternate Line
   b) Present Alternate Line
   c) Phase Alternate Line
   d) None of these

311. NTSC system is
   a) The colour video signal television Standard: 520 lines, 50Hz
   b) The colour video signal television Standard: 525 lines, 60Hz
   c) The colour video signal television Standard: 530 lines, 70Hz
   d) None of these

312. PAL system is
   a) The colour video signal television standard: 615 lines, 50Hz
   b) The colour video signal television standard: 620 lines, 50Hz
   c) The colour video signal television standard: 625 lines, 50Hz
   d) None of these

313. Which CCTV system used in UP Police
   a) Wire based CCTV system & IP based CCTV system
   b) Wireless CCTV system
   c) IP based CCTV system
   d) None of these

314. A Day and Night Camera is
   a) Able to provide video surveillance even at low levels of light.
   b) Not able to provide video surveillance even at low levels of light.
   c) Able to provide video surveillance only in day light.
   d) None of these

315. A day and night camera during the day, displays
   a) black & white video image
   b) Full colour video image
   c) Both a & b
   d) None of these

316. A day and night camera during the night, displays
   a) Black and white video image
   b) Full colour video image
   c) Both a & b
   d) None of these

317. IR camera is
   a) Able to capture video images in absolute darkness
   b) Able to capture black & white video images in absolute darkness
   c) Both a & b
   d) None of these

318. Full form of IR camera is
   a) Inter radius Camera
   b) Infra-red Camera
   c) Intra red Camera
   d) None of these

319. PC-based DVR is
   a) A special PC that has high storage capacity for recordings.
   b) A DVR that has able to recordings online.
   c) A personal computer that has been modified to work as a DVR.
   d) None of these

320. Embedded DVR is
   a) A machine has been manufactured specifically to record video input.
   b) A machine has been manufactured specifically to display video input.
   c) Both a & b
   d) None of these

321. OSD cameras
   a) Have a menu system
   b) Have a menu system within the camera assembly that can access functions.
   c) Both a & b
   d) None of these

322. OSD camera means
   a) On screen display camera
   b) On spot display camera
   c) On screen diode camera
   d) None of these

323. What do you mean by frames per second (fps)
   a) Relates to how many frames the DVR can record in a second
   b) Relates to how many pictures the DVR can record in a second
   c) Both a & b
   d) None of these

324. Real time recording is
   a) 30 fps
   b) 35 fps
   c) 40 fps
   d) None of these

325. MPEG compression method can be divided into
   a) H.263
   b) H.263, MPEG
   c) H.263, MPEG, MPEG-II and MPEG-IV
   d) None of these

326. Simplex DVR
   a) Cannot playback recorded videos when it is recording.
   b) Can playback recorded videos when it is recording.
   c) Both a & b
   d) None of these

327. Duplex DVR is
   a) Not able to playback recorded footages without stop recording.
   b) Able to playback recorded footages without stop recording.
   c) Both a & b
   d) None of these

328. Storage capacity for recording of a CCTV system depends on
   a) The size of hard drive
   b) The size of hard drive & number of cameras
   c) The size of hard drive, number of cameras & recording mode
   d) The size of hard drive, number of cameras, recording mode, video compression

329. Storage capacity of recording of a CCTV system is depend on
   a) The size of hard drive
   b) The size of hard drive & number of cameras
   c) The size of hard drive, number of cameras & recording mode
   d) The size of hard drive, number of cameras, recording mode, video compression

330. CCTV also known as
   a) Video surveillance
   b) Audio surveillance
   c) Both a & b
   d) None of these

331. CCTV is
   a) Point to point coverage
   b) Point to point coverage & point to multipoint
   c) Point to point, point to multipoint or mesh wireless links
   d) None of these

332. The first CCTV system was installed by
   a) Siemens AG
   b) Siemens BG
   c) Siemens CG
   d) None of these

333. When and where the first CCTV system was installed
   a) America in 1943
   b) Australia in 1943
   c) Germany in 1942
   d) None of these

334. The first Commercial CCTV system is known as
   a) Bericon
   b) Vericon
   c) Fericon
   d) None of these

335. When did VCR technology become available
   a) In 1971
   b) In 1970
   c) In 1972
   d) None of these

336. Full form of ANPR
   a) Automatic number plate recognition
   b) Automatic number place recognition
   c) Automatic number plate reconfirmation
   d) None of these

337. What does thermo graphic camera do
   a) It allows operator to measure the temperature of the process
   b) It allows operator to measure the density of the process
   c) It allows operator to measure the humidity of the process
   d) None of these

338. Recordings through network of IP cameras is saved
   a) Directly to the DVR
   b) Directly to the server
   c) Both a & b
   d) None of these

339. Full form of CCDP is
   a) Closed circuit direct photography
   b) Closed circuit duplex photography
   c) Closed circuit digital photography
   d) None of these

340. Full form of VCR is
   a) Video cassette recorder
   b) Video camera recorder
   c) Video computer recorder
   d) None of these

341. Closed-circuit digital photography (CCDP) is more suited for
   a) Capturing and saving live high-resolution photographs
   b) Capturing and saving recorded high-resolution photographs
   c) Both a & b
   d) None of these

342. IP camera
   a) Transmits video in digital form.
   b) Transmits video across data networks in analog form.
   c) Transmits video across data networks in digital form.
   d) None of these

343. Wireless CCTV cameras require
   a) Only video cable
   b) Only power cable
   c) Both Video & Power cable
   d) None of these

344. Wireless CCTV cameras deliver
   a) A crispy audio
   b) A crispy audio & sharper video
   c) A crispy audio, sharper video & interference-free signal
   d) A crispy audio, sharper video, a secure & interference-free signal

345. Which section of DVR changes the incoming data from analog to digital
   a) MPEG-2 encoder
   b) MPCG-2 encoder
   c) Both a & b
   d) None of these

346. First of all incoming data from CCTV system goes to DVR's
   a) Built in tuning
   b) Built in tuner
   c) Built in rower
   d) None of these

347. DVR can usually record & play …… video formats
   a) MPEG-4,
   b) MPEG-4, MPEG-2
   c) MPEG-2 .mpg, VOB
   d) All of these

348. DVR can usually record & play …… audio formats
   a) MP3
   b) AC3
   c) MP3 & AC3
   d) None of these

349. Full form of NAS device is
   a) Network attached storage device
   b) Network along storage device
   c) Network alternative storage device
   d) None of these

350. Monochrome CCTV camera is a
   a) Colour camera
   b) Black & white camera
   c) Both a & b
   d) None of these

351. Main feature of Day & Night CCTV camera is
   a) That it continuously switches to colour mode if the light level falls below the range
   b) That it automatically switches to colour mode when the light level falls below the range
   c) That it automatically switches to Black & white mode when the light level falls below the range
   d) None of these

352. How many basic systems of CCTV are there in the world
   a) 3
   b) 4
   c) 5
   d) 6

353. The basic systems of CCTV in the world are
   a) PAL
   b) PAL, NTSC
   c) PAL, NTSC & SECAM
   d) None of these

354. Full form of RAID is
   a) Redundant array of inexpensive disks
   b) Redundant array of inexpensive disks
   c) Redundant array of independent disks
   d) Both b and c

355. The parameter of high resolution recording is
   a) 720X480
   b) 480X480
   c) 720X720
   d) None of these

356. Video balun is
   a) A type of step up transformer
   b) A type of step down transformer
   c) A type of impedance transformer
   d) None of these

357. Ghost effect occurs when
   a) Impedance of signals does not match
   b) Voltage of signals does not match
   c) Current of signals does not match
   d) None of these

358. Video balun is used to
   a) Display the view far away upto 50 feet
   b) Display the view far away upto 500 feet
   c) Display the view far away upto 5000 feet
   d) None of these

359. Basically CCTV cameras are used up to
   a) 500 TVL
   b) 520 TVL
   c) 540 TVL
   d) None of these

360. Now a days CCTV cameras are available in market up to
   a) Mega Pixel
   b) Mega Pixel
   c) Mega Pixel
   d) None of these

361. CCTV Camera which has fixed focal length is
   a) Dome camera
   b) Bullet camera
   c) Box camera
   d) None of these

362. CCTV Camera which has variable focal length is
   a) Dome camera
   b) Bullet camera
   c) Box camera
   d) None of these

363. CCTV Camera which is also known as "Nanny Cam" is
   a) Secret camera
   b) Bullet camera
   c) Box camera
   d) None of these

364. CCTV Camera which has optical zoom capability is
   a) Secret camera
   b) Bullet camera
   c) Box camera
   d) PTZ camera

365. "Iris" in CCTV cameras works like
   a) a human's eyes
   b) as a wiper
   c) both a and b
   d) PTZ cameras

366. "Iris" in CCTV cameras controls
   a) The incoming light through lens
   b) The incoming light through camera
   c) The incoming light through monitor
   d) None of these

367. "Auto Iris" in CCTV camera opens …….to control the brightness for clarity of picture
   a) Manually
   b) Semi automatically
   c) Automatically
   d) None of these

368. "Manual Iris" in CCTV cameras controls the brightness for clarity of picture
   a) Manually
   b) Semi automatically
   c) Automatically
   d) None of these

369. "In line Amplifier" is also known as
   a) Video equalizer
   b) Cable Compensators
   c) Video equalizer/ Cable Compensators
   d) None of these

370. "In line Amplifier" is used for
   a) Video transmission of distance longer than what is recommended
   b) Video transmission of distance near than what is recommended
   c) Video transmission of distance
   d) None of these
371. "Network" means
   a) Group of computers connected together
   b) Group of CCTV cameras connected together
   c) Group of DVR connected together
   d) None of these
372. Normally CCTV cameras get install at the height of
   a) 40 feet from ground
   b) 30 feet from ground
   c) 20 feet from ground
   d) None of these
373. The resistance of a video signal becomes
   a) 70 ohm
   b) 80 ohm
   c) 75 ohm
   d) None of these
374. The resistance of a Cat-5 cable becomes
   a) 70 ohm
   b) 75 ohm
   c) 80 ohm
   d) 100 ohm
375. H.26 Video compression changes
   a) Low resolution video data to high resolution video data
   b) High resolution video data to low resolution video data
   c) High resolution video data to HD resolution video data
   d) None of these
376. CCTV monitor is
   a) Like a TV which gets show the video signals coming through cameras
   b) Like a Projector which gets show the video signals coming through cameras
   c) Like a Screen which gets show the video signals coming through cameras
   d) None of these
377. The unit of focal length is
   a) m.n.
   b) m.m.
   c) n.m.
   d) None of these
378. "International protection rating" of a CCTV camera means
   a) Quality parameters
   b) Security parameters
   c) Safety parameters
   d) None of these
379. Which rating is treated as best CCTV camera according to "International protection rating"
   a) IP-63
   b) IP-64
   c) IP-65
   d) IP-66

380. Which rating is treated as best CCTV camera according to "International protection rating"?
   a) IP-63
   b) IP-64
   c) IP-65
   d) IP-66

381. CCTV cameras based on "Infrared Technology" have quality to
   a) Cover coloured pictures at day time and black & white picture during night
   b) Cover coloured pictures at day & night
   c) Cover black & white picture at day & night
   d) None of these

382. CCTV cameras based on "Infrared Technology" have quality to
   a) Cover coloured pictures at day time and black & white picture during night
   b) Cover coloured pictures at day & night
   c) Cover black & white picture at day & night
   d) None of these

383. "Lux" is the unit of
   a) Heat energy
   b) Light intensity
   c) Sound intensity
   d) None of these

384. Full form of "I.S.D.N." is
   a) Integrated Services Digital Network
   b) Inter State Digital Network
   c) International Services Digital Network
   d) None of these

385. Full form of "G.S.M." is
   a) Global System for Media
   b) Global System for Mobile
   c) Global System for Multimedia
   d) None of these

386. Full form of "A.D.S.L." is
   a) Asymmetric Digital Signal Line
   b) Asymmetric Digital Service Line
   c) Asymmetric Digital Subscriber Line
   d) None of these

387. "Video printer" is
   a) A device for converting a video signal to hard copy print out
   b) A device for converting an audio signal to hard copy print out
   c) A device for converting an image signal to hard copy print out
   d) None of these

388. "Video signal" means
   a) An electrical signal containing all of the elements of the video produced by camera
   b) An electrical signal containing all of the elements of the audio produced by camera
   c) An electrical signal containing all of the elements of the image produced by camera
   d) None of these

389. "Video switcher" means
   a) A device for switching more than one camera to more than one or more monitors
   b) A device for switching more than one camera to one monitor
   c) A device for switching more than one camera to more monitors
   d) None of these

390. "Video wall" means
   a) A video walls is a large screen made up of one small size monitor
   b) A video walls is a large screen made up of one big size monitor
   c) A video walls is a large screen made up of several monitors close to one another
   d) None of these

391. "Wavelet" means
   a) A particular type of video compression not suitable for CCTV
   b) A particular type of video compression especially suitable for CCTV
   c) A particular type of video compression
   d) None of these

392. Full form of "WUXGA" is
   a) Widezoom Ultra Extended Graphics Array
   b) Widescreen Ultra Extended Graphics Array
   c) Widesource Ultra Extended Graphics Array
   d) None of these

393. The resolution of HD video is
   a) 1920X1280 pixel
   b) 1640X1024 pixel
   c) 1920X1024 pixel
   d) None of these

394. Full form of "XGA" is
   a) Ex. Graphics Array
   b) Exterior Graphics Array
   c) Extended Graphics Array
   d) None of these

395. "Zoom ratio" means
   a) A mathematical expression of two extreme of focal lengths available for a zoom lens
   b) A mathematical expression of one extreme of focal lengths available for a zoom lens
   c) A mathematical expression of three extreme of focal lengths available for a zoom lens
   d) None of these

396. "Chroma gain" means
   a) In video, the gain of an amplifier
   b) In video, the gain of a booster
   c) In video, the gain of a DVR
   d) None of these

397. "Wide angle" lenses are
   a) That bigger in focal length which give a wide angle of view
   b) That thicker in focal length which give a wide angle of view
   c) That shorter in focal length which give a wide angle of view
   d) None of these

398. DVR can usually record & display …… image formats
   a) JPEG
   b) PNG
   c) JPEG & PNG
   d) None of these

399. Drone camera is also known as
   a) Unmanned aerial vehicles(UAV)
   b) Helicopter
   c) Both a & b
   d) None of these

400. Serial Digital Interface is a

a) Analog broadcast television standard providing a lossless digital encoding of standard NTSC and PAL formats Drone camera is also known as
b) Digital broadcast television standard providing a lossless digital encoding of standard NTSC and PAL formats Drone camera is also known as
c) Both a & b
d) None of these

ANSWER KEY

201	C	221	B	241	B	261	C	281	B	301	C	321	B	341	B	361	A	381	A
202	A	222	B	242	A	262	D	282	A	302	A	322	A	342	C	362	C	382	A
203	C	223	A	243	B	263	A	283	C	303	B	323	B	343	B	363	A	383	B
204	C	224	C	244	B	264	A	284	B	304	C	324	A	344	D	364	B	384	A
205	B	225	B	245	C	265	B	285	A	305	B	325	C	345	A	365	A	385	B
206	B	226	C	246	B	266	A	286	A	306	B	326	A	346	B	366	A	386	C
207	A	227	B	247	A	267	A	287	A	307	A	327	B	347	D	367	C	387	A
208	A	228	D	248	A	268	A	288	C	308	C	328	D	348	C	368	A	388	C
209	C	229	A	249	B	269	B	289	A	309	A	329	D	349	A	369	C	389	A
210	B	230	B	250	A	270	A	290	C	310	C	330	A	350	B	370	A	390	C
211	D	231	A	251	A	271	D	291	A	311	B	331	C	351	C	371	A	391	B
212	B	232	A	252	C	272	A	292	B	312	C	332	A	352	A	372	B	392	B
213	A	233	D	253	B	273	B	293	A	313	A	333	C	353	C	373	C	393	A
214	A	234	A	254	C	274	C	294	A	314	A	334	B	354	B	374	D	394	C
215	A	235	B	255	C	275	C	295	B	315	B	335	B	355	A	375	A	395	A
216	D	236	B	256	D	276	A	296	B	316	A	336	A	356	C	376	A	396	A
217	B	237	A	257	C	277	B	297	A	317	A	337	A	357	A	377	B	397	C
218	C	238	C	258	A	278	B	298	A	318	B	338	B	358	B	378	C	398	C
219	D	239	B	259	C	279	A	299	C	319	C	339	C	359	C	379	D	399	A
220	A	240	B	260	D	280	C	300	B	320	A	340	A	360	C	380	D	400	B

RECOGNIZE YOUR EQUIPMENTS

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ANSWER KEY

401.	Dome camera
402.	Bullet camera
403.	Box camera
404.	Secret camera
405.	PTZ camera
406.	DVR
407.	Monitor
408.	Joystick
409.	BNC connector
410.	Video baluns
411.	Video Amplifier
412.	24 Port switch
413.	Projector
414.	CPU
415.	Mouse
416.	Key board
417.	CRA connector
418.	Coaxial cable
419.	Lan connector
420.	Modem
421.	PTZ/Dome mount
422.	Box camera mount
423.	Network camera POE injector
424.	HD SDI converter
425.	Smoked dome cover
426.	HD wireless camera
427.	IP camera 720 Wi-Fi
428.	PCB lens 4 mm
429.	Mini quad switcher
430.	Ground loop isolator

ABBREVIATIONS

431.	**AVCHC**	Advanced Video Codec High Definition
432.	**AI**	Auto Iris
433.	**AVI**	Audio Video Interleave
434.	**AES**	Auto Electronic Shutter
435.	**AGC**	Automatic Gain Control
436.	**AWG**	American Wire Gauge
437.	**BLC**	Back Light Compensation
438.	**BNC**	Bayonet Nut Coupling
439.	**CAT-5**	Category 5 cable
440.	**CAT-6**	Category 6 cable
441.	**CDR**	Channel Data Register
442.	**CCD**	Charge Couple Device
443.	**C-MOS**	Complementary Metal Oxide Semiconductor
444.	**CCTV**	Closed circuit Television
445.	**DVI**	Digital Visual Interface
446.	**DVR**	Digital Video Recorder
447.	**DSLR**	Digital Single lens Reflector
448.	**FLV**	Flash Video
449.	**FPS**	Frames Per Second
450.	**GHZ**	Gigahertz
451.	**HD-CVI**	High Definition Composite Video Interface
452.	**HDMI**	High Definition Multimedia Interface
453.	**JPEG**	Joint Photographic Experts Group
454.	**MHZ**	Megahertz
455.	**MPEG**	Motion Picture Experts Group
456.	**NTSC**	National Television Standards Committee
457.	**NVR**	Network Video Recorder
458.	**PAL**	Phase Alternating Line
459.	**POE**	Power Over Ethernet

460.	**PSTN**	Public Switched Telephone Network
461.	**PTZ**	Pan Tilt Zoom
462.	**RG-59**	Co-axial Cable
463.	**RM**	Real Media
464.	**SDI**	Serial Digital Interface
465.	**SECAM**	Sequential Color with Memory
466.	**VCR**	Video Cassette Recorder
467.	**VGA**	Video Graphic Array
468.	**WDR**	Wide Dynamic Range
469.	**TVL**	Television Line
470.	**WMV**	Window Media Video


THE END